



Renewable Energy Development in New York State

Growing Renewable Energy Capacity in
New York

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Development Authority

NYSERDA Snapshot

A tall, slender weather station tower stands in a green field. At the top of the tower, there is a cup anemometer and a wind vane. The background shows a clear blue sky and a line of trees in the distance.

- Public Benefit Corporation
 - Energy, Environment, Economy
 - Market Driven
 - Risk Reduction Investments
- Research & Development, Energy Analysis, Energy Efficiency Services Deployment, Residential Energy Efficiency
- Steward of the New York State Systems Benefit Charge and Renewable Portfolio Standards Programs

Presentation Outline

- Building renewable energy supply
 - Renewable Portfolio Standard
 - Biomass Eligibility
 - Prospecting
- Building renewable energy demand
 - Green Power Marketing
- Bring renewable energy to the customer
 - Future RPS Customer-Sited Tier
 - Training/Education Programs
- Leveraging market pull for product development



Building Renewable Energy Supply

RPS Expectations

- Renewable energy to serve 25 % of retail sales in 2013
- Existing resources to account for 19.5%
- Incremental requirement to be satisfied by:
 - Central procurement (NYSERDA)
(9,800+ GWH)
 - Behind the meter (NYSERDA)
(200+ GWH)
 - Voluntary Green Retailing
(1,800+ GWH)
 - State Agency Procurement (EO 111)
(300+ GWH)

Note: Voluntary Market responsible for approx. 15 % of target !



RPS Structural Elements

- Centralized model administered by NYSERDA
- LIPA encouraged to deploy own program
- PSC established non-by passable wires charge to be collected by utilities and forwarded to NYSERDA
 - NYSERDA MOU with PSC and contracts with utilities employed
- PSC authorized collections of roughly:
 - Main Tier Central Procurement
\$ 618 M cumulative
 - Customer – Sited Tier Program
\$ 122 M cumulative
- NYSERDA “procures” environmental attributes only



Categorization of Source Generation Type

Category	Source	Other Requirements
Biogas	Landfill Gas (Methane) Sewage Gas (Methane)	
	Manure Digestion (Methane)	If required to have a SPDES permit by NYSDEC regulations, a CAFO providing the manure must ... be in compliance with its current Agricultural Waste Management Plan ... If not required to have a SPDES permit, the CAFO must be operating in compliance with the best management practices ... set forth in the <i>Principles and Water Quality Protection Standards</i> specified in the <i>Agricultural Environmental Management Framework & Resource Guide</i> developed by the NYS Department of Agriculture and Markets and the NYS Soil and Water Conservation Committee.
	Anaerobic Digestion (other biogas digestion using agricultural or food processing residues and by-products)	
	Biomass Thermochemical Gasification Biogas Combined Heat & Power Biogas Co-fired with existing fossil-fuel Combustion	Facilities utilizing adulterated biomass must demonstrate that all feedstocks that are not source separated in fact come from NYSDEC-permitted solid waste facilities that pay for NYSDEC-provided monitors to ensure that their biomass processing is consistently within their facility permits and conditions. Only the electricity generated from the biomass portion of the fuel is eligible.
Biomass *	Biomass Direct Combustion Biomass Combined Heat & Power	
	Biomass Co-fired with existing fossil-fuel Combustion	Only the electricity generated from the biomass portion of the fuel is eligible.

Categorization of Source Generation Type (cont'd)

Category	Source	Other Requirements
Liquid Biofuel	Biomass* Liquification through acid or enzymatic hydrolysis (Ethanol)	Facilities utilizing adulterated biomass must demonstrate that all feedstocks that are not source separated in fact come from NYSDEC-permitted solid waste facilities that pay for NYSDEC-provided monitors to ensure that their biomass processing is consistently within their facility permits and conditions.
	Biomass* Esterfication (Biodiesel, Methanol)	
	Biomass* Thermochemical Pyrolysis (Bio-oil)	
	Biomass* Hydrothermal Liquefaction	
	Liquid Biofuel ... Combined Heat & Power	
	Liquid Biofuel ... Co-fired with existing fossil-fuel Combustion	Only the electricity generated from the biomass portion of the fuel is eligible.

**See Definition of Eligible Sources in Biomass (next slide)*

Definition of Eligible Sources of Biomass

- Agricultural Residue - Woody or herbaceous matter remaining after the harvesting of crops or the thinning or pruning of orchard trees on agricultural lands. Agricultural by-products such as leather and offal and food processing residues that are converted into a biogas or liquid biofuel.
- Harvested Wood - Wood harvested during commercial harvesting. The biomass facility owner must ... be in compliance with a current Forest Management Plan prepared by a professional forester that includes standards and guidelines for sustainable forest management A fuel supplier ... must be in compliance with a biomass facility's Forest Management Plan and also prepare a harvest plan Periodic inspections of harvesting operations by state authorities or approved non-governmental forest certification bodies will be performed to ensure that harvest operations conform to the standards.
- Mill Residue Wood - Hogged bark, trim slabs, planer shavings, sawdust, sander dust and pulverized scraps from sawmills, millworks and secondary wood products industries.
- Pallet Waste - Unadulterated wood ...
- Refuse Derived Fuel - The source-separated, combustible, untreated and unadulterated wood portion of MSW or C&D debris generally prepared by a densification process resulting in a uniformly sized, easy to handle fuel pellet or briquette.
- Site Conversion Waste Wood - Wood ... cleared for the development of buildings, ...

Definition of Eligible Sources of Biomass

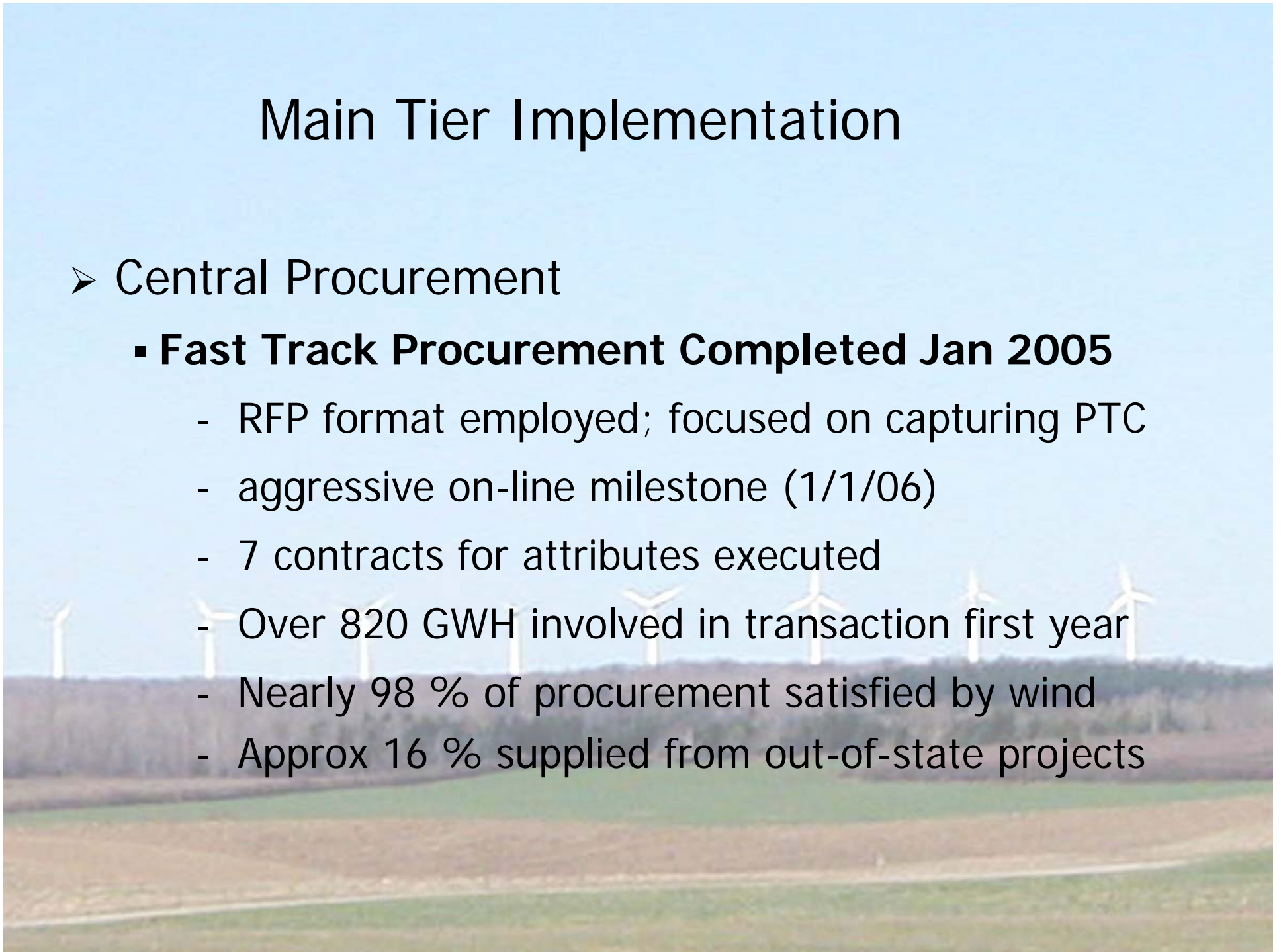
- Silvicultural Waste Wood - Wood harvested during timber stand improvement and other forest management activities conducted to improve the health and productivity of the forest. The biomass facility owner must ... be in compliance with a current Forest Management Plan prepared by a professional forester A fuel supplier of a biomass facility must be in compliance with a biomass facility's forest management plan and also prepare a harvest plan Periodic inspections of harvesting operations by state authorities or approved non-governmental forest certification bodies will be performed to ensure that harvest operations conform to the standards.
- Sustainable Yield Wood - Woody or herbaceous crops grown specifically for the purpose of being consumed as an energy feedstock.
- Urban Wood Waste - The source-separated, combustible untreated and uncontaminated wood portion of municipal solid waste or construction and demolition debris. Adulterated forms of biomass such as non-recyclable wood (e.g., plywood and particle board), paper, paperboard boxes, textiles, food, leather, yard waste and leaves may be used as a feedstock for biogas or liquid biofuel conversion technologies, if it can be demonstrated that the technology employed would produce power with emissions less than or equal to emissions produced while using only unadulterated feedstock.

Main Tier Implementation

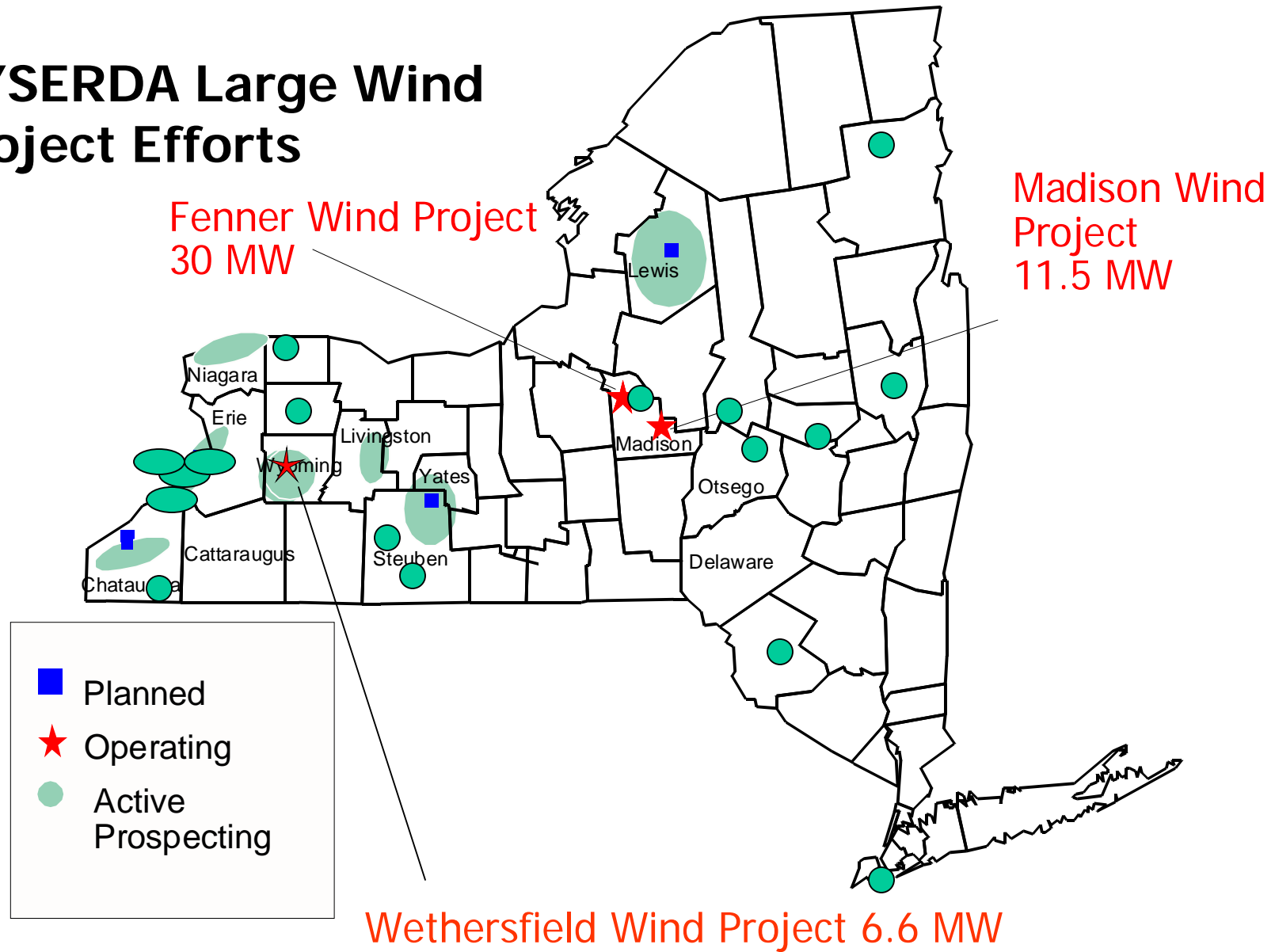
➤ Central Procurement

▪ **Fast Track Procurement Completed Jan 2005**

- RFP format employed; focused on capturing PTC
- aggressive on-line milestone (1/1/06)
- 7 contracts for attributes executed
- Over 820 GWH involved in transaction first year
- Nearly 98 % of procurement satisfied by wind
- Approx 16 % supplied from out-of-state projects



NYSERDA Large Wind Project Efforts



Building Renewable Energy Demand



Green Power Marketing Program Structure

- Funding 5 year efforts (> \$ 16M budget)
- Funding for marketing cycles subject to satisfying performance metrics except for first year/start up
- Products must meet minimum qualifications (resource location, type)
- Five efforts (CEI(2 regions), GMEC, SP, ECNY)

Wethersfield Wind Project

Green Marketing Program Sales Metrics

Sales under contract :	Ending 2004
By resource type:	
Wind	120,900
hydro	56,500
biomass	3,200
Total Sales	180,600

Sales figures in MWH

Existing wind in NYS (approx. 48 MW) is sold-out



Bring Renewable Energy to
the Customer

Customer Sited Tier Implementation

- **Expected to start in 2006**
- **Modeled after New York Energy Smart SM incentive program**
 - **Accelerate development of photovoltaic systems, fuel cells and small wind turbines**
 - **Develop mechanisms to “certify” new clean technologies – interest from the ADG community.**
 - **Combination of incentive/performance packages and competitive procurement**
 - **In general, participation will be limited to customers paying the RPS surcharge**

Quality Training = Quality Installers = Quality Installations

PV Installers – available today

Small wind – under development

ADG – next on the list



Accreditation of
Training Programs

Certification of
Trainers

Renewable Energy

Energy Efficiency

Distributed Generation

North American Board of
NABCEP
Certified Energy Practitioners

What Does It Mean to be Certified?
Certification for Solar PV Installers is a voluntary process offered by the North American Board of Certified Energy Practitioners (NABCEP) to individuals who have met specific qualifications.

To become NABCEP certified, the installer

- Must be at least 18 years of age
- Meet prerequisites of related experience and/or education
- Sign a code of ethics and standards of practice
- Pass a written exam

An installer is certified for three years. To maintain this professional designation, certificants must meet continuing education requirements and install a specified number of systems per year.

The NABCEP certification program has been developed and designed carefully following professional credentialing guidelines. Standards, developed by experts in the field, have been set and the eligibility requirements to become certified are based on extensive input from installers and members of the solar industry.

The North American Board of Certified Energy Practitioners is dedicated to the implementation of appropriate professional standards designed to protect consumers and the profession.

NABCEP-Certified Solar PV installers are required to specify, configure, install, inspect and maintain a solar electric system that meets the performance and reliability needs of customers, incorporates quality craftsmanship, and complies with all applicable safety codes and standards by:

- Working Safely with PV Systems
 - Conducting a Site Assessment
 - Selecting a System Design
 - Adapting the Mechanical Design
 - Adapting the Electrical Design
- Installing Subsystems and Components at the Site
- Performing a System Checkout and Inspection
- Maintaining and Troubleshooting a System

New York Energy Smart
Public Service Commission NYSERDA
George E. Pataki, Governor

Visit the New York State Energy Research and Development Authority's (NYSERDA) New York Energy Smart™ program's web site at www.getenergysmart.org

Also visit NYSERDA's Power Naturally™ web site at www.PowerNaturally.org for information on:

- Guide to Installing a Solar Electric System
- NYSERDA Incentives for Solar Electric Systems
- New York State Solar Electric Generating Equipment Tax Credit.

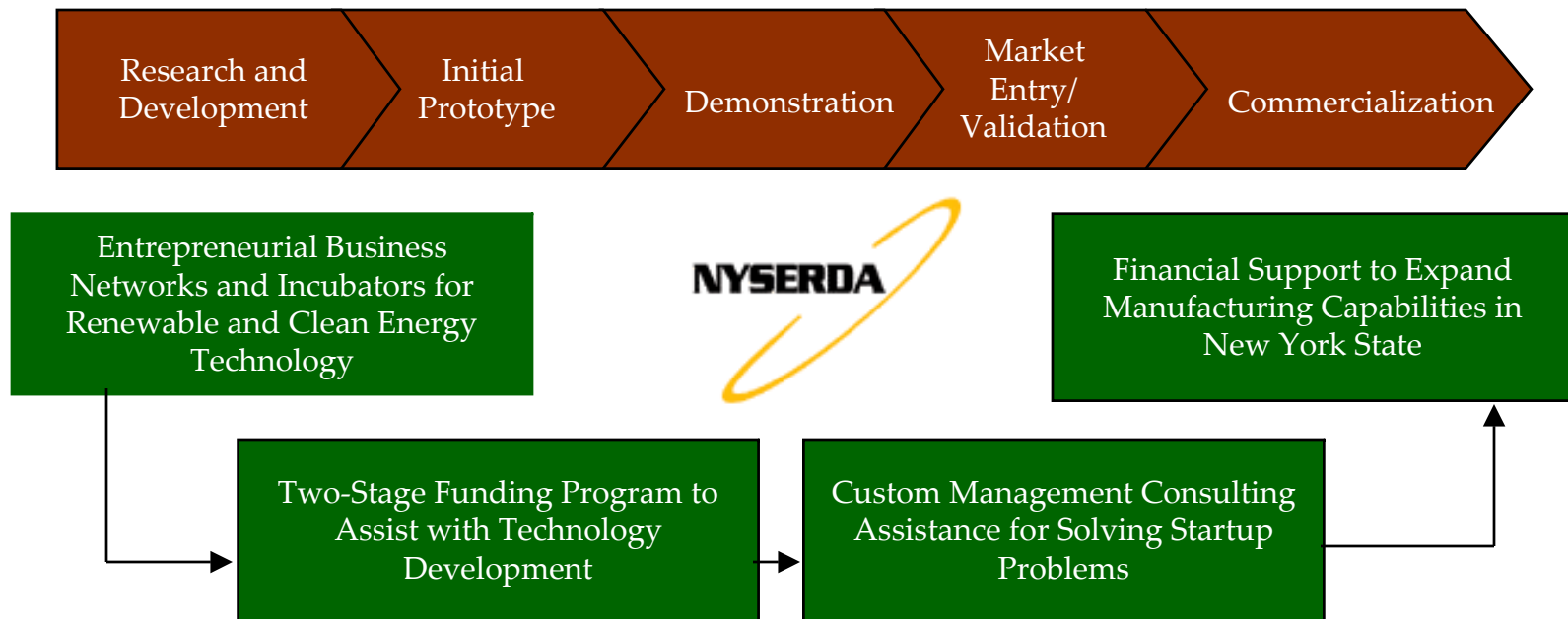
Contact NYSERDA at 1-866-NYSERDA

Neither the New York State Energy Research and Development Authority (NYSERDA) nor the State of New York (1) endorse any certified installer, or (2) guarantee, warranty, or in any way represent or assume liability for any work proposed or carried out by a certified installer. NYSERDA does not make any representations of any kind regarding the results to be achieved by the PV systems or the adequacy or safety of such measures.

Leveraging Market Pull for Product Development



NYSERDA Programs and Resources to Assist New York-Based Startup Renewable and Clean Energy Technology Businesses





Regional Networks & Incubators

- **RENEW NY**
- **LaGuardia Design Incubator Renewable Energy Network**
- **Energy & Environmental Technology Applications Center (UAlbany)**
- **LIFT- Web-based Entrepreneurial Network**
- **CEG-RPI Advanced Incubation Program**

Thank you for your attention

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