

Westchester County Clean Energy Summit: *Implications of NY's Climate Law & Scalable Solutions*

Thursday, March 5th, 2020
Pace Energy & Climate Center
White Plains, NY

#WCCleanEnergySummit



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energy.pace.edu

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New York League of Conservation Voters Education Fund

Our mission:

- Educate
- Engage
- Empower

Our programs:

- Nonpartisan candidate forums
- Policy forums
- Civic engagement campaigns



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Westchester County Clean Energy Summit: *Implications of NY's Climate Law & Scalable Solutions*

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Panel One:

New York's Climate Law: Goals and Implications for Westchester County

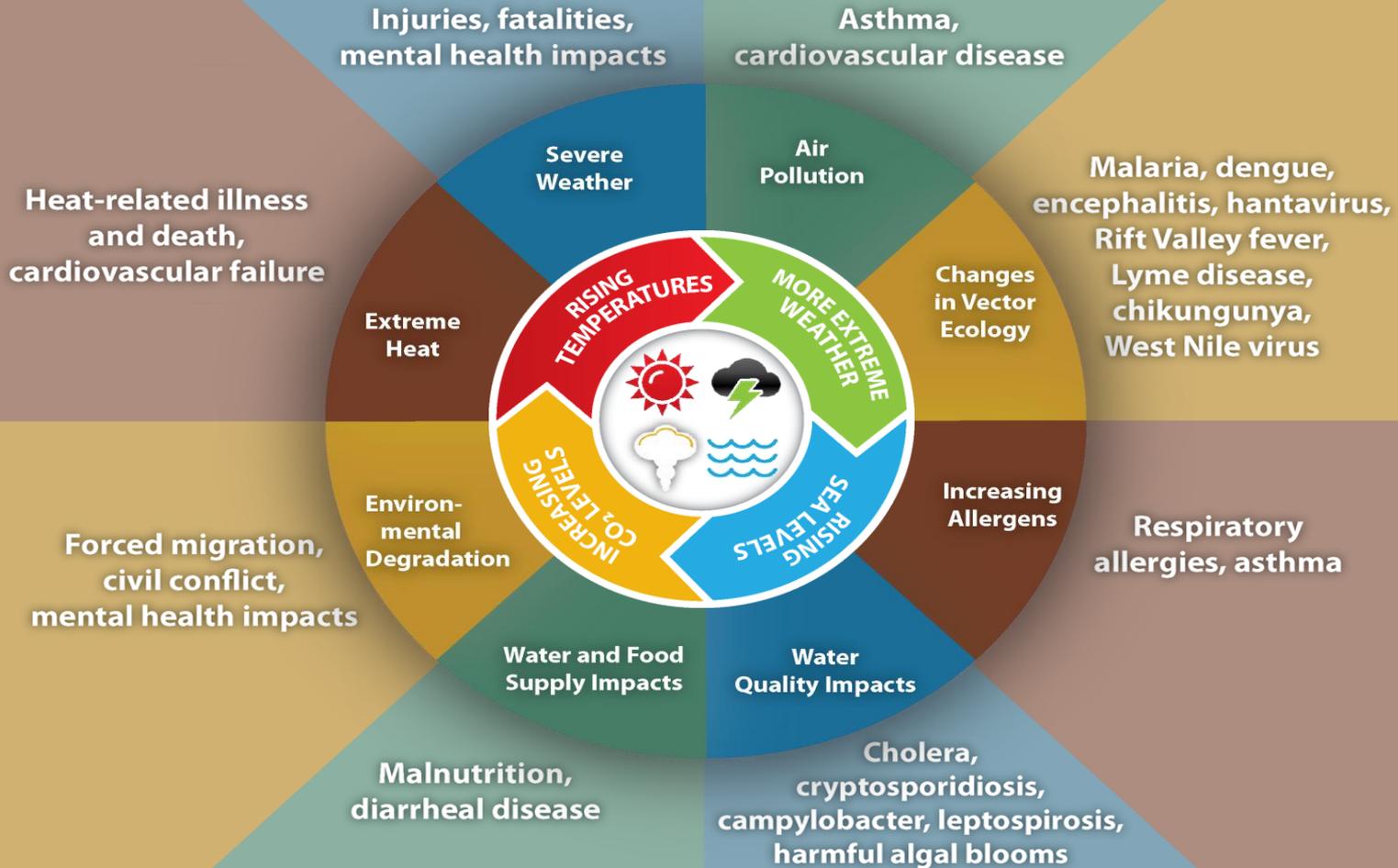
Moderator: Julie Tighe, President, NYLCV

Panelists:

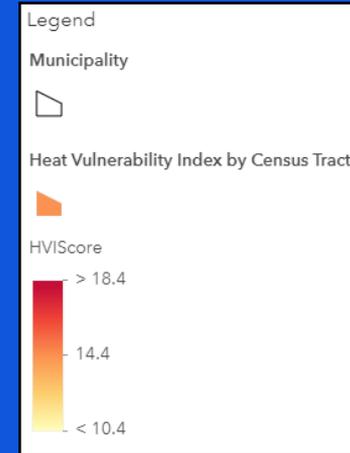
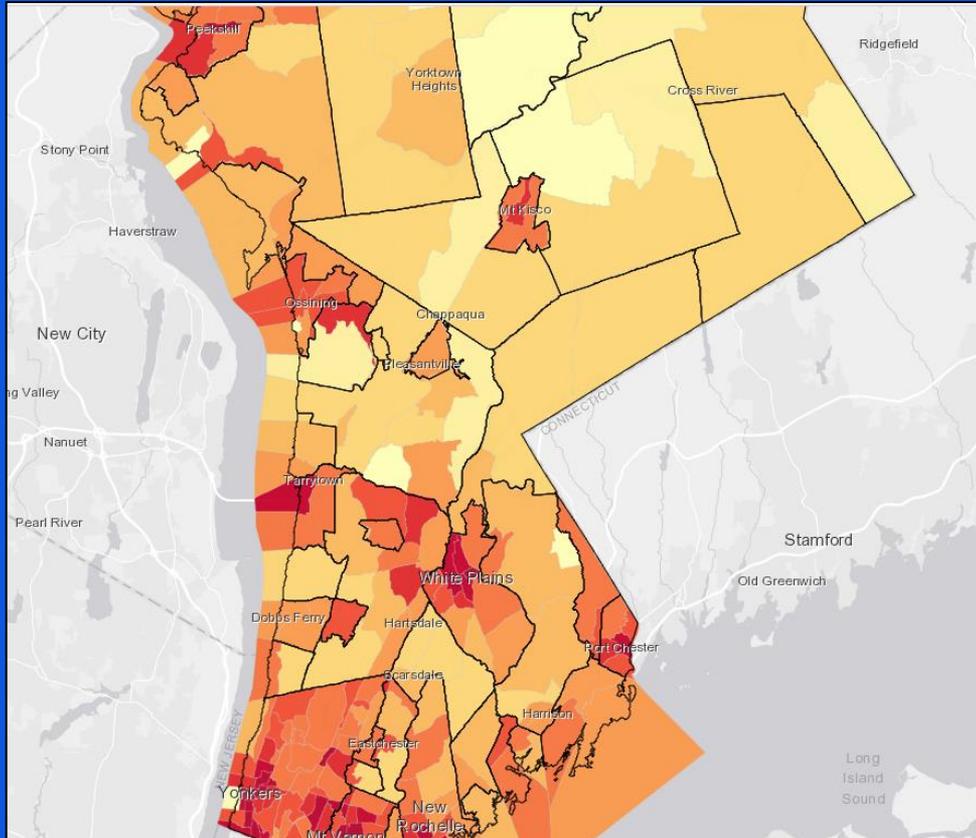
- Kara Allen, Senior Advisor, Policy and Regulatory Affairs, NYSERDA
- Peter McCartt, Director of Energy Conservation & Sustainability, Westchester County
- Nancy Seligson, Town Supervisor, Town of Mamaroneck
- Radina Valova, Senior Staff Attorney, Pace Energy & Climate Center
- Anjali Sauthoff, PhD, Independent Environmental Health Consultant

Connections between
environmental hazards, public
health and climate change

Impact of Climate Change on Human Health

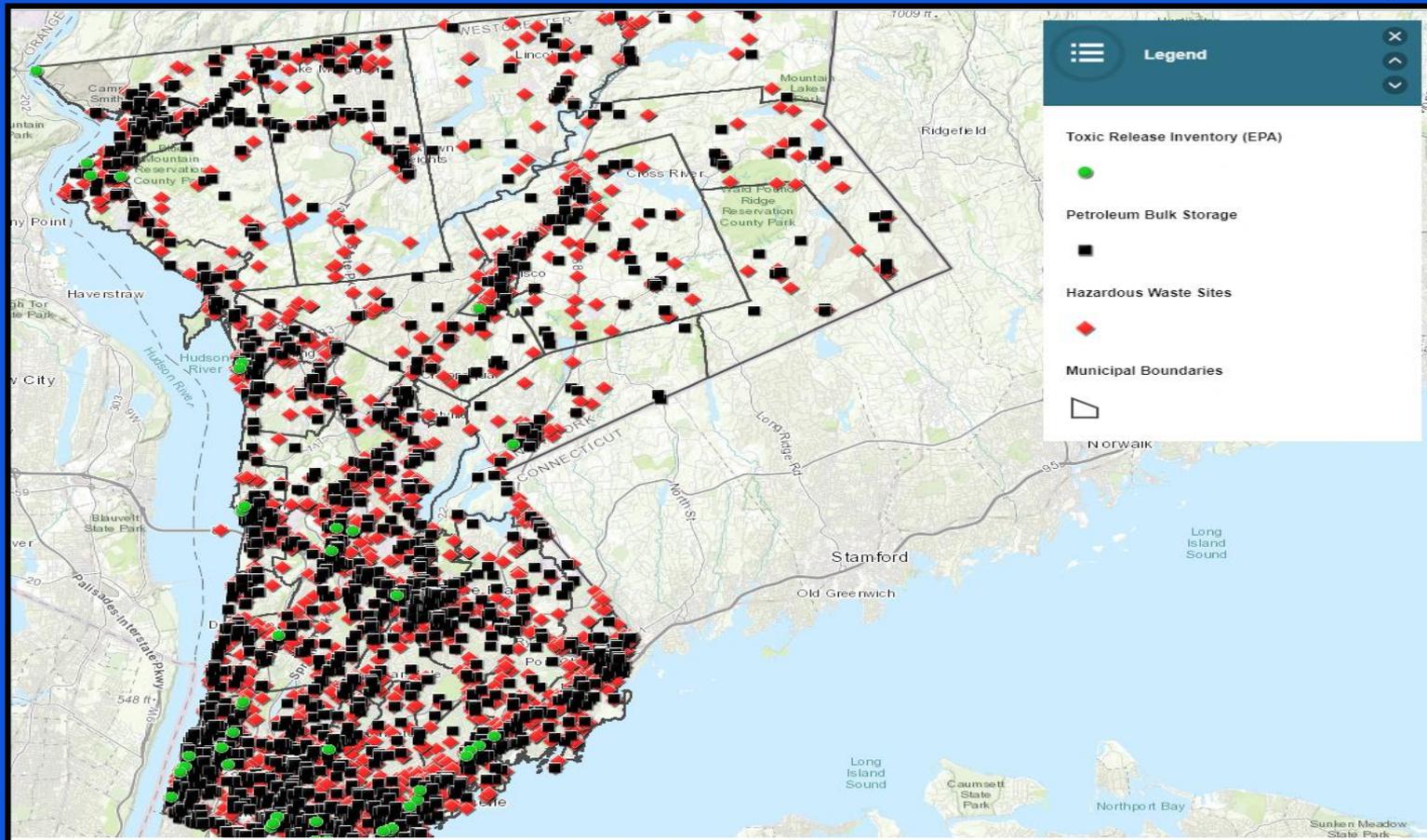


Heat Vulnerability in Westchester County



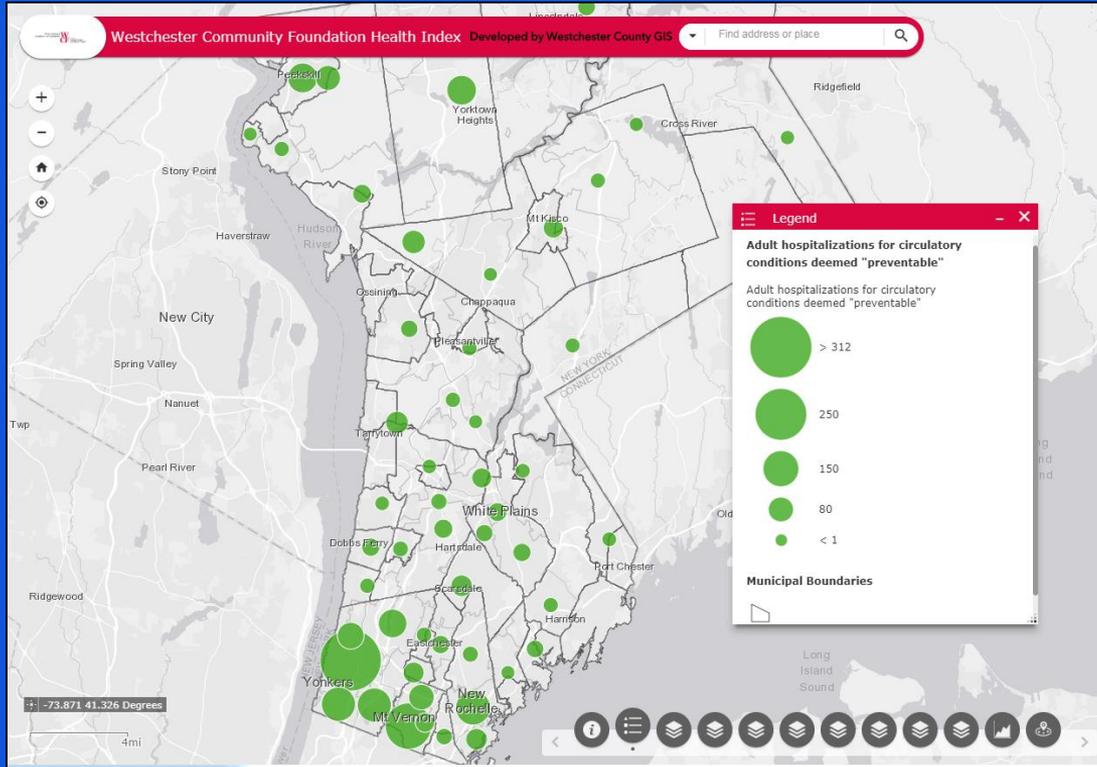
Disparity of Environmental Hazards in Westchester County

Environmental Hazards in Westchester County





Adult Hospitalizations for Circulatory Conditions Deemed “Preventable” in Westchester County (2015)



- Health outcomes are strongly influenced by SDH, including environmental exposures
- Direct and indirect influences must be considered
- SDH framework can help assess vulnerability and develop systemic resilience

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Panel Two:

Westchester Specific Solutions

Moderator: Craig Hart, Executive Director, Pace Energy & Climate Center

Panelists:

- Mark Brescia, Manager, Con Edison
- Vennela Yadhati, P.E. Business Development Engineer, NYPA
- Nina Orville, Director of Solar Programs, Sustainable Westchester
- Marilyn Dare, Senior Project Manager, NYSERDA
- Ryan Boniello, Operation & Sales, Boniello Development
- Thomas Bourgeois, Director, U.S. Dept of Energy's NY/NJ CHP Center
- Michel Delafontaine, DER & Business Development Director, Sustainable Westchester
- Brad Tito, Program Manager for Communities and Local Governments, NYSERDA

COMMUNITY SOLAR:

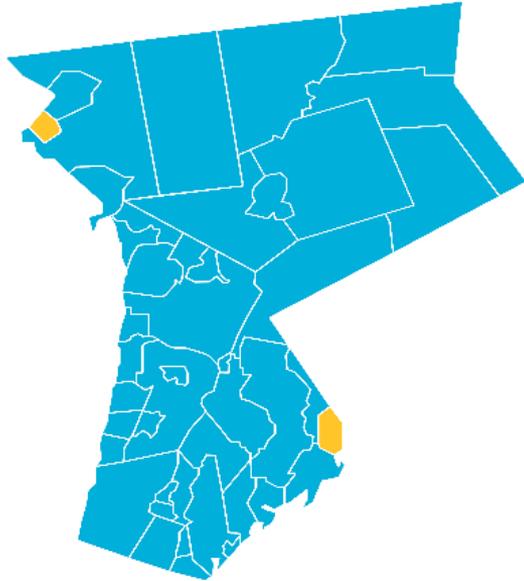
Expanding Access to Solar Benefits in Westchester

Nina Orville, Director of Solar Programs
Sustainable Westchester
February 26, 2020



SUSTAINABLE WESTCHESTER

Sustainable Westchester is a nonprofit, consortium of Westchester County local governments that facilitates effective collaboration on sustainability initiatives.



SUSTAINABLE WESTCHESTER MUNICIPAL MEMBERS

| | | | |
|------------------|--------------------|------------------|---------------|
| Ardsley | Hastings-on-Hudson | North Castle | Rye City |
| Bedford | Irvington | North Salem | Rye Town |
| Briarcliff Manor | Larchmont | Ossining Village | Scarsdale |
| Bronxville | Lewisboro | Ossining Town | Sleepy Hollow |
| Cortlandt | Mamaroneck Village | Peekskill | Somers |
| Croton-on-Hudson | Mamaroneck Town | Pelham Manor | Tarrytown |
| Dobbs Ferry | Mount Kisco | Pelham Village | Tuckahoe |
| Eastchester | Mount Pleasant | Town of Pelham | White Plains |
| Elmsford | Mount Vernon | Pleasantville | Yonkers |
| Greenburgh | New Castle | Pound Ridge | Yorktown |
| Harrison | New Rochelle | Rye Brook | |

PROGRAMS

Westchester Power (Community Choice Aggregation) – 115,000+ households in 27 municipalities. 24 opted for green/renewable power.

HeatSmart – displace fossil fuels for heating homes and commercial properties through use of heat pumps and energy efficiency (similar to Energize).

Community Solar – green the local grid and offer solar savings to more Westchester residents.

Zero Waste – support for municipalities to improve recycling and provide composting resources including Recycle Right App.

Clean Transportation – discounts on EVs, assistance securing charging infrastructure.

What if we could **expand access to solar benefits to everyone**, including renters?



What if we could make it possible for more organizations, including local governments, to install solar on their property?

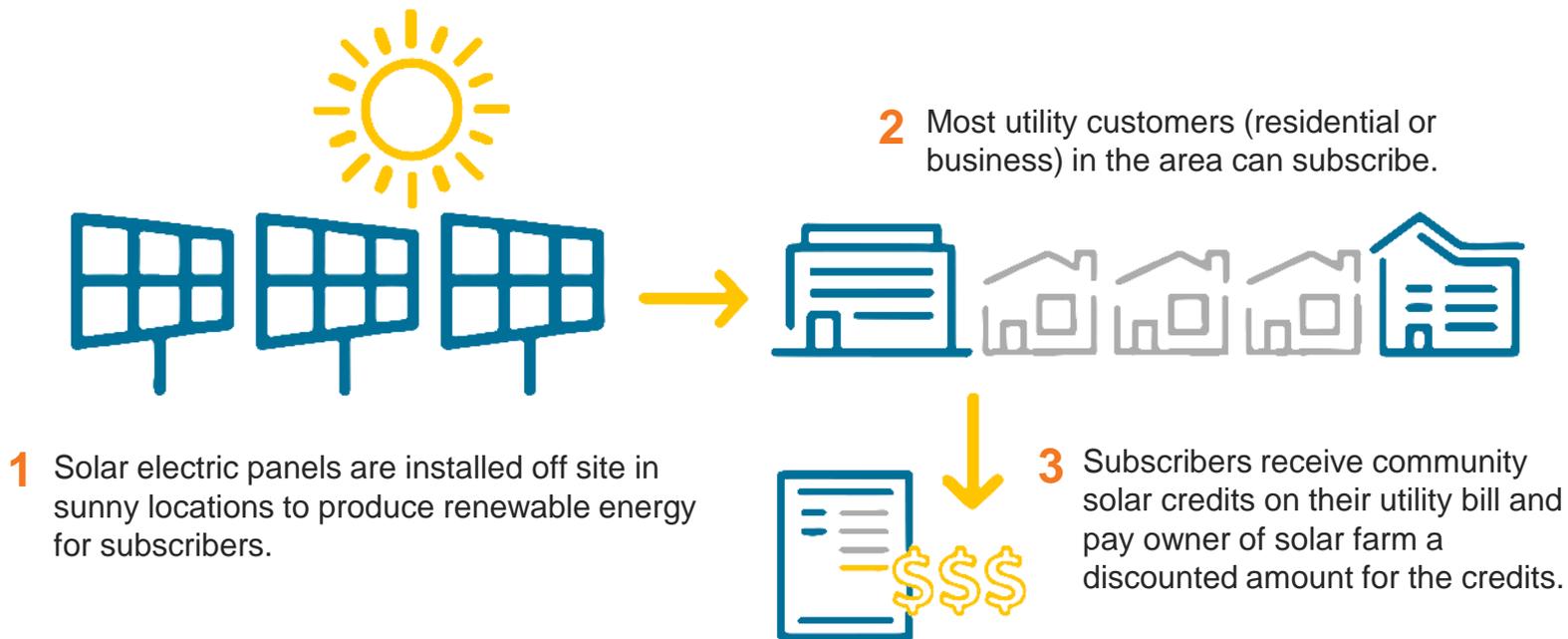


What if we could integrate an element of **guaranteed savings** into **other clean energy programs**?



COMMUNITY SOLAR:

ADDRESSES EQUITY/ACCESS AND CREATES OPPORTUNITY



SUBSCRIBER BENEFITS:

- Guaranteed savings (approximately **10%**)
- No upfront cost
- No solar installation
- Support new solar development
- Available to almost all residents (including renters), houses of worship and some small businesses.
- NYSEG municipalities can now enroll. Soon, ConEd munis can too.



HOST BENEFITS:

- No upfront cost
- Receive lease revenue
- Support new local solar development
- Create subscription opportunities for local community
- Anchor subscription opportunity (save 10%)



SUSTAINABLE WESTCHESTER COMMUNITY SOLAR

- Enrolling subscribers across Westchester in community solar farms/projects.
- Community solar campaigns (e.g. Mount Kisco, Bedford, New Rochelle, Lewisboro, North Salem, Pound Ridge, FCWC).
- Opportunity to integrate into Westchester Power program.



WWW.SOLARIZEWESTCHESTER.COM

SUSTAINABLE WESTCHESTER INTRODUCES
COMMUNITY SOLAR
Save Money, Go Green with Solar – Now Accessible To Everyone!

For ConEd Customers [✔ GET STARTED!](#)

For NYSEG Customers [✔ GET STARTED!](#)

COMMUNITY SOLAR LAUNCH!

Community Solar - Solarize Westchester



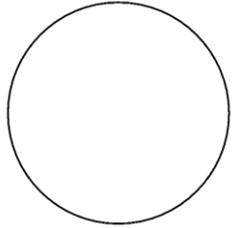
**NY Power
Authority**

Westchester Clean Energy Summit

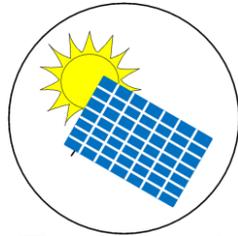
Community Solar Partnership

March 3, 2020

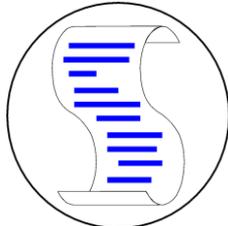
NYPA Clean Energy Advisory Services



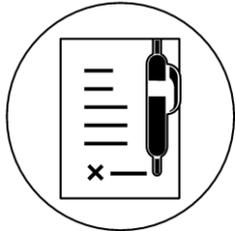
Finance



Technical



Policy



Contracts



Legal

Turnkey Advisory Services

- Streamlined program structure
- Policy and regulatory oversight
- Standardized contracts and pre-approved solar vendors
- Feasibility assessments (technical & economic)
- RFP development & proposal evaluation
- Specialized procurement administration process

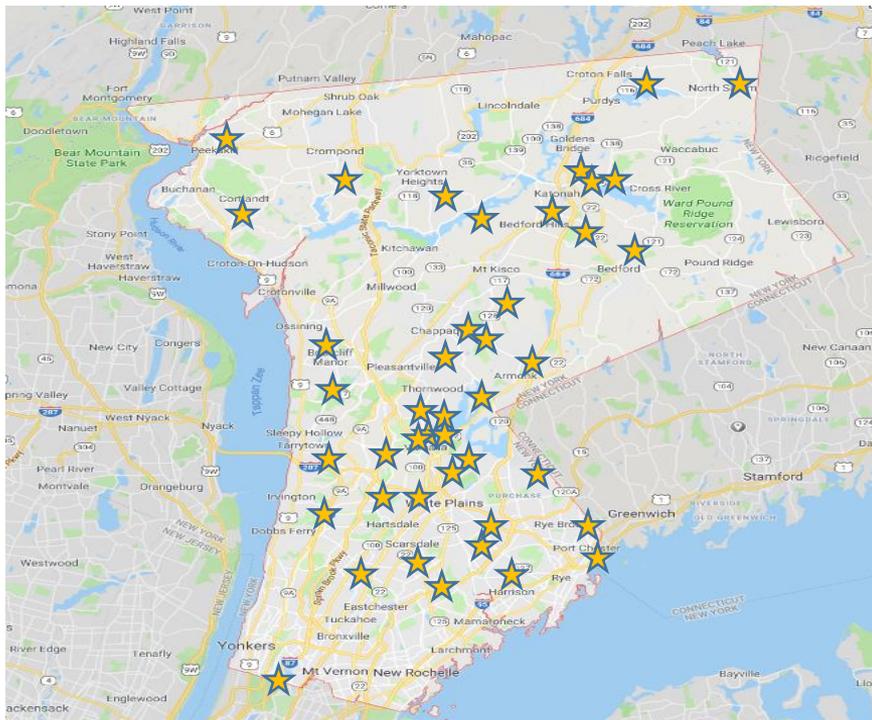
Streamlined Approach

Balancing Risk, Cost, & Effort

- **Timing vs. Pricing**
- **Streamlining Contracts**
- **Control vs. Risk**

| <u>Advantages</u> | <u>Advisory Services</u> |
|-------------------------------------|--------------------------|
| Removes major financing hurdles | ✓ |
| Allows for faster implementation | ✓ |
| Significant cost savings vs. Market | ✓ |
| Helps Customers reach energy goals | ✓ |
| NYPA oversight throughout | ✓ |

Case Study – Westchester County (Phase I)



- Over 200 properties assessed
- Shortlisted to 7 sites based on ease of implementation & schedule
- Approx. ~3MW of community solar
- Significant savings to the County



> 3,438
Tons/Year



> 650 Cars Off the Road

Case Study – City of White Plains

- Eight (8) different sites in the City
 - Parking garages
 - Rooftops
 - Landfill
- Significant savings to the City
- Focus on LMI subscribers receiving greater discounts
- Innovative carport technology that alleviates snowmelt runoff concerns



~500 Passenger Cars



>250 Homes' Energy Use for One Year



~2500Tons of Carbon Dioxide Reduction

Community Solar Partnership Benefits

- Partner with other entities with similar goals
- Utilize NYPA's streamlined processes as the trusted advisor
- Benefit from economies of scale
- Share access to clean energy with a wider community
- Enable job creation and development of local economy



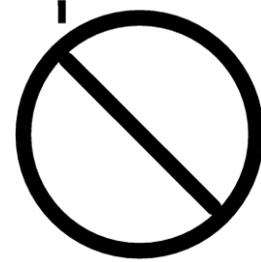
Eligible Entities



Local Governments



Public & Non-Public
K-12 Schools



Qualified Non-Profit
Organizations



Higher Education
Institutions



NYPA Economic
Development Customers

Program Structure

CUSTOMER



- Provides list of sites
- Authorizes NYPA to develop & issue RFP
- Participates in site walkthroughs and bid evaluations
- Negotiates & enters into lease agreement with developer

NYPA



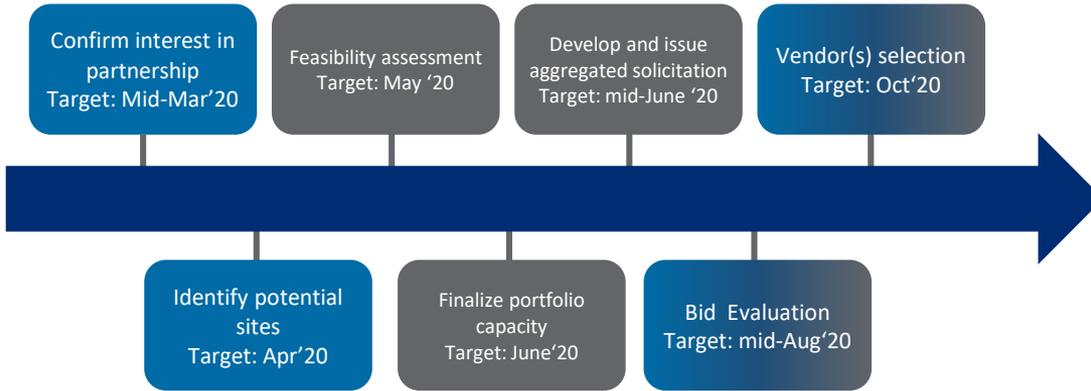
- Performs sites assessment
- Develops & issues RFP
- Procures developer
- Provides oversight and project management support

SPONSOR



- Responds to solicited RFP
- Negotiates & enters into lease agreement with customer
- Develops, designs, constructs, owns, and operates project
- Responsible for subscription management

Streamlined Process & Timeline



- Flexibility in RFP scope of work & requested pricing
 - Tiered pricing
 - Option for energy storage
- Evaluation of proposals
 - Flexibility to select more than one developer
- Standardized contract structure (lease agreement)
- Construction commencement target – Q3'21

Participate in the Program



Community Solar Partnership Symposium

Interested in partnering?

Are you interested in partnering in the community solar portfolio aggregation?

Yes Maybe No

Provide a list of your facilities where solar may be implemented:

| Site Name | Address | Owner | Type <small>(See Reverse)</small> | | |
|-----------|---------|-------|--------------------------------------|--------------------------|--------------------------|
| | | | Ground Mount | Parking Lot | Roof-top |
| _____ | _____ | _____ | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| _____ | _____ | _____ | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| _____ | _____ | _____ | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| _____ | _____ | _____ | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| _____ | _____ | _____ | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

The above is only a template. We will follow up to obtain a full list of potential sites to implement solar projects.

We have more potential sites: # _____

Who should we follow up with?

| Name | Organization | Email | Phone |
|-------|--------------|-------|-------|
| _____ | | | |

The New York Power Authority will follow up with a registration link to confirm your interest in this partnership. If you have any comments or questions, please reach out to Vennela Yadhati at solar@nypa.gov.





NYSERDA

Westchester Clean Energy Summit

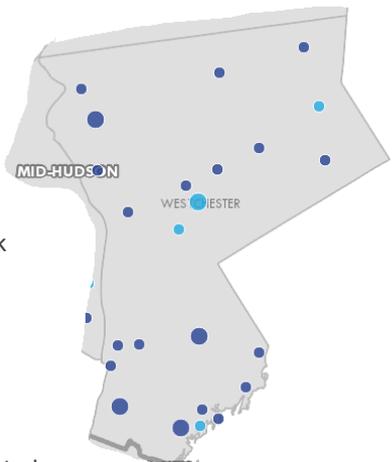
Brad Tito – Program Manager, Communities and Local Government

New York State Energy Research and Development Authority (NYSERDA)

Westchester County Snapshot

Clean Energy Communities in Westchester

City of New Rochelle
 City of Peekskill
 City of Rye
 City of White Plains
 City of Yonkers
 Town of Bedford
 Town of Cortlandt
 Town of Mamaroneck
 Town of New Castle
 Town of North Salem
 Town of Ossining
 Town of Pound Ridge
 Town of Somers
 Village of Ardsley
 Village of Croton-on-Hudson
 Village of Dobbs Ferry
 Village of Hastings-on-Hudson
 Village of Mamaroneck
 Village of Mount Kisco
 Village of Port Chester



- **Electricity** – 398,000 accounts and 6.3 million MWH/year
- **Natural Gas** – 243,000 accounts and 330 million therms/year
- **Fuel Oil** – 130,000 households and ~44.2 million gallons/year
- **Transportation** – 665,000 registered vehicles and ~294 million gallons of gasoline/year
- **NYSERDA Clean Energy Communities** - 24 local governments have completed 96 high-impact actions
- **Climate Smart Communities Certified** – Town of Mamaroneck, Town of Bedford, & Village of Pleasantville

Community Choice Aggregation (CCA)

- CCA allows local elected officials to choose where the energy comes from for their community.
- Enter into a bulk purchasing arrangement and competitively procure energy supplies with the help of a CCA Administrator.
- The purpose is to build market clout and negotiate better prices and terms on energy supply and other clean energy products and services.

Current Status of CCA in NYS

Operating CCAs

- 61 cities, towns, and villages in NYS with an active CCA
- ~170,000 residential and small commercial electricity accounts
- 38 municipalities are currently receiving 100% renewable energy as default supply
- Total Estimated load
 - 1.4 million MWH/yr
 - 850,000 MWH/yr of renewable energy

Approved CCA Administrators

- Sustainable Westchester
- Municipal Electric and Gas Alliance (MEGA)
- Good Energy
- Joule Assets



Thank You!

Brad Tito

Program Manager, Communities & Local Governments

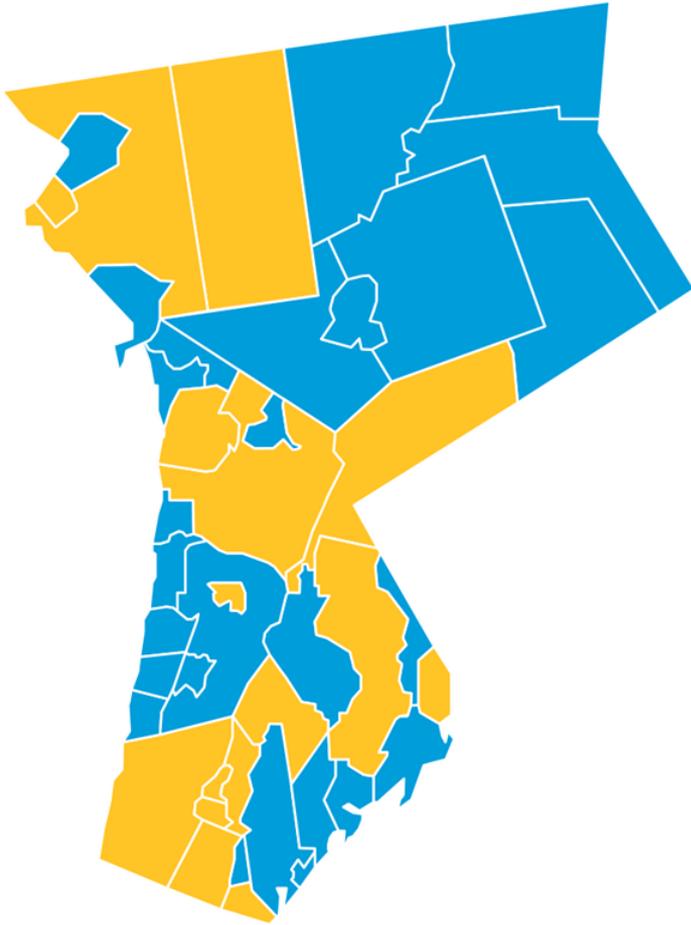
NYSERDA

P: 212-971-5342 x3545 | E: bradford.tito@nyserda.ny.gov

Communities and Local Government Team

New York State Energy Research and Development Authority (NYSERDA)

www.nyserda.ny.gov



WESTCHESTER POWER CCA

MUNICIPAL PARTICIPATION

Ardsey

Bedford

Croton-on-Hudson

Dobbs Ferry

Greenburgh

Hastings-on-Hudson

Irvington

Larchmont

Lewisboro

Mamaroneck Village

Mamaroneck Town

Mount Kisco

New Castle

New Rochelle

North Salem

Ossining Village

Ossining Town

Peekskill

Pelham Village

Pleasantville

Pound Ridge

Rye Brook

Rye City

Sleepy Hollow

Somers

Tarrytown

White Plains



SUSTAINABLE
WESTCHESTER

CREATING A DIRECT SUPPLY FOR THE CCA

- **County consumption:** 8.8 TWh thus **CLCPA 70% target:** 6.2 TWh
- **Required additional generation:** 3.7 TWh = **3.0 GW** equivalent solar capacity - These generators cannot be located in the County
- **Direct Supply:**
 - From Community Solar integration, bringing the benefits of the credits to the CCA subscribers. Possibilities of creating subsets of LMI.
 - From generators located in upstate New York: Sustainable Westchester will contribute to create new generation and contribute to the CLCPA goals
- **Congestion Costs:** Westchester County residents pay \$50 million per year
- **Sustainable Westchester exploring the benefits of the Empire State Connector:** Transmission from upstate New York to Brooklyn





THANK YOU!

Michel Delafontaine

Director, DER & Business Development

P: 914-242-4725 x107 | E: Michel@SustainableWestchester.org

Energy Efficiency Program Review

- Current Programs
 - Gas Demand Response
 - Residential
 - GSHP Program
 - Weatherization Program
 - Multi-family
 - Gas EE program
 - New Construction ASHP, Single Site
 - Advanced Energy Management Projects
 - Commercial
 - C&I Gas EE Program
 - Small Business and Business Energy Pro

<https://www.coned.com/en/save-money/rebates-incentives-tax-credits>

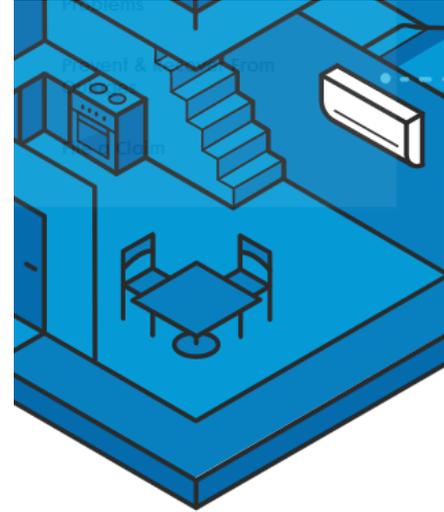
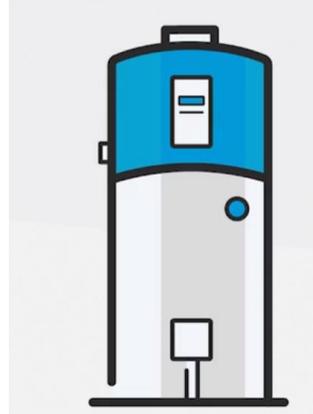
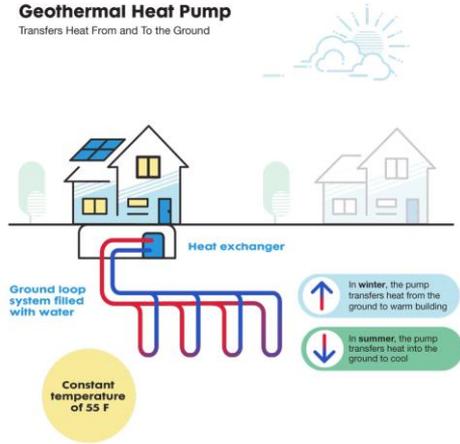


Westchester Housing Authority Program



- Yonkers Municipal Housing Authority
- Low-income housing development covering 11 buildings and 680 apartments
- Incentivizing heating distribution improvements including steam trap repairs, radiator TRVs and orifice plates, and air vent balancing
- Eliminate steam losses, pipe hammering, uneven distribution of heat across all the apartments, improving tenant comfort as well as building efficiency

Heat Pumps



- Con Edison administering full incentive starting 4/1/2020
- \$227 Million budget for heat pumps from 2020 through 2025

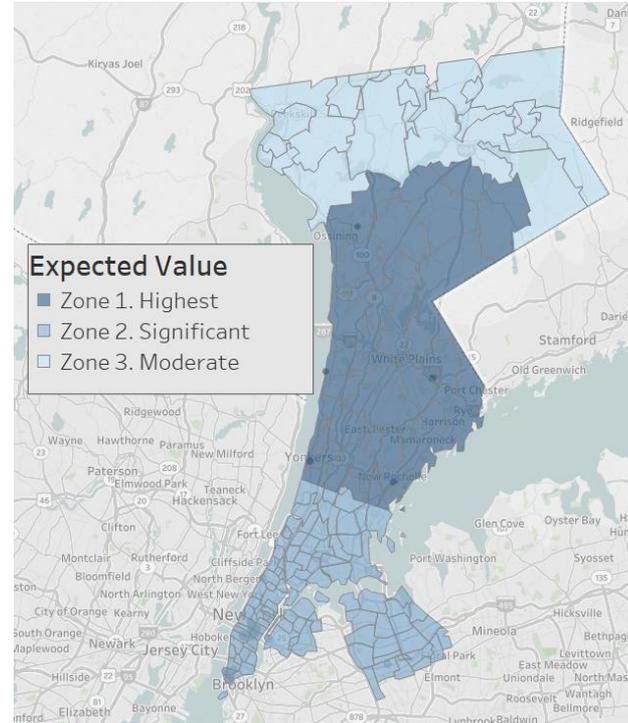
Non-Pipeline Solutions RFI: Geography

- **Gas service territory-wide:**
 - The value of a proposed NPS to Con Edison will vary based on location
 - A specific location(s) do not need to be specified in the response, only the zone

| Zone | Value | Description |
|------|-------------|--|
| 1 | Highest | Westchester moratorium area |
| 2 | Significant | New York City portion of Con Edison's gas service territory |
| 3 | Moderate | Westchester north of moratorium area within Con Edison's gas service territory |

Approximate Boundaries of Con Edison's Natural Gas Service Territory and the Zones Most Affected by Gas Supply Constraints

Targeted Area



Non-Pipeline Solutions RFI: Timeline

| RFI Solicitation Milestones | Completion Date* |
|--|------------------------|
| RFI Issued | January 31, 2020 |
| Introductory Webinar | February 13, 2020 |
| Deadline to submit clarification questions (1 st round) | February 14, 2020 |
| Second Introductory Webinar | February 25, 2020 |
| Deadline to submit Supplier Enablement Template and W-9 Form | March 6, 2020 |
| Responses to clarification questions published (1 st round) | March 4, 2020 |
| Deadline to submit clarification questions (2 nd round) | March 5, 2020 |
| Responses to clarification questions published (2 nd round) | March 19, 2020 |
| Responses from procurement-enabled Respondents due | April 3, 2020 3 PM EDT |



SUSTAINABLE CONSTRUCTION

SOMERS CROSSING

THE PROJECT

66-Units

2000-3000sqft

2-3 Bedroom

Full Basements

2 Car Garages

\$789k - \$999k



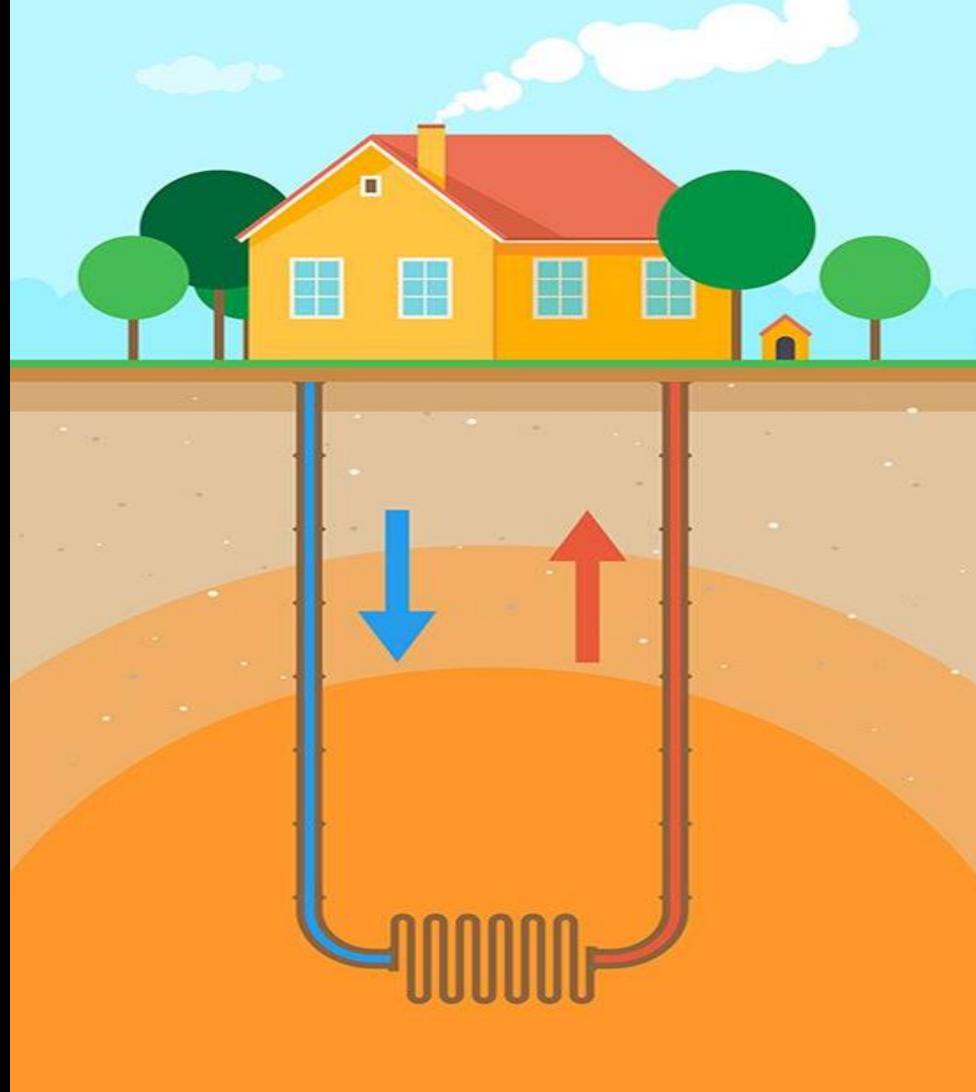
GEOHERMAL HVAC

How it works?

Loops - Direct Exchange System
(DX)

Compressor

Forced Air

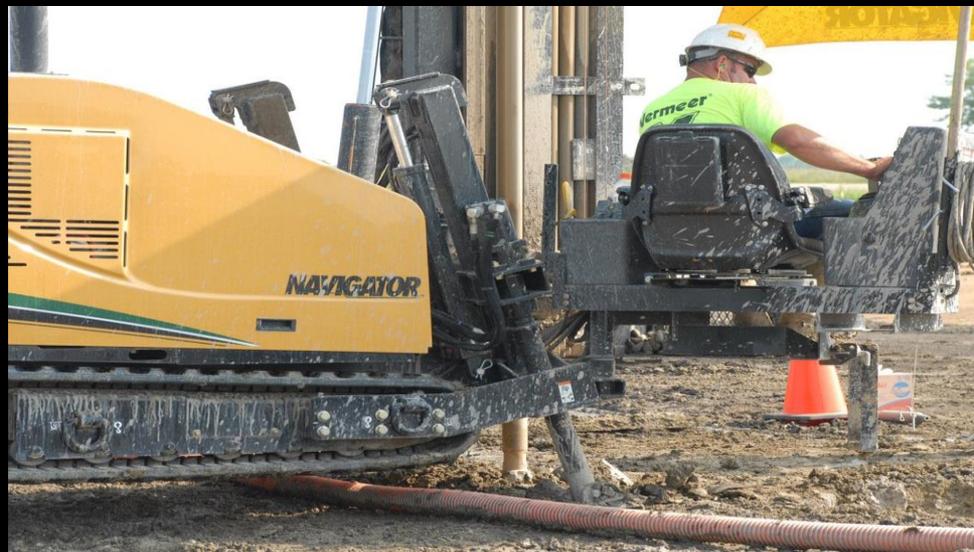


INSTALLATION

Loops



Compressor



Forced Air

RELIABILITY / MAINTENANCE

Loops

Compressor

Forced Air



ENVIRONMENTAL SAFETY

Refrigerant

Electrically Sourced

Grout



COST

\$12k/ton

Incentives

Propane: \$7.5k / ton

Utility Bills

Breakeven Period



REAL WORLD USE

Effective Sales Tool

Customer Satisfaction

Financially Beneficial

RESOURCES

SOMERS CROSSING CONDOS BUILT BY:

BONIELLO DEVELOPMENT
BONIELLODEVELOPMENT.COM
914.245.9000

RECOMMENDED INSTALLER:

GEOHERMAL ENERGY OPTIONS
GEO-US.COM



NYSERDA

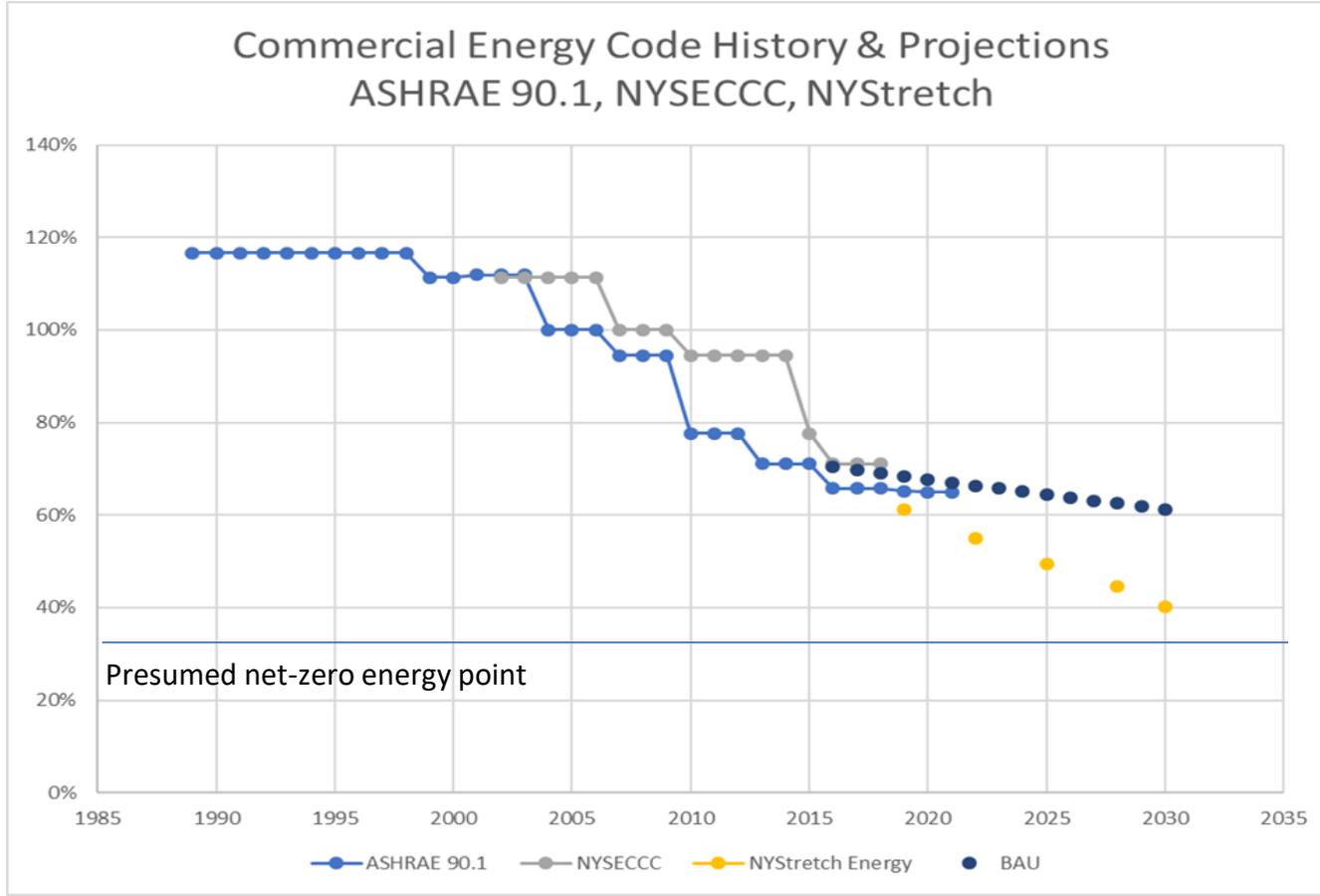
NYStretch Energy Code

Westchester County Clean Energy Summit

March 5, 2020

**Marilyn Dare, Senior Project Manager, Energy Codes
NYSERDA**

What is a Stretch Energy Code; why is it important?



What is NYStretch Energy Code 2020?

- Readily adoptable local energy code that is more efficient than NYS's base energy code.
- A pivotal tool in supporting energy/climate goals.
- Calls for higher energy efficiency standards for new and renovated construction projects.
- **Roughly 11% more efficient than 2020 ECCCNY.**



NYStretch – Community interest

- New York City’s 2020 Energy Code is NYStretch with NYC-centric amendments.
- Ithaca using NYStretch as part of their Green Building Code.
 - Goal: Carbon-neutral community by 2030
- Other communities expressing interest in NYStretch:
 - Austerlitz, Beacon, Croton, Marbletown, New Paltz, North Salem, Pelham, Poughkeepsie, other Lower Hudson Valley towns and cities, Towns on Long Island



Why should a community adopt NYStretch?

- Saves energy and money:
 - Long term benefits by building smarter today
 - Use less energy, reduce operating costs, help achieve energy/GHG reduction goals
- Sets the path for future energy codes
 - Increased emphasis will be on beneficial electrification
- Boosts the local economy:
 - Develop local workforce, build expertise in newer technologies, create more green jobs



NYStretch vs. 2020 ECCCNY

Economics

- Commercial Savings and Incremental Cost

Weighted average results for **Climate Zone 4A**:

- Energy Cost Savings: 5.4%
- Incremental Cost: \$0.85 / SF
- Simple Payback: 11 years

NOTE: This does not reflect any available incentives

Based on prescriptive and mandatory provisions, 9 building prototypes. Results will vary depending on building / construction type, energy sources, location in NY State, and use of performance compliance paths.

NYStretch vs. 2020 ECCCNYE Economics:

Single Family and Multifamily by Climate Zone (Note: Before incentives)

| Climate Design Zone | Single-family | | | Multifamily | | |
|---------------------|---|--|------------------------|---|--|------------------------|
| | Total Annual Energy Cost Savings (\$/dwelling unit) | Total Incremental Costs (\$/dwelling unit) | Simple Payback (Years) | Total Annual Energy Cost Savings (\$/dwelling unit) | Total Incremental Costs (\$/dwelling unit) | Simple Payback (Years) |
| 4A-NYC | \$301 | \$1,910 | 6.3 | \$176 | \$1,625 | 9.2 |
| 4A-balance | \$301 | \$2,463 | 8.2 | \$167 | \$1,488 | 8.9 |
| 5A | \$351 | \$2,202 | 6.3 | \$172 | \$1,751 | 10.2 |
| 6A | \$372 | \$1,506 | 4.1 | NA | NA | NA |
| NY State | \$348 | \$2,057 | 5.9 | \$171 | \$1,591 | 9.3 |

Aggregated Energy Cost Savings in CZ4-balance: 19.4%

Aggregated savings over 4 foundation types /3 fuel configurations: electric heat pump, gas heat w/electric A/C, Oil heat w/electric A/C

NYStretch Costs/Benefits-Climate Zone 4A-Balance

Single-Family Home with Gas Furnace and Electric AC

| | Costs | | | | Benefits | | Net | | |
|-----------|------------------------|--|-------------------------------------|---------------------------------|----------------------------|--|------------------|-------------------|----------------|
| | Total Incremental Cost | Increase in Down Payment + Mortgage Fees | Increase in Annual Mortgage Payment | Increase in Annual Property Tax | Annual Energy Cost Savings | Non-Energy Benefits | Year 1 Cash Flow | Year 2+ Cash Flow | Simple Payback |
| Homeowner | \$2,463 | \$544 | \$88 | \$45 | \$231 | Increased home value & thermal comfort | -\$430 | \$114 | 11 years |

Single-Family Home with Electric Heat Pump

| | | | | | | | | | |
|-----------|---------|-------|------|------|-------|--|--------|-------|---------|
| Homeowner | \$2,463 | \$544 | \$88 | \$45 | \$499 | Increased home value & thermal comfort | -\$162 | \$384 | 5 years |
|-----------|---------|-------|------|------|-------|--|--------|-------|---------|

NYStretch vs. 2020 ECCCNY

NYStretch requirements include:

Building Envelope:

Improved window performance, increased insulation requirements, air leakage testing, air barrier commissioning, mandatory mechanical ventilation

Lighting/Electrical:

Reduced interior and exterior lighting power, lighting controls, whole-building energy monitoring

Compatibility:

Renewable and electric vehicle readiness

Miscellaneous:

Commercial kitchen equipment efficiencies; introduces Passive House compliance path

Options:

Communities may also adopt code appendices requiring solar installations for New Construction

NYStretch Resources

www.nyserda.ny.gov/stretchenergy2020

- Template resolution/legislation
- FAQs document
- NYSERDA staff or Outreach Coordinators available for guidance/meetings
- Single volume code manual
- Training for Code Officials, Architects, Builders
- Updated REScheck and COMcheck tools
- Hotline for technical and interpretation assistance

THANK YOU codes@nyserda.ny.gov

CHP: Clean & Resilient Building Energy Systems

Thomas Bourgeois
Director, NY/NJ CHP TAP



CHP Technical Assistance Partnerships

DOE CHP Technical Assistance Partnerships (CHP TAPs)

End User Engagement

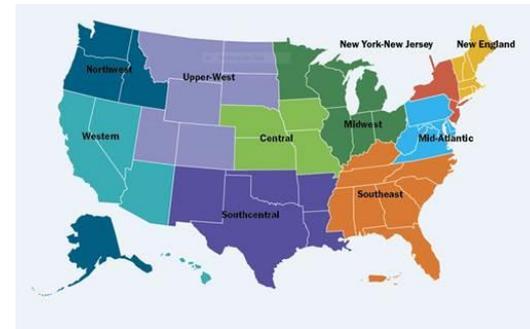
Partner with strategic End Users to advance technical solutions using CHP as a cost effective and resilient way to ensure American competitiveness, utilize local fuels and enhance energy security. CHP TAPs offer fact-based, non-biased engineering support to manufacturing, commercial, institutional and federal facilities and campuses.

Stakeholder Engagement

Engage with strategic Stakeholders, including regulators, utilities, and policy makers, to identify and reduce the barriers to using CHP to advance regional efficiency, promote energy independence and enhance the nation's resilient grid. CHP TAPs provide fact-based, non-biased education to advance sound CHP programs and policies.

Technical Services

As leading experts in CHP (as well as microgrids, heat to power, and district energy) the CHP TAPs work with sites to screen for CHP opportunities as well as provide advanced services to maximize the economic impact and reduce the risk of CHP from initial CHP screening to installation.

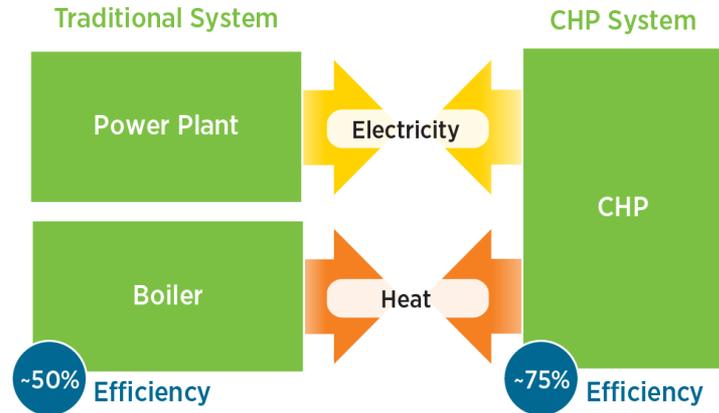


www.energy.gov/chp



CHP: A Key Part of Our Energy Future

- **Form of Distributed Generation (DG)**
- **An integrated system**
- **Located at or near a building / facility**
- **Provides at least a portion of the electrical load and**
- **Uses thermal energy for:**
 - Space Heating / Cooling
 - Process Heating / Cooling
 - Dehumidification



CHP provides efficient, clean, reliable, affordable energy – today and for the future.

Source: www.energy.gov/chp



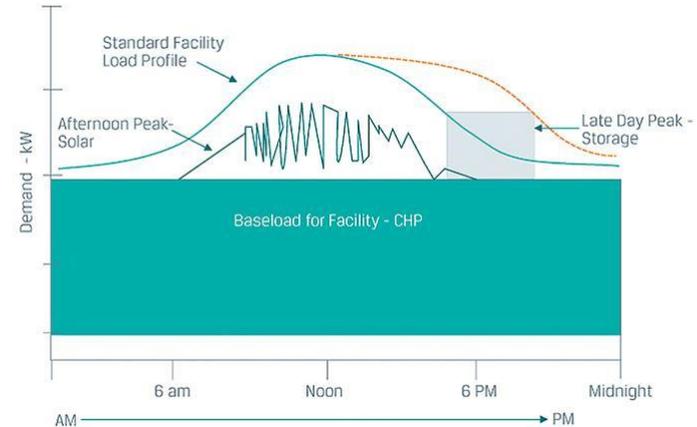
What Are the Benefits of CHP?

- CHP is **more efficient** than separate generation of electricity and heating/cooling
- Higher efficiency translates to **lower operating costs** (but requires capital investment)
- Higher efficiency **reduces emissions** of pollutants
- CHP can also increase **energy reliability** and enhance power quality
- On-site electric generation can **reduce grid congestion** and avoid distribution costs.



Growth of Hybrid DER Systems

- Hybrid DER approaches offer the opportunity for technologies to complement one another
- Hybrid systems combine characteristics of individual technologies
 - CHP – provides baseload energy
 - Solar – variable renewable generation can now be “firmed”
 - Storage – adding flexibility
- Allows CHP to be a key part of the move toward a distributed/renewable grid



CHP Increases Resilience

- For end users:
 - Provides continuous supply of electricity and thermal energy for critical loads
 - Can be configured to automatically switch to “island mode” during a utility outage, and to “black start” without grid power
 - Ability to withstand long, multiday outages
- For utilities:
 - Enhances grid stability and relieves grid congestion
 - Enables microgrid deployment for balancing renewable power and providing a diverse generation mix
- For communities:
 - Keeps critical facilities like hospitals and emergency services operating and responsive to community needs



Project Snapshot:

Cost Savings

Whole Foods Brooklyn Brooklyn, NY

Application/Industry: Retail Space

Capacity: 150 kW

Prime Mover: Reciprocating engine

Fuel Type: Natural gas

Thermal Use: Space heating, cooling, domestic hot water

Energy Savings: 2,513 MWh's/year, \$369,300/year savings, 250 kW demand response; system can operate in black out /“black start” mode

Installation Year: 2014

Highlights: The 56,000-square-foot structure is 60 percent more energy efficient than the building code requires, making it one of the most energy efficient supermarkets in the nation.



Source:

<https://www.greenbiz.com/blog/2014/01/02/whole-foods-opens-energy-efficient-market-Brooklyn>



Project Snapshot:

Resiliency and Disaster Relief

South Oaks Hospital Amityville, NY

Application/Industry: Healthcare

Capacity: 1.25 MW

Prime Mover: Reciprocating engines

Fuel Type: Natural gas

Thermal Use: Steam, cooling, hot water

Installation Year: 2007

Highlights: After Superstorm Sandy, South Oaks continued to provide critical health services for two weeks relying solely on its CHP system. They admitted patients displaced from other sites, refrigerated vital medicines, and welcomed staff and local community to recharge electronic devices and shower. South Oaks' previous CHP system operated continuously through the Northeast Blackout of 2003 as well. South Oaks' leadership, management team, and staff agree that CHP has served them well for more than 20 years.



Source: <http://energy.gov/eere/amo/downloads/chp-enabling-resilient-energy-infrastructure-critical-facilities-report-march>



Project Snapshot:

High-Rise Hotel

Millenium Hilton

New York, NY

Application/Industry: Hotel

Capacity (kW): 500

Prime Mover: 2 x 250kW reciprocating engines

Fuel Type: Natural gas

Thermal Use: Domestic hot water, space heating, absorption chiller for space cooling

Energy Savings: Decrease in site energy use by 34%, 32% GHG reduction (equivalent of 4,394 cars)*

Installation Year: 2014

Highlights: The Church Street Hilton is a 55-story, 569 room hotel in lower Manhattan. The CHP system reduces its carbon footprint and energy use from the grid. This has led to a reduction in energy costs, and the owner has continued installing CHP at their other hotels.



*Source:

https://www.nyceec.com/work/millennium_hilton/



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Project Snapshot:

Medical Center

Albany Medical Center

Albany, NY

Application/Industry: Hospital

Capacity (MW): 4.5

Prime Mover: Gas turbine engine

Fuel Type: Natural gas

Thermal Use: Domestic hot water, space heating, absorption chiller for space cooling

Energy Savings: It has an average capacity factor of 85% and a total system efficiency of 66%, displacing 4,117kW of peak demand and 29M kWh of grid electricity.

Installation Year: 2013

Highlights: Albany Medical Center is a 651-bed hospital in Albany, New York. The CHP can serve 80% of winter and 50% of summer energy needs, even when islanded. It is projected to save \$70 million in energy costs by 2020.



Project Snapshot:

Residential Resiliency

The Brevoort Manhattan, NY

Application/Industry: Residential

Capacity: 300 kW

Prime Mover: Microturbines

Fuel Type: Natural gas

Thermal Use: Space heating, hot water

Installation Year: 2010

Highlights: During Superstorm Sandy, the CHP system isolated from the Con Ed grid and powered the entire building, including the central boilers, domestic water pumps, all elevators and all apartments, for five days. While the Brevoort typically houses 720 occupants, nearly 1500 people took shelter there during Sandy and its aftermath.

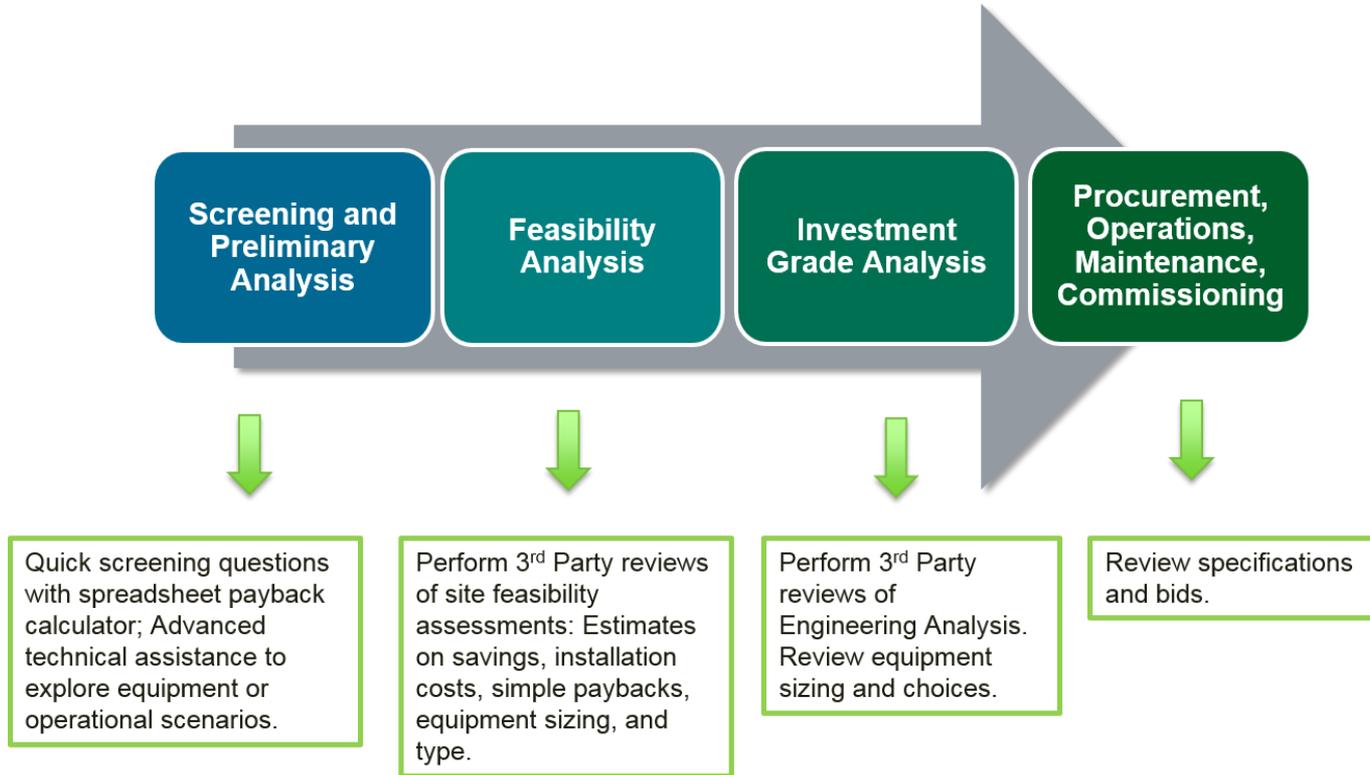


The Brevoort three nights into the Hurricane Sandy blackout with lights shining powered by four CHP units

Source:https://understandingchp.com/files/2018/04/The_Brevoort_1950s_Greenwich_Village_Co-Op-Tecogen.pdf



CHP TAP Role: Technical Assistance



Next Steps

Contact New York – New Jersey CHP TAP for assistance with:

- **Sites interested in having a Qualification Screening performed to determine if there is an opportunity for CHP**
- **Facilities with existing CHP plants that are interested in upgrading and or expanding it**
- **End users who could benefit from an unbiased 3rd Party Review of a proposal for CHP at their site**



Thank You

Questions?

Thomas Bourgeois

Director, NY-NJ CHP Technical Assistance Partnership

(914) 422-4013

tbourgeois@law.pace.edu

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CHP Technical Assistance Partnerships

Panel Two:

#WCCleanEnergySummit

Westchester Specific Solutions

Moderator: Craig Hart, Executive Director, Pace Energy & Climate Center

Panelists:

- Mark Brescia, Manager, Con Edison
- Vennela Yadhati, P.E. Business Development Engineer, NYPA
- Nina Orville, Director of Solar Programs, Sustainable Westchester
- Marilyn Dare, Senior Project Manager, NYSERDA
- Ryan Boniello, Operation & Sales, Boniello Development
- Thomas Bourgeois, Director, U.S. Dept of Energy's NY/NJ CHP Center
- Michel Delafontaine, DER & Business Development Director, Sustainable Westchester
- Brad Tito, Program Manager for Communities and Local Governments, NYSERDA

Westchester County Clean Energy Summit: *Implications of NY's Climate Law & Scalable Solutions*

Thursday, March 5th, 2020

Pace Energy & Climate Center
White Plains, NY

#WCCleanEnergySummit

