Solar on Brownfields

Brownfields Basics Workshop
Hosted by Hudson Valley Pattern for Progress
SUNY Orange Kaplan Hall Great Room
Newburgh, NY

Presented by:
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June 15, 2023

NYS Solar Commitment

- Zero-emission electricity sector by 2040
- 70 percent renewable energy generation by 2030
- 10 GW distributed solar by 2030
- 2,100 percent growth in the distributed solar sector since 2011

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New York State's Reforming the Energy Vision ("REV") promotes a 100% Renewables target by 2040

NYSERDA Incentive Programs

- Lucrative incentive provided on a first-come, first-served basis, according to a declining block schedule

NYC & Westchester

- Upfront rebate of $600/kWdc
- Additional $300/kWdc for carport systems
- Additional $100/kWdc for systems sited on brownfields or landfills

Upstate

- Upfront rebate of $170/kWdc
- Projects under 750 kW $450/kWdc
- Additional $100/kWdc for systems sited on brownfields or landfills

Value of DER Tariff

- A mechanism to value the energy and capacity produced by distributed renewables resources at a rate commensurate to its market rate value to the grid
- The "Value Stack" is composed of six components which proxy the value of every solar kilowatt-hour and kW produced

Offsite Solar Options:

- Remote Net Metered
- Community Distributed Generation

Net-Metering

- Projects under 750kWac are eligible for net-metering
- Customer-generators receive a bill credit for generation that is exported to the electric grid, offsetting energy costs

Tax Exemptions

- Property Tax exempt 15 yrs
- Solar equipment State sales tax exempt
- County sales tax exemptions available for certain municipalities

NYC Property Tax Abatement

- New York City offers a property tax abatement of up to 5% of solar project costs, capped at $250,000
- The property tax abatement is paid out over four years in 25% installments

Federal Incentives

IRA

- Increased subsidies for installation of PV and CSP systems
- 30% investment tax credit (ITC) for residential, commercial, and utility-scale and bonuses
  - Domestic Content – 10% if all steel/iron produced in US
  - Energy Community – 10% if project in energy community (i.e. brownfield, community w/fossil based industries and high unemployment, or located near closed coal plant)
  - Low-Income – 10-20% if located in low-income community or housing project. Only available with the ITC and subject to 1.8 GW program cap per year

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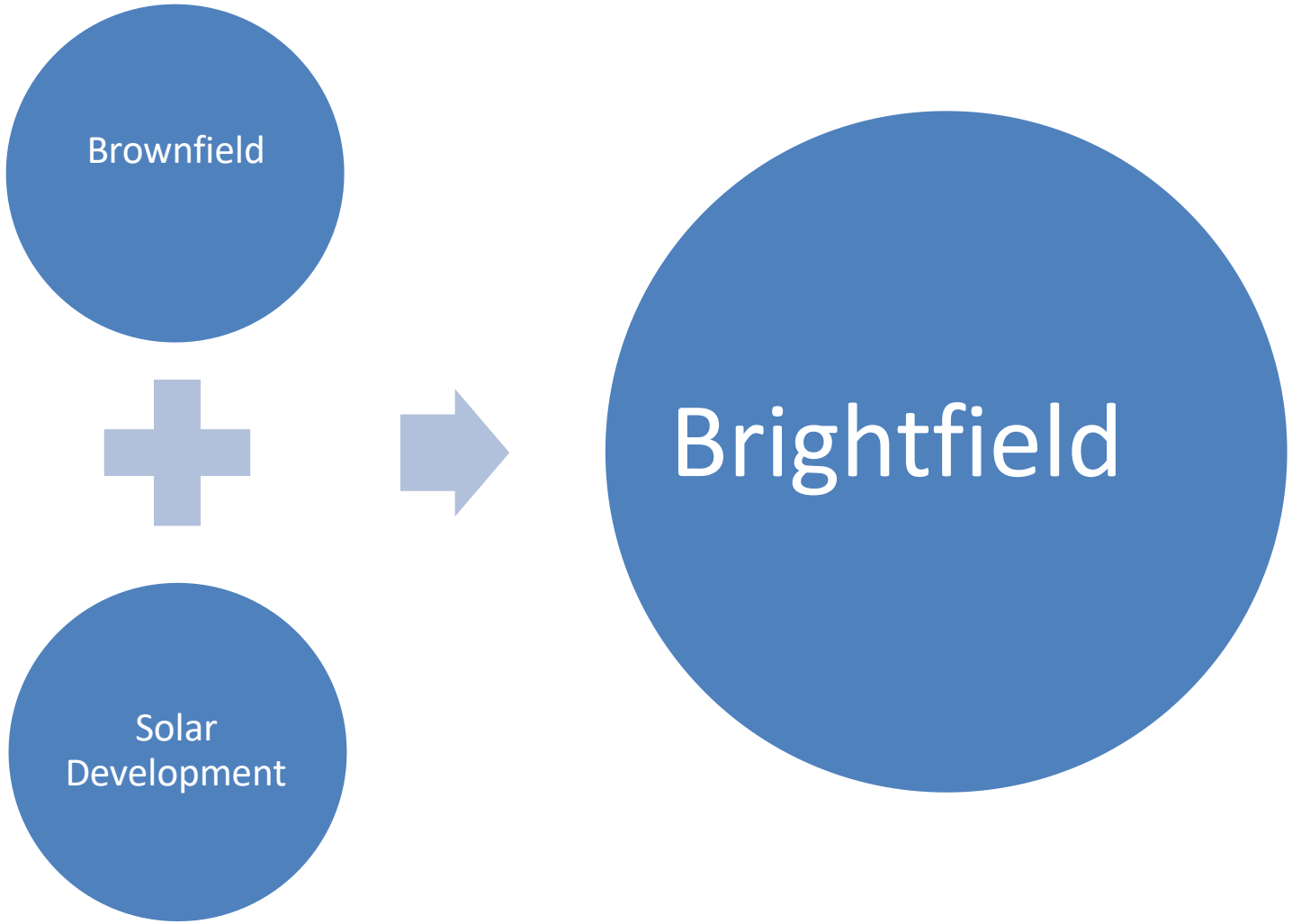
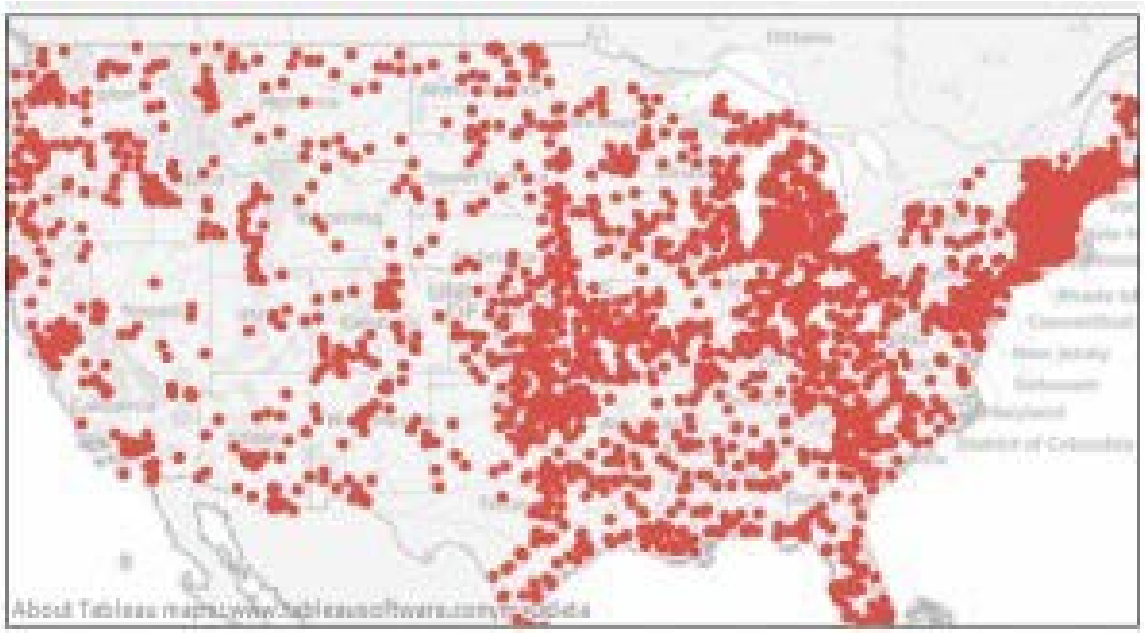
The Perfect Marriage



Brownfields Are Abundant Nationwide



- 450,000+ nationwide
- 5 million acres
- Average size is 8-15 acres
- Large cities, small towns, rural

- Abandoned industrial sites
- Closed landfills
- Abandoned & reclaimed mine lands

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Brownfield Challenges

Beyond Solar considerations (i.e. Utility connection, slopes, size, etc.) consider:

- Presence of contamination
- Uncertainty of liability
- Site Management and compliance (e.g., Site Management Plans, Consent Orders relative to construction activities)
- Potential future remediation by others that could disrupt solar operations

Site Considerations

- Must Consider and Address:
  - Worker PPE
  - Geotech –ground suitability (concrete vs soil)
  - Site Management Plan Issues
    - Impacts to remediation Design (i.e. Cap)
    - How handled soils will be managed
    - Monitoring requirements (i.e. dust) during construction
    - Need to allow assess to groundwater monitoring wells
    - Who is responsible for on-going monitoring requirments
    - Site Inspection
    - Stormwater Impacts

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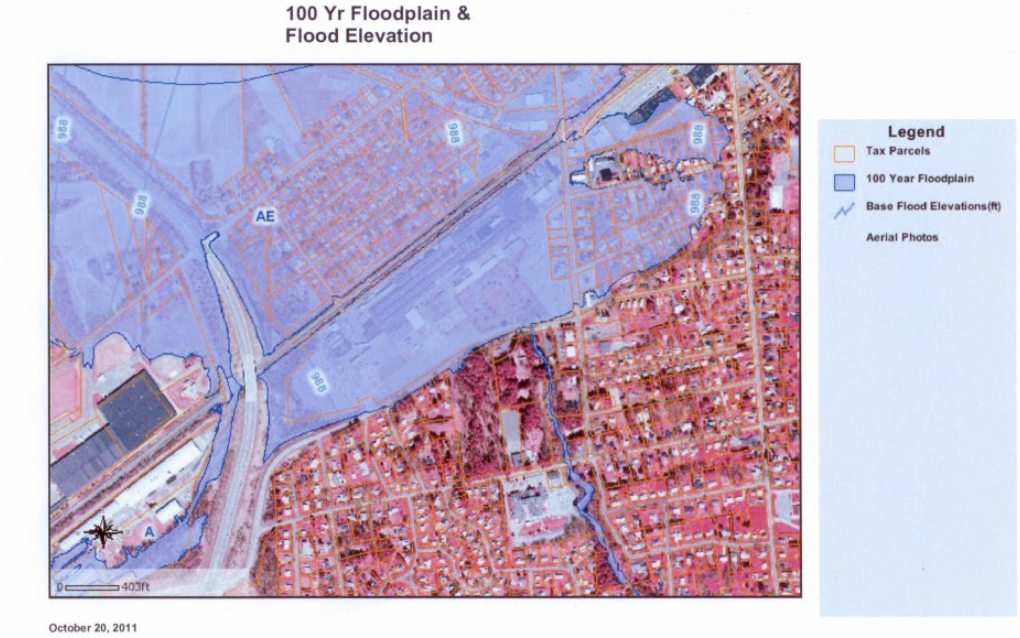
CASE STUDY- AMPHENOL



- Amphenol Aerospace - Sidney, NY one of world's largest electrical connectors.
  - 42 acres w/683k ft^2 of buildings
  - Operated from 1930s to 2014
    - Located within 100-yr flood zone
    - Environmental Condition
      - VOCs/metals in groundwater
      - VOCs in soil vapor/indoor air
      - PCBs in soil

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CASE STUDY- AMPHENOL

- Actions
  - Abandoned facility except plating shop in 2014 due to flooding
  - Constructed new facility 1 mile away
  - Demolished buildings except plating shop
- Left with:
  - Contaminated site that floods
  - Concrete slabs that serve as Cap
  - Excellent utility Interconnects
  - Site Management Plan
    - Maintain Cap
    - Manage soils properly
    - Groundwater Monitoring

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CASE STUDY – AMPHENOL

SUSTAINABILITY GOALS

7.2 Affordable and Clean Energy

By 2030, substantially increase the share of renewable energy in the global energy mix.

OUR GOAL: By the end of 2030, Amphenol will increase our use of renewable energy to 50% for energy used at our facilities.

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CASE STUDY - AMPHENOL

Amphenol Corporation
191 Delaware Ave
Sidney, NY 13838

Solar PV Size: 6.7 MW
Yr 1 Solar Production: ~8,145 MWh

Solar Incentives:

- NYSERDA Megawatt-Block Incentive - $603,000 over 3 years ($0.09/W)
- Property Tax Exempt (Delaware County has "opted out" of the New York State Sales Tax Exemption)
- Value of DER Tariff

Price:

Solar System Price:	$9,745,000
Landscaping:	$50,000
Fencing:	$85,000
Civil Engineering Costs:	$75,000
Interconnection Cost Estimate*:	$500,000
Sales Tax:	$165,000
Project Cost:	**$10,620,000**

**To Be Refined After CESIR Study*

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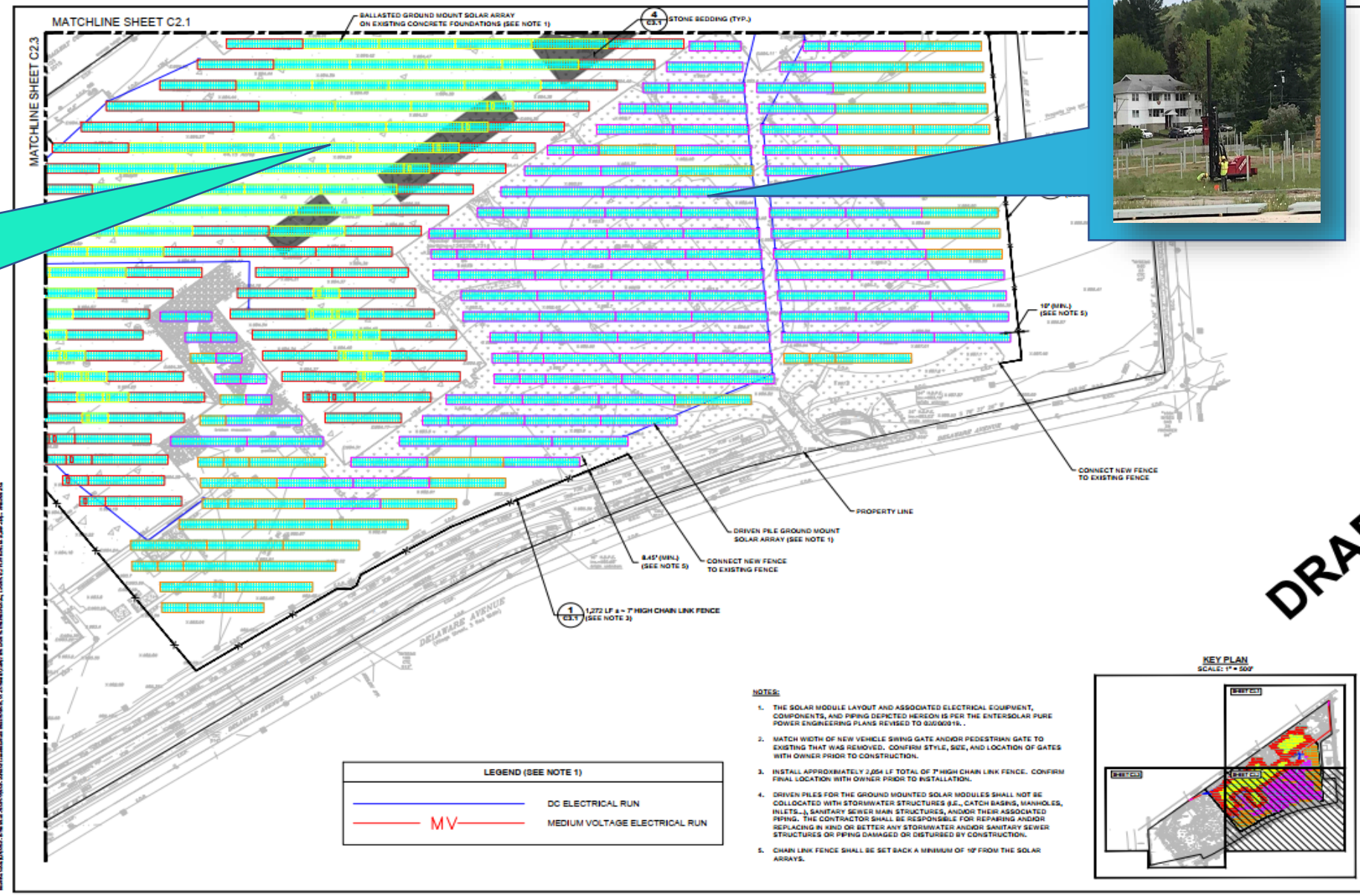

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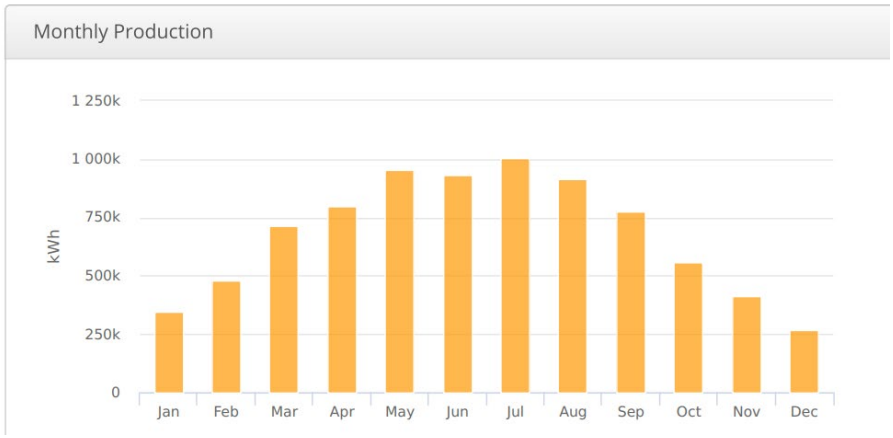

One of the Largest Corporate Onsite Solar Projects in New York State

Amphenol Aerospace Goes Solar

Amphenol Aerospace, a subsidiary of Amphenol Corporation, is an aerospace defense contractor and solar PV connector manufacturer. Amphenol has over 100 locations across 6 continents, and has a large presence in New York State.

Amphenol partnered with PowerFlex to complete a ground-mounted solar system ontop of a 23-acre industrial site in Sidney, New York. The remediated brownfield has been a manufacturing and plating facility for over eight decades and has supported over 1,000 high-paying Amphenol administrative and Union jobs. Amphenol made this investment as part of a continuing commitment to its commercial operations in New York State and to its dedicated employees and the community at large.

Solar Photovoltaic System Specifications

Amphenol's solar system is 6.3 MW in size and will be made up of 18,360 individual modules. The system will produce an estimated 7,413,724 kWh of electricity annually and the environmental benefits of this system are equivalent to saving over 380,000 gallons of gas or taking 721 cars off the road each year.

Significant Financial Returns

The project would not have been possible without the support of NYSERDA (the New York State Energy Research and Development Authority) and New York Empire State Development (ESD). The NYSERDA MW-Block Incentive with the Brownfield Adder helped to decrease the cost of installing solar.

This project ensured that Amphenol's tax dollars remained in New York State, where they can continue to support high paying jobs and accelerate economic growth. PowerFlex's expertise in optimizing system design and solar project financing made going solar a sound capital investment for Amphenol.

Project Summary

LOCATION:
Sidney, New York

INSTALLATION TYPE:
Ground-Mounted Solar PV System

SYSTEM SIZE:
6,334 kW DC

SYSTEM PRODUCTION:
7,413,724 kWh Annually

SOLAR INCENTIVE:
NYSERDA MW-Block with Brownfield Adder

Carbon dioxide emissions reduction
7,549,017
per year

Cars removed from service
726
per year

Trees planted
89,079

Houses powered
788
per year

PowerFlex, an EDF Renewables company, is a leading national provider of intelligent onsite energy solutions that support carbon-free electrification and transportation. The Company delivers integrated solar, storage, EV charging, and microgrid systems, to businesses and organizations. As a single full-service provider, PowerFlex customizes clean technology solutions to help clients achieve their energy and sustainability goals. Through the comprehensive *PowerFlex X* platform, PowerFlex leverages patented smart software to control, monitor, and optimize a client's distributed energy resources to reduce cost and maximize return on investment.For more information, visit www.powerflex.com. Connect with us on LinkedIn, Facebook, YouTube, and Twitter.

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THANK YOU

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