NEW YORK STATE | NY Power Authority

Western New York Customer Solutions Seminar

Niagara Power Vista, Lewiston, NY
November 3, 2023

NEW YORK STATE | NY Power Authority

Customer Solutions

Cost savings. Community impact. Carbon reduction.

Rachel Gebhart, Senior Key Account Executive
New York Power Authority

NYPA: A national leader in Power and Clean Energy Solutions

Transmission and Power Generation

25% of the State's electricity

80% of that electricity is hydropower

ST LAWRENCE-FDR | NIAGARA | CLARK | ZELTMANN | JARVIS | BLENHEIM-GILBOA | FLYNN | VISCHER FERRY

Power Programs & Economic Development

440K+ jobs supported

$53B+ capital invested

RECHARGE NY
PRESERVATION POWER (NNY)
WESTERN NY HYDROPOWER
MARKET+ POWER

Clean Energy Solutions

2600+ projects to date

$350M invested in NYS/year

ENERGY EFFICIENCY
LED LIGHTING & STREET LIGHTING
EV INFRASTRUCTURE
SOLAR + STORAGE
BUILDING ELECTRIFICATION | MORE

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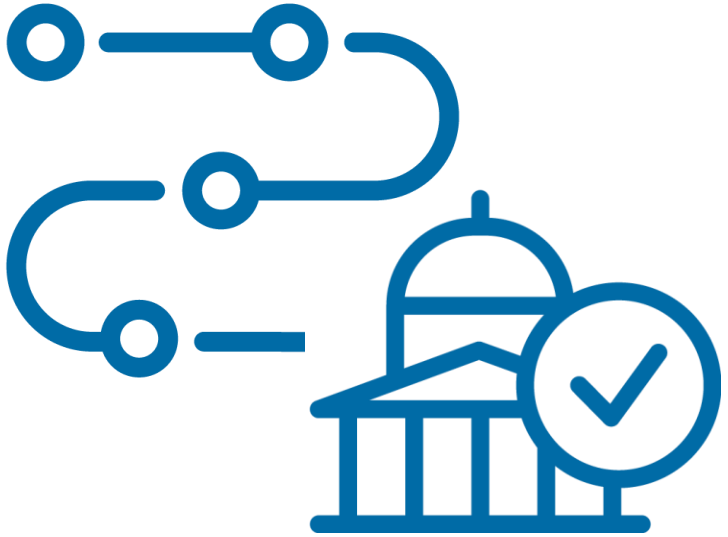
Today: Challenges for municipalities and campuses

- Resource constraints and fiscal responsibility
- Competing priorities of financial green vs environmental green
- Access to technical and project expertise
- Keeping up with state and local goals, mandates, and available funding
- Managing in a challenging rate environment



What we offer: Governmental and NY State expertise, excellence in implementation

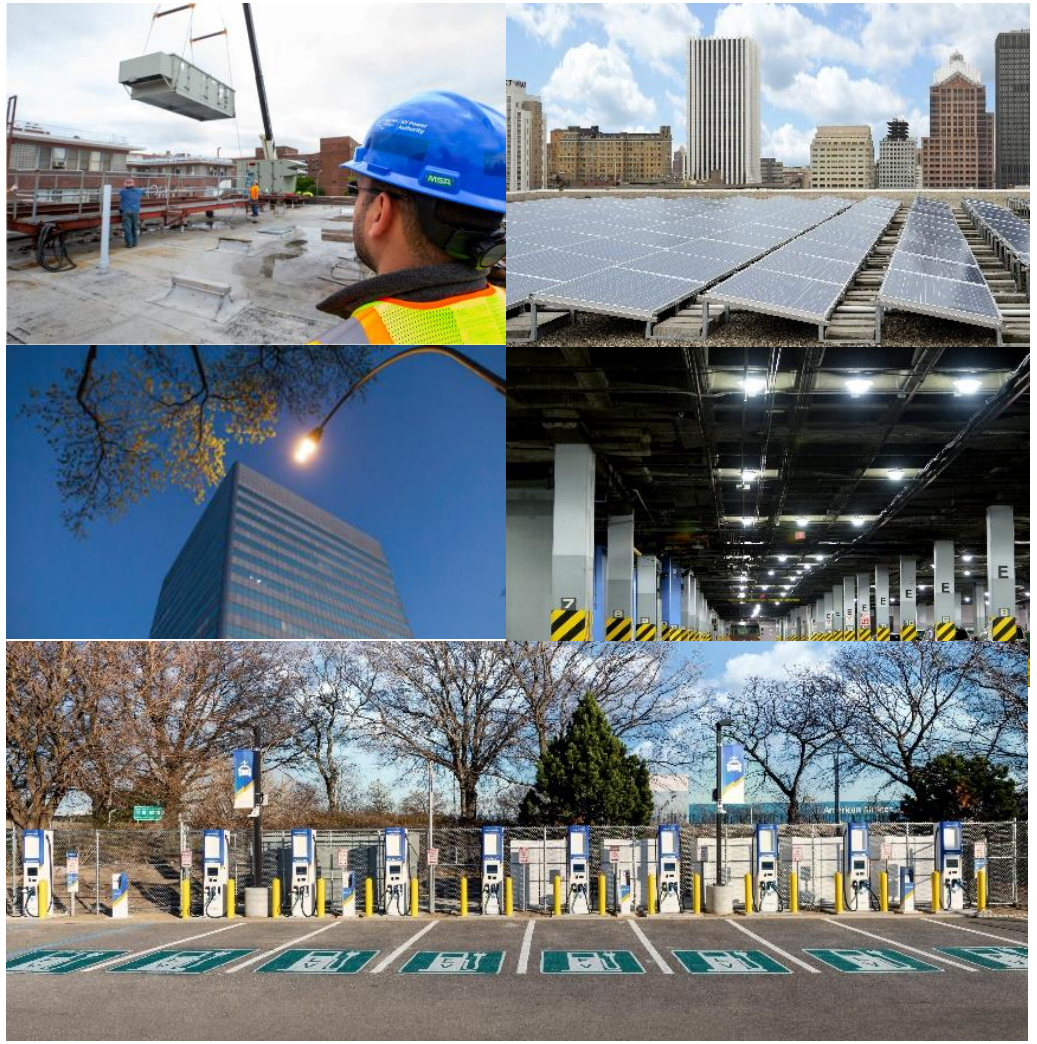
Cost-effective, actionable energy solutions

- **An extension of your team** with expert advice
- **The best approach and budget strategies** to meet your financial and sustainability goals
- **Trusted partner** with objective and fully transparent advice
- **A streamlined** bidding and procurement process
- **Extensive knowledge** of NY State energy policy, grants and incentives

A full range of clean energy solutions

A goals-based approach for guided success

- ADVISORY AND PLANNING
- ENERGY EFFICIENCY
- ELECTRIFICATION
- EV FLEET INFRASTRUCTURE
- MARKET+ POWER
- SOLAR + STORAGE



Advisory and Planning:
Success starts with expert planning and moves through to implementation

Align your goals and establish an actionable plan to achieve them

- **Prioritize** projects with the biggest impact
- **Identify** cost/benefit tradeoffs
- **Structure the project** to meet your budget needs
- **Maximize** grants, rebates and incentives
- **Plan** for next step procurement, implementation, stakeholder engagement

NYPA can streamline procurement and bring the best implementation approach to complex projects

AUDITS (ASHRAE) | BENCHMARKING | OPPORTUNITY ASSESSMENT | SOLUTIONS SELECTION | FEASIBILITY ANALYSIS | COST/BENEFIT ANALYSIS | PROJECT PLANS | MASTER PLANS

40

ENERGY MASTER PLANS COMPLETED

COUNTY OF ROCKLAND
COUNTY OF SUFFOLK
CITY OF SYRACUSE

18

IN PROGRESS ENERGY MASTER PLANS

CITY OF ALBANY
CITY OF NEW YORK
TOWN OF GILBOA

Energy Efficiency: Retrofits and equipment upgrades for energy savings

Save energy and improve comfort

- **Reduce energy spend:** EE up to 20%, LEDs 50% to 70%
- **Save operating and maintenance costs** with upgraded, better-functioning equipment
- **Improve comfort and air quality** for the people who live/work in buildings
- **Bring visible improvement** and energy savings with LED lighting
- **Cost-effective** when you apply appropriate funding strategies, grants and incentives

NYPA can drive procurement and help optimize funding pools, reinvest savings for future projects

HVAC / BOILERS / CHILLERS | BUILDING ENVELOPE |
LED INTERIOR & STREET LIGHTING | WASTEWATER SYSTEMS

$3.6B
IN PROJECTS

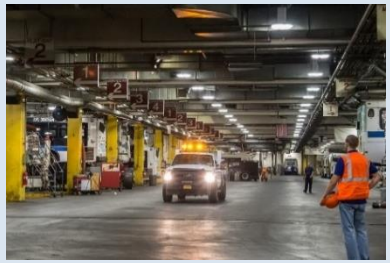
2,600+
PROJECTS COMPLETED

5-20%
ENERGY SAVINGS

$27M+
ANNUAL TOTAL CUSTOMER ENERGY OPERATING SAVINGS

$100,000+
FIRST YEAR BILL SAVINGS PER PROJECT ON AVERAGE





WESTCHESTER COUNTY
SULLIVAN COUNTY
CITY OF ALBANY
CITY OF WHITE PLAINS
BRONX COMMUNITY COLLEGE

Building Electrification:
New technologies for decarbonization

Invest in a better built environment

- **Reduce** greenhouse gases
- Can be **highly energy efficient**
- **Improve** inhabitant comfort
- **Help your municipality move** forward as a Clean Energy Community (CEC)

Highlights

Objective advice with cost/benefit analysis
Technical expertise to understand the impact of these new technologies
Streamlined approach to procurement using our pre-vetted approved vendors

NYPA and NYCHA working together on groundbreaking heat pump system and central electrification project

LED Interior and Street Lighting:
The first upgrade to consider

50-70%

energy savings

500,000+

Smart LED lights installed

Improve your quality of light: Energy savings, community visibility, safer environments

- **Cost savings** through energy efficient upgrades
- **Long-lasting** LED lights mean less maintenance
- **Highly visible with direct impact** on inhabitant and community comfort
- **Smart features** offer outage detection and remote management
- **Smart Street Lighting Maintenance:** NYPA can centrally monitor and manage repairs

GRAND CENTRAL TERMINAL

METROPOLITAN TRANSIT AUTHORITY (MTA)

BELLEVUE HOSPITAL

CITY OF ALBANY

CITY OF KINGSTON

CITY OF UTICA

CITY OF WHITE PLAINS

DIRECT INSTALL INTERIOR LIGHTING | SMART LED STREET LIGHTING | STREET LIGHTING MAINTENANCE

Electric Vehicle Fleet Infrastructure:
Accelerating EV transition for NY State

Availability of incentives, grants, and funding means you should consider the EV transition now

- **Bring cleaner air and quieter vehicles** to your community
- **Reduce** fuel and maintenance costs
- NY State bill: **100% shift to electric vehicles sold** (2035 / 2045 targets)

THE EVOLVE NETWORK: NYPA IS BUILDING A NETWORK OF FAST-CHARGING STATIONS ACROSS NY STATE TO ACCELERATE EV ADOPTION

SITE ASSESSMENT | DESIGN | ROUTE PLANNING | CONSTRUCTION | ELECTRICAL | CHARGER DEPLOYMENT | INSTALLATION | LOAD MANAGEMENT | INTERCONNECTION

METROPOLITAN TRANSIT AUTHORITY (MTA)
NIAGARA FRONTIER TRANSPORTATION AUTHORITY (NFTA)
ROCHESTER-GENESEE REGIONAL TRANSIT AUTHORITY (RTA)
TOMPKINS CONSOLIDATED AREA TRANSIT (TCAT)
PORT AUTHORITY NEW YORK NEW JERSEY
NYS THRUWAY AUTHORITY

Now: Influx of funding moving into clean energy projects

	Program		Description
Federal	**Inflation Reduction Act (IRA)**		• Provides tax credits for renewables • Tax-exempt entities able to receive direct cash payments in lieu of tax credits
	Infrastructure Investment and Jobs Act (IIJA)		• Competitive grant and lending programs from the Federal government for infrastructure
State	**Environmental Bond Act**		• Actionable funding will be made available soon
	NYSERDA	**NY – Sun**	• Provides cash payments to project owner based on PV Capacity • Varies by region and project characteristics (landfills/brownfields)
		Clean Energy Communities Certification	• Provides regional CC Coordinators, which help with prioritizing and identifying goals and funding opportunities • Earn points for high-impact actions. More points gets access to more/ different funding pools
	Department of Environmental Conservation (DEC)	**Climate Smart Communities**	• Helps local governments take action to reduce GHG and adapt to climate change • Provides grants to help fund some of these actions

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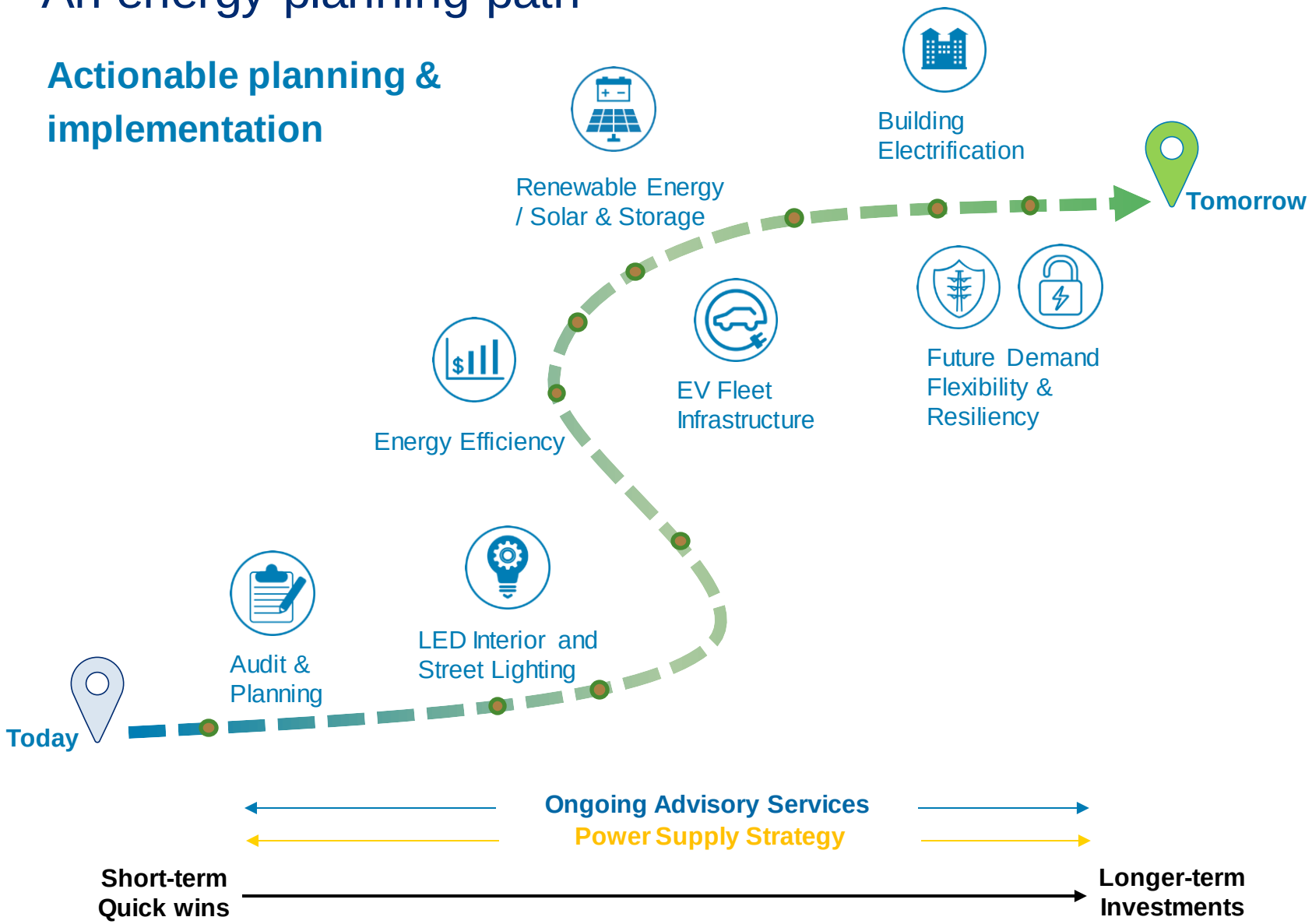
Decarbonizing your community:
An energy planning path

Actionable planning & implementation



Cost-efficient strategy

- Quick wins first
- Cost savings deployed to future projects
- Economies of scale achieved
- Projects aligned and coordinated
- Sustainability goals and requirements met and tracked
- Application process, deadlines, requirements managed and tracked (NYSERDA, DEC, etc.)

Count on NYPA for support with your energy savings & decarbonization plans

True partnership

- **Objective solutions** with full transparency
- Unbiased, actionable advice to **justify decision-making**
- **Tradeoff** conversations
- **60+ years** clean energy experience

Expansive gov't experience

- **Confidently navigate** gov't procurement and procedures
- **Streamline the RFP and vendor sourcing process** through Public Authority Law
- Keep up-to-date on policy, regulations**, CLCPA**

Cost-effective strategies

- Manage interdependencies to **maximize investment**
- **Rebate, incentive, grant** management
- **Project financing**
- **Cashflow neutral / positive** with zero upfront costs

Customized approach

- Holistic, **comprehensive approach**
- **Audit, design, construction, cost-benefit**
- **Simple** retrofits to **complex** multi-facility upgrades
- Access to a pool of **pre-qualified vendors**

We Are New York State. Moving Clean Energy Initiatives Forward.

Contact NYPA to learn more about how we help communities save money and improve their environment through clean energy:

Rachel Gebhart

Senior Key Account Executive

Customer Solutions

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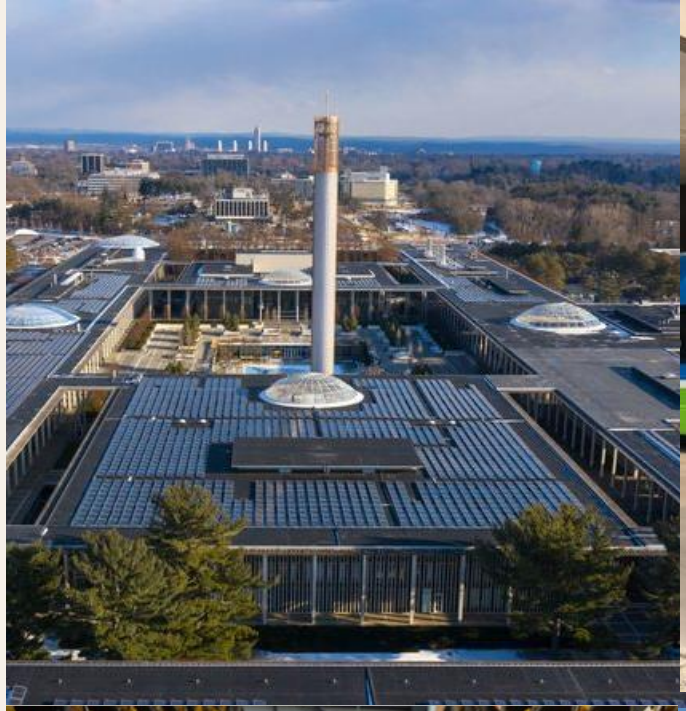


NY Power Authority

Market+ Power

Market+ Power for budget certainty and energy management

Joseph Crimi, Director, WNY Key Accounts
Customer Solutions

AGENDA

Market+ Power

Joseph Crimi

Director, WNY Key Accounts

Customer Solutions

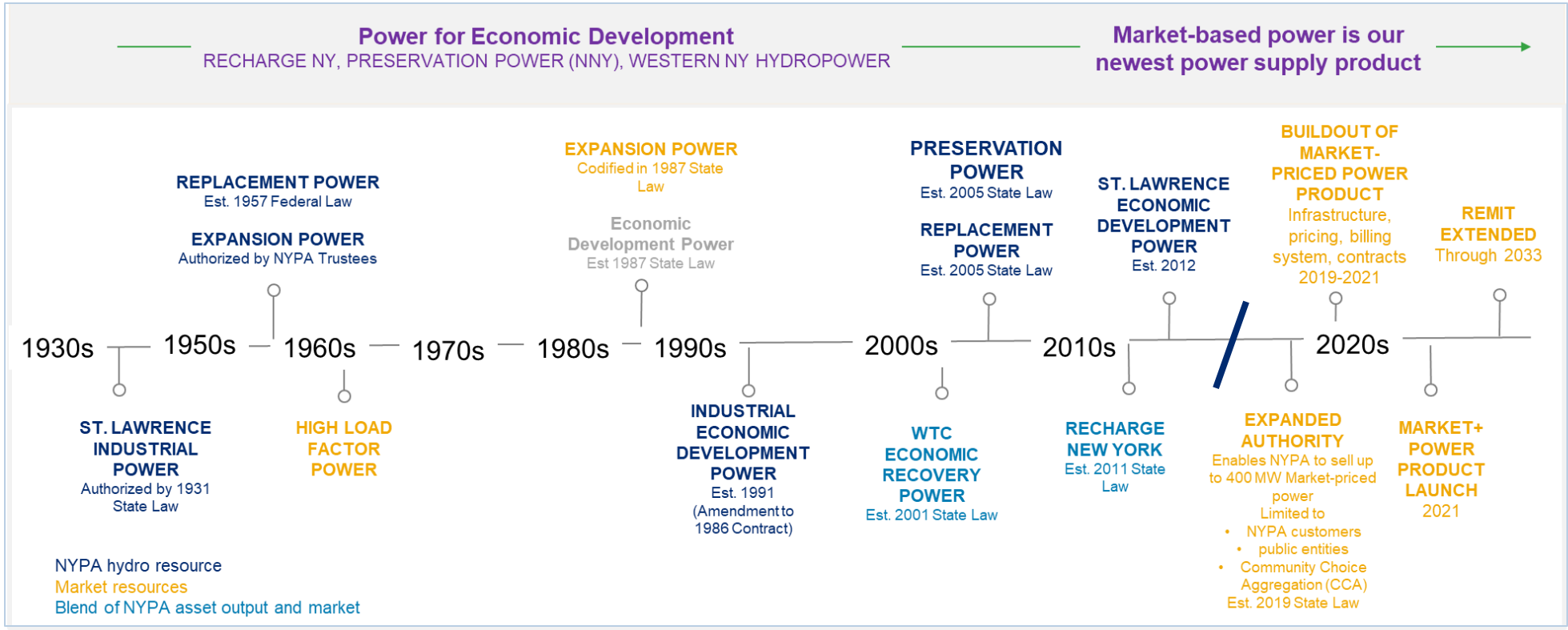
TODAY

- POWER SUPPLY LEGISLATION
- PRODUCT OVERVIEW
- NYPA FOR POWER SUPPLY
- MARKET PRICE OPTIONS
- HOW IT WORKS
- TALK WITH US

2019 Legislation for Market+ Power

In 2019, New York State granted new expanded authority to NYPA to sell power to local governments for the first time. It also expanded NYPA's ability to supply power to existing customers. This legislation was created to enable NYPA to help organizations meet New York State's energy goals – moving towards a sustainable future.

NYPA Power Supply Timeline



What is Market+ Power?

Market+ Power is market-priced electricity with green energy options.

This power supply comes direct from NYPA to serve local government, K-12, State agency, and our existing power customers

Market+ Power for budget certainty and to meet sustainability goals

- Up to 100% green to meet your decarbonization goals
- Highly competitive pricing
- Fixed options to manage risk and contain cost in a volatile market
- Term agreements that support your pricing strategy (12 to 36 months)

Fixed price energy plan for budget certainty

Pros

- Price is constant for contract term
- Ability to budget for electricity costs
- Consistent and predictable monthly bill

Cons

- Price remains the same even when market drops
- Possible early cancellation fees

Variable price energy plan to move with the market

Pros

- Increased savings when prices are low
- Greater flexibility to switch providers

Cons

- Changing prices that increase when market goes up
- Watch the market and track the impact of fluctuating natural gas and fuel prices
- Unexpected spikes in your monthly bill

NYPA as your Power Supplier

- Cost competitive pricing
- Price transparency and objective advice
- 90 years of service to the state
- Focus on customer service

★ State authority with expertise to support municipal, government and state agency customers

Market + Power Proposal Process

1 to 2 months

INTAKE

- Quick intake form
- NYPA will gather your utility data

PROPOSAL

- Fixed or variable price proposals
- Standard, majority or 100% green
- 1-3 year options

CONTRACT

- *Market+ Power* contract sent via Adobesign
- 45 to 60 days for enrollment
- Pricing proposals expire COB

TALK WITH US

Market+ Power

- Available at up to 100% green
- Competitively-priced
- Fixed or variable rates

Approximately 2-3 months from intake to contract

TALK WITH US

Talk with us for a price quote, and for more information about how you can use *Market+ Power* to support your energy plan.

Your Key Account Manager can confirm eligibility and help you understand your options.

marketplus@nypa.gov

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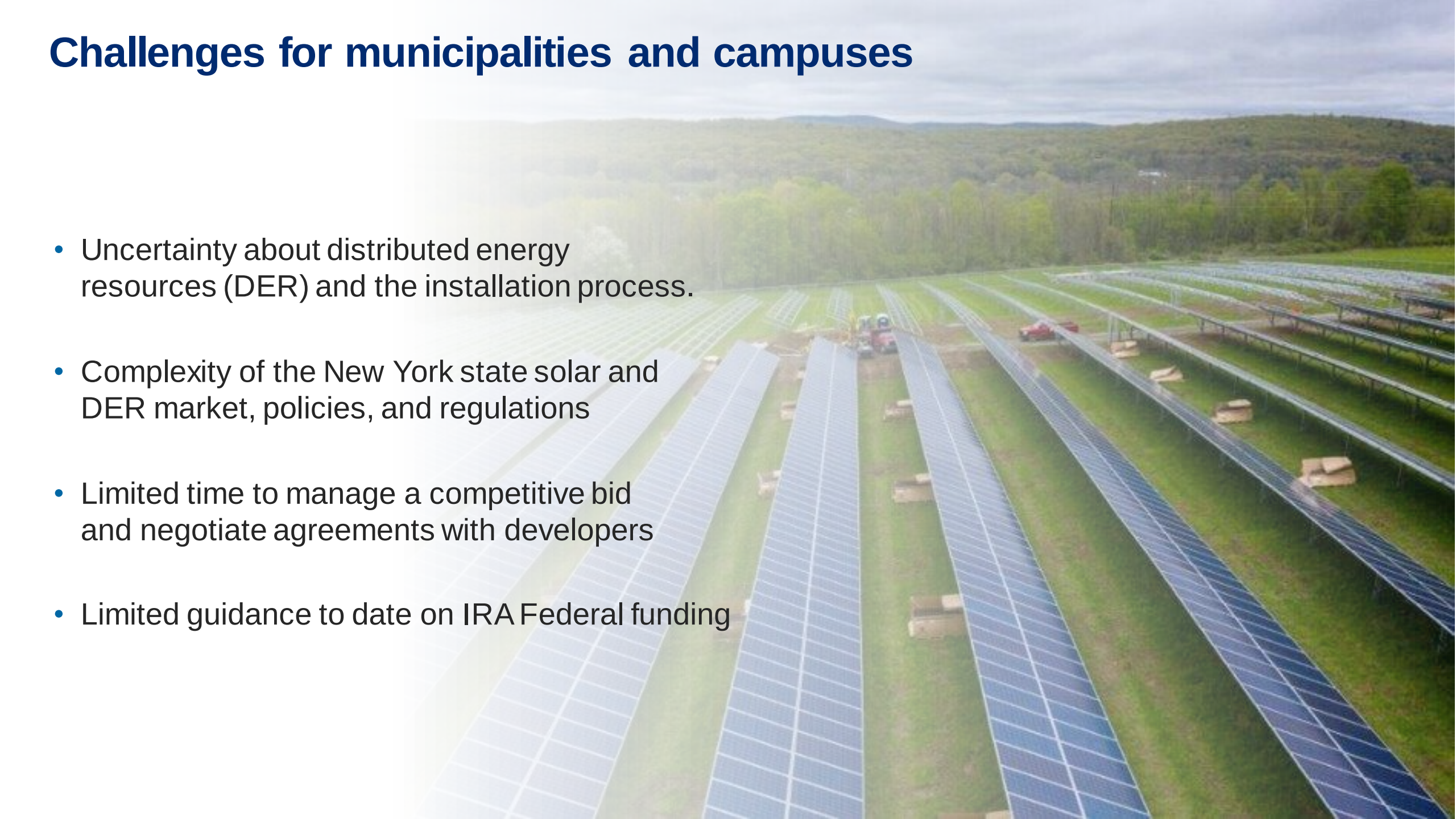
An Introduction to Solar and Storage

Benjamin Cuozzo, Director, DER Advisory
New York Power Authority

Benefits of Distributed Energy Resources (DERs)

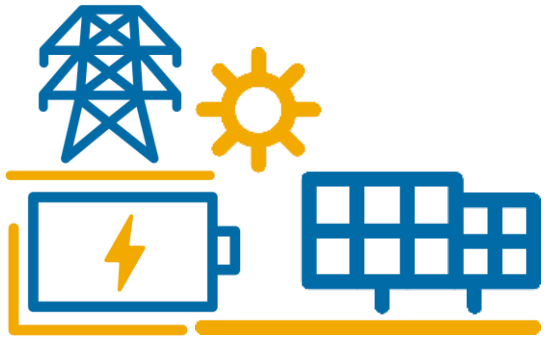
- Leverage underutilized space such as **landfills and brownfields**
- Create **bill credits**, **generate revenue**, and achieve **cost savings**
- **Reduce GHG emissions** and **directly reduce energy purchased from the grid**
- Improve **grid resiliency**
- Better **manage peak demand**

Challenges for municipalities and campuses



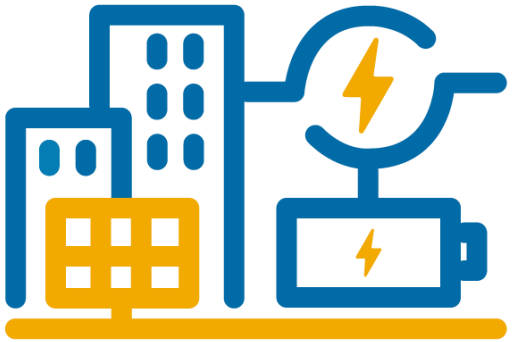
- Uncertainty about distributed energy resources (DER) and the installation process.
- Complexity of the New York state solar and DER market, policies, and regulations
- Limited time to manage a competitive bid and negotiate agreements with developers
- Limited guidance to date on IRA Federal funding

Primary DER Applications



“Front of the Meter” (FTM)

- All production receives Value Stack compensation
- Typically constructed “off-site”
- Energy storage maximizes Value Stack compensation
  - Potential for participation in grid services markets and virtual power plant (VPP) applications



“Behind the Meter” (BTM)

- Majority of production offsets customer usage
- Located at customer sites
- Multiple energy storage applications
  - Customer demand charge reduction
  - Utility demand management programs
  - Resiliency services
  - Potential for participation in grid services markets and VPP

VDER & The Value Stack

Pricing methodology **based on time and location**

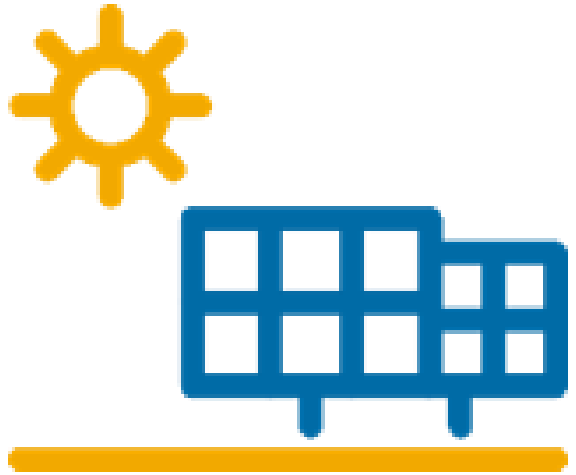
- Replaces net energy metering

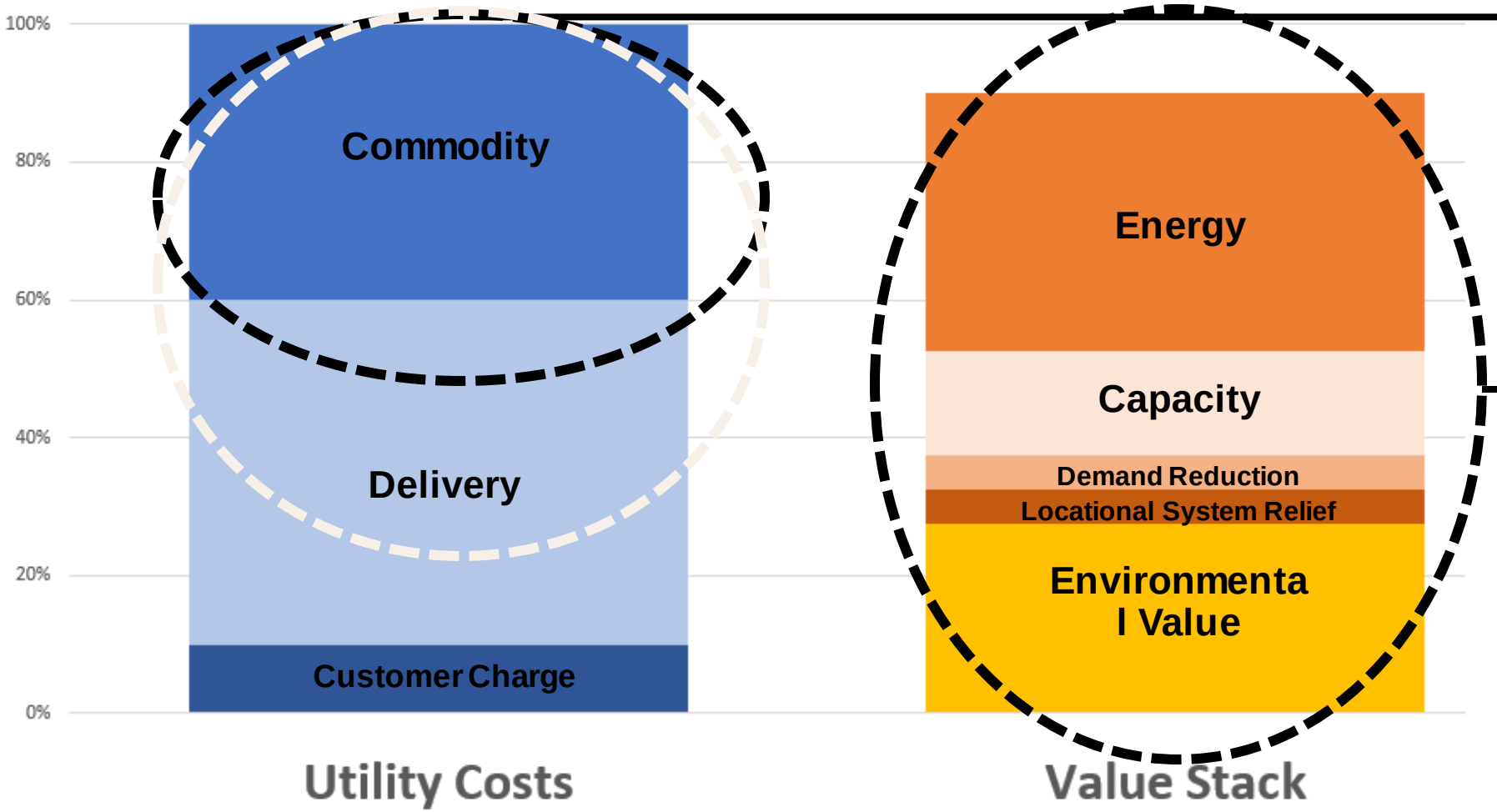
Places **monetary value on any injections** to utility grid

- Bill credits can be used to offset *any and all* on-bill electricity costs
- **Cannot offset dual-billing charges** (e.g. third party supply costs)

Subject to change based on utility cost studies and wholesale market prices

Approximates the customer's full cost of service





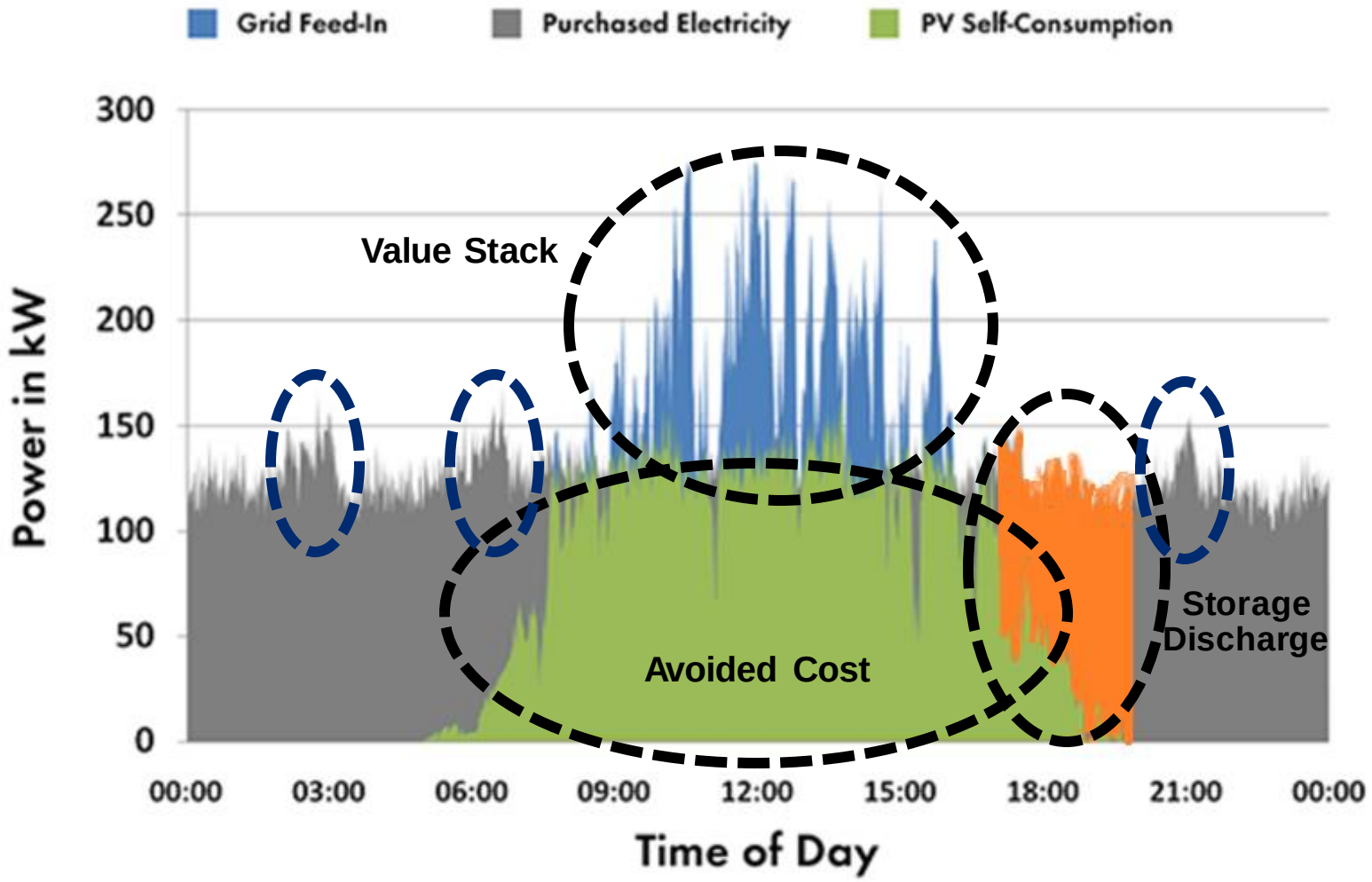
BTM projects primarily offset commodity costs (kWh)

Some delivery cost *may* be offset if in $/kWh

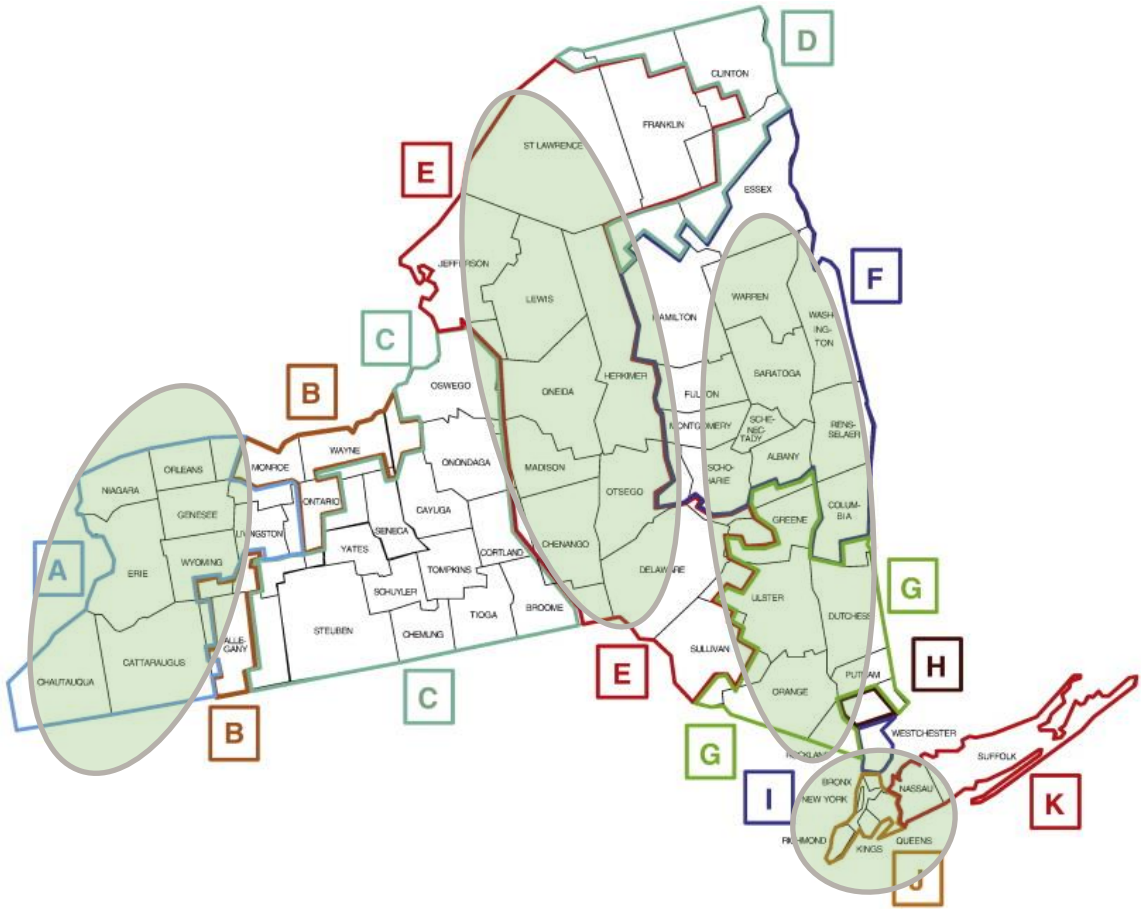
Energy storage will allow offset of delivery costs through demand charge management

CDG/RC projects ONLY valued according to the Value Stack

BTM Operation & Revenues Concept Example



Location, location, location



Variability based on geographic location

- NYISO Load Zones
- Distribution utility delivery constraints
- Region weather patterns

Highest Value Areas

- **ConEdison**
- Orange & Rockland
- National Grid – Zones A, E, and F
- Central Hudson
- NYSEG – NYISO Zone A, E, and H

Implementation Models

DER Project Application Type					
Primary Contract Mechanism	Capital Purchase	Power Purchase Agreement (PPA)	Remote Crediting Agreement	Community Solar Subscription Agreement	Project Host (Lease Agreement)
Asset Owner	**Customer(s)**	**Developer**	**Developer**	**Developer** **Community**	**Developer**
O&M					
Upfront Payments			**Developer**		
Off-taker		**Customer(s)**	**Customer(s)** **Community**	**Customer(s)** **Community**	**Community**

Best Siting Practices

Landfills & Brownfields

- NYS DEC largely supports this type of development
- No ground penetrations required; but unable to build on steeply sloped areas
- Additional incentives available at State and Federal level

"Agrivoltaics"

- NYPA working with Electric Power Research Institute (EPRI) on best practices for incorporating agriculture into solar PV projects
- Pollinator-friendly seed mixes and apiaries; animal grazing; specialty crops
- Substantial area of research at national level

"Floatovoltaics"

- One of the fastest growing market segments for solar PV
- Significant capacity internationally, limited deployment in U.S.
- First permitted project in NYS moving towards construction

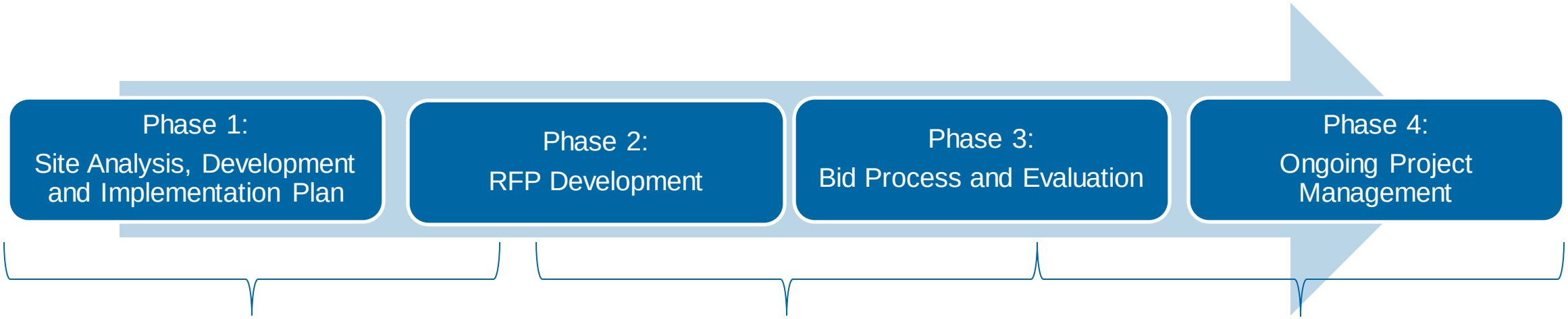
DER Advisory Program

How NYPA Can Help

Navigate project scoping, design, and implementation:

- Technical feasibility assessment and conceptual site design
- Economic analysis of tariff rates and utility data
- Development of project scope of work
- Administer and manage procurement process
- Pre-approved renewable developers
- Dedicated policy & regulatory affairs team

DER Advisory Process



Benefits to Customers

- NYPA's market, technical, and policy analysis expertise
- No-cost initial analysis

Benefits to Developers

- Pre-vetted project sites
- Firm customer project commitments

Benefits to Customers

- Solicitation burden removed
- Cost of development and bid process paid to NYPA by Developer on milestone basis

Benefits to Customers

- Reduced project management and oversight required
- Additional layer of expert oversight provided by NYPA

Benefits to Developers

- Soft-cost reductions from predevelopment activities

Solar + Storage Overview:

Cost savings & bill credits through renewable energy

Leverage landfills, brownfields, rooftops, parking structures

- **Create bill credits, generate revenue, and achieve cost savings**
- Develop solar with **no upfront cost**
- **Reach sustainability goals**
- **Improve grid resiliency with solar-plus-battery**
- **Better manage peak demand**

NYPA can manage through the complexities: cost-benefit, feasibility, developer selection, peak demand, storage, interconnection, deal structuring

40+
PROJECTS

2 MWs
STORAGE INSTALLED

60+ MWs
SOLAR MWS INSTALLED

7,800+
MT OF CO2 REDUCED IN YEAR 1

Case study: Solar
Monroe County Water Authority

Using solar energy to create bills credits and keep water rates affordable

- NYPA served as the **MCWA's energy advisor,** helping to develop the project and lead the bid process
- Sol Systems won a competitive bid to install a **5W solar array** to reduce energy expenses long term
- Expected to generate **8 million kilowatt hours of electricity annually**, more than 15 percent of MCWA's energy needs for water pumping and treatment

The site was planted with a mix of pollinator plants to boost the surrounding ecosystem

5 MW
solar array

8 million kWh
energy generated

Case study: Solar + Storage
SUNY Fredonia

The first large scale solar-plus storage project for a New York State University

- NYPA acted as SUNY Fredonia's energy advisor, oversaw the project, and **issued an RFP on their behalf**
- Oriden and Solar Liberty provided a custom **1.4 MW ground-mounted solar PV array** and **500KW energy storage system**
- The project will **offset an average of 432,000 pounds of cardon dioxide** annually

1.4 MW
ground mount array

500 kW
energy storage system

1.7 GWh
energy provided

432,000 pounds
of CO2 offset annually

A rendering of the solar voltaic array

We can help further your clean energy goals

Contact NYPA to learn more about how we help communities save money and improve their environment through clean energy:

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Director, DER Advisory

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nypa.gov/services

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Thank you for joining us

Niagara Power Vista, Lewiston, NY
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