K-Solar

Helping NYS Schools
Reduce Energy Costs by Going Solar

Solar Development and Contract Terms

New York Power Authority

Generating more than electricity

K-Solar Webinar Series

- This webinar is the third in a series of three.
  1. Solar Incentives and Ownership Options
     1. Audience: All school district stakeholders
     2. Compare solar economics for direct ownership and third party ownership options
  2. Solar Site Assessment
     1. Audience: District facility managers
     2. Solar feasibility and applying for a free site survey
  3. Solar Development and Contract Terms
     1. Audience: District business managers
     2. Solar power purchase agreements

K-Solar

New York Power Authority
Generating more than electricity

Webinar Goals

- Answer five key questions:
  1. What are the stages of solar development?
  2. How long does the process take?
  3. What are the main contractual terms in a solar power purchase agreement (PPA)?
  4. What are our district's responsibilities for a solar array?
  5. What happens at the end of the term of a solar power purchase agreement (PPA)?

K-Solar

New York Power Authority
Generating more than electricity

The New York Power Authority (NYPA)

- Largest state public power organization in the United States
- Uses no taxpayer funds in its operations
- Provides wholesale power throughout New York State and the neighboring states as required by law
- Provides in the form of generation and market power purchases, about 25% of New York State's electricity
- Active in energy efficiency and clean energy technologies, financing over $1.9 billion in projects at customer sites

K-Solar

New York Power Authority
Generating more than electricity

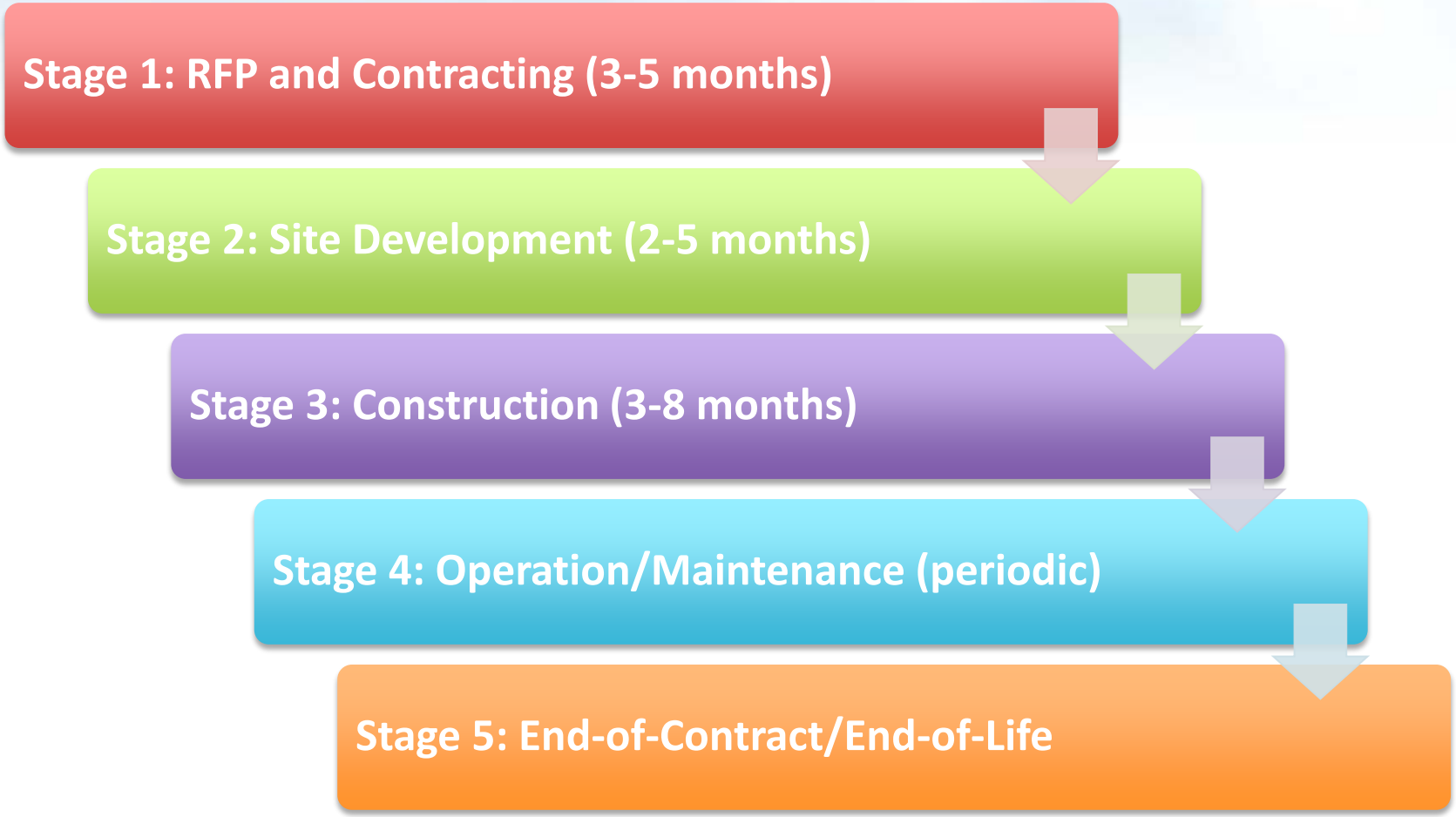
The K-Solar Program

- K-Solar is an aggregated purchasing program to increase the solar buying power of schools throughout New York State
  - NYPA supplies free feasibility study
  - NYPA managed competitive procurement
  - NYSERDA incentives and federal tax credits
  - SED expedited permitting process

K-Solar

New York Power Authority
Generating more than electricity

What are the stages of solar development?



K-Solar

New York Power Authority
Generating more than electricity

Timeline for solar development

- For public schools, the process may take less than 1 year or up to 2 years
- Must allow for the NYSED permitting process, even though the solar array will be owned by a privately-held third party
- Important to keep in mind that the Federal Investment Tax Credit (ITC) decreases from 30% to 10% after **December 31, 2016**. The solar array must be installed and operational by this date.

K-Solar

New York Power Authority
Generating more than electricity

Project stages and contract terms

Stage 1: RFP and Contracting	• Contract term sheet and minimum technical requirements included in the RFP
Stage 2: Site Development	• Development process responsibilities • Development timeline
Stage 3: Construction	• Commercial Operation Date (COD) • Performance guarantees
Stage 4: Operation/Maintenance	• Site lease and site access • O&M responsibilities and performance
Stage 5: End-of-Contract/ End-of-Life	• Address early termination, transfer options and project removal

K-Solar

New York Power Authority
Generating more than electricity

Stage 1: Request for Proposals

- NYPA will manage a competitive solicitation on behalf of a consortium of interested school districts.
- An RFQ (request for qualifications was issued in early September).
- NYPA will issue an RFP (request for proposals) to the qualified solar developers in November.
- NYPA will select a winning bidder for each region of the State.
- School districts can then enter into a contract with this solar developer.

K-Solar

New York Power Authority
Generating more than electricity

Terms for a standard PPA

- Pricing ($ per kWh)
  - Price escalation rate, if any
- Contract duration (20 or 25 years typical)
- Rights to environmental attributes (renewable energy credits, RECs) and NYSERDA incentives
- Roof repairs may be included in the contract
- Additional terms:
  - Solar Developer and School District Responsibilities
  - Severability terms
  - Guarantees and liquidated damages
  - End of term options
  - Early buyout options

Stage 2: Site development

- This step involves the contractor preparations for the required work
  - Engineering
  - Permitting in coordination with NYS Education Dept. (NYSED)
  - NYS Energy Research and Development Authority (NYSERDA) incentive applications
  - Financing

K-Solar

New York Power Authority
Generating more than electricity

Stage 2: Engineering/Permitting

- Engineering
  - Electrical
  - Civil / Structural
- Permitting (NYSED)
  - Environmental
  - Building (if rooftop)
  - Electrical
  - Zoning (if necessary)
- Permitting (electric utility)
  - Interconnection application
  - New metering

K-Solar

New York Power Authority
Generating more than electricity

Responsibilities

- Solar Developer's responsibilities
  - Engineering and permitting
- School District's responsibilities
  - Provide site access
  - Provide information needed to obtain permits
  - Final design approval

K-Solar

New York Power Authority
Generating more than electricity

NYS Energy Research and Development Authority Incentives

- NYSERDA incentives cover approximately 25% of the project cost.
- The incentives go to the solar developer and are used to offer the school district a lower cost of energy.
- The NYSERDA “MW Block” incentive declines over time, so the earliest schools to apply will receive the highest incentives.
- The PPA will have provisions for the Project Owner’s failure to obtain incentives.

K-Solar

New York Power Authority
Generating more than electricity

Stage 3: Construction

1. Equipment procurement
2. Site preparation
   - Re-roofing or roof repair, if required
3. Civil and structural work, if needed
4. Solar panel installation

K-Solar

New York Power Authority
Generating more than electricity

Ground mount solar site preparation

K-Solar

New York Power Authority
Generating more than electricity

Rooftop solar construction

K-Solar

New York Power Authority
Generating more than electricity

Post-construction work

- Electrical interconnection
  - Building
  - Electric utility
- Testing
- Punch list items
- Commissioning

K-Solar

New York Power Authority
Generating more than electricity

Relevant contractual issues

- Electrical interconnection costs
  - If cost of connecting to electric utility is higher than anticipated, the cost can be negotiated into the cost of energy prior to the construction phase
- Liquidated damages
  - Commercial operation date
  - Performance guarantee

Stage 4: Operations and Maintenance

- No panel washing or snow removal is required.
- Preventative and corrective maintenance is the solar developer's responsibility.
- The solar developer only gets paid when the system is operational and providing solar energy.
- Panel degradation of 0.5 to 1% per year is normal.
- School District's responsibility is to maintain proper site conditions in order to prevent shading.

K-Solar

New York Power Authority
Generating more than electricity

System monitoring

- Energy production
- System health
- Public display
- Educational

K-Solar

New York Power Authority
Generating more than electricity

Stage 5: What happens at the end of the PPA term?

- Early buyout may be an option (after 7 years).
- School district can choose to buy the system from the solar developer at fair market value (FMV).
- Solar developer is contractually bound to dismantle and remove the system.
- Solar developer may wish to negotiate an extension to the contract.
- It may be cost effective to refurbish parts of the system and continue operation.

For additional information

- NYPA K-Solar website link: www.nypa.gov/K-Solar
  - Includes registration for program, pre-recorded webinars and FAQ
- NYSERDA website link: http://ny-sun.ny.gov/
  - Information on solar incentives
- Contact us:
  - solar@nypa.gov
  - 914-681-6431

K-Solar

New York Power Authority
Generating more than electricity

A SISTER PROGRAM

- Community Solar NY:
  - **K-Solar Schools are Community Solar Hubs**
  - Showcase solar and tell your story
  - Help Solarize your neighborhood
    - Host events and spread the word
    - Find the Solar Champions in your community
  - Make clean energy a part of your classroom education
  - Funding and resources from NYSERDA
  - **Contact: Max Joel, Program Manager, NYSERDA**
    - **212-971-5342 ext. 3035**
    - **max.joel@nyserda.ny.gov**

K-Solar

New York Power Authority
Generating more than electricity


New York Power Authority
Generating more than electricity