

The Business Council & NYSERDA Webinar Series:

Advancing Innovative Energy Solutions

Alicia Barton

President and CEO, NYSERDA

Janet Joseph

Senior Vice President, Strategy & Market Development, NYSERDA



**The
Business
Council**



NYSERDA

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Moving Forward Together

***“To create economic growth,
good jobs, and strong communities
across New York State.”***



**The
Business
Council**



NYSERDA

Reforming the Energy Vision

Clean Energy Goals

CLEAN ENERGY ECONOMY

over 151,000 clean energy jobs



now

RESILIENT and DISTRIBUTED GRID

1,500 MW of energy storage



by 2025



ENERGY EFFICIENCY

185 Tbtu end-use savings
in buildings and industrial facilities

RENEWABLE ENERGY

50% electricity from renewable energy



by 2030



GHG REDUCTION

40% reduction in greenhouse
gas emissions from 1990 levels

Climate Assessment Report

Report outlines the severe and costly impacts of climate change on:

Economy

Environment

Human Health

Coastal Communities

Interconnection between Urban Areas
and Communities

Impacts on our energy system

- > Nationwide impacts
- > Energy system vulnerabilities
- > Energy system resilience

Clean Energy Fund Landscape

10-year, \$5 billion funding commitment to support clean energy market development and innovation

Core component of **REV**

Will deliver more than **\$39 billion in energy savings** over the next 10 years and substantial GHG reductions

Designed to **leverage private capital** and reduce reliance on ratepayer funds to drive the energy transformation

CEF Portfolios include:

- > Market Development
- > NY-Sun
- > Innovation and Research
- > NY Green Bank

NYSERDA's Role in the Market

Delivering market solutions that:

Reduce greenhouse gas emissions

Accelerate growth and scale-up New York's clean energy economy

Increase private investment in clean energy

Deliver energy savings due to reduced energy use

Increase statewide energy efficiency and renewables

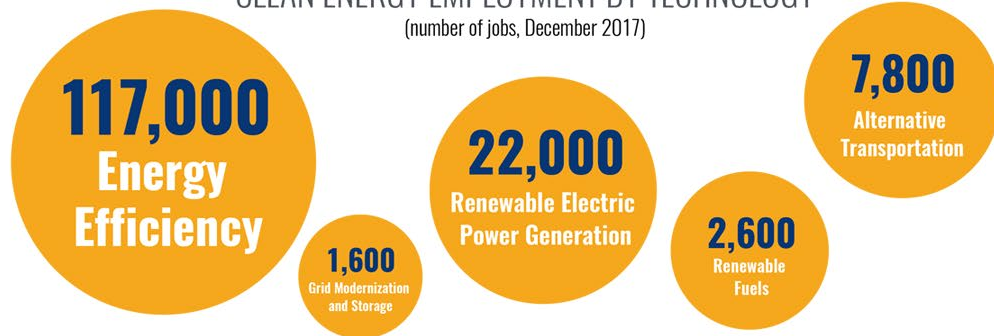
Increase fuel diversity

New York Employment Overview

over
151k **clean energy jobs in 2017**
across New York State

5.6k **new clean energy jobs in 2017**
employers expect to hire 8,000 more in 2018

CLEAN ENERGY EMPLOYMENT BY TECHNOLOGY (number of jobs, December 2017)



New York Employment Overview



Over 151,000 Jobs: The clean energy sector now employs more workers than the thriving biotech and agriculture industries combined

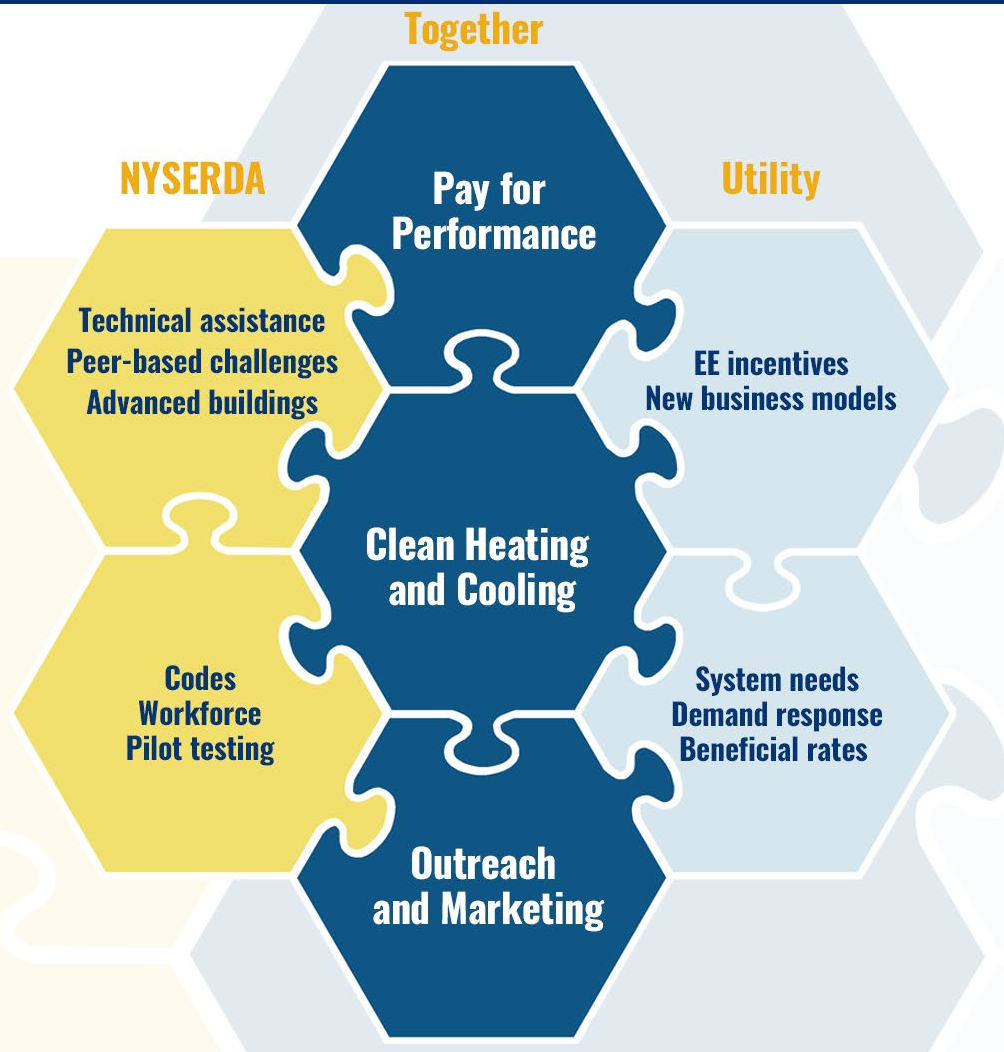
Job Growth: New York's clean energy economy continues to see stronger job growth than the State's economy overall

- > Clean energy employment grew by 3.9% from 2016 to 2017
- > Overall NY employment grew 1.7% in that time

Energy Efficiency Is Key: Of the five clean energy technology categories, this one continues to be the largest in terms of jobs and investment

NYSERDA and Utility Collaboration

*Programs that
are complementary*



Strategies

for Commercial and Industrial Customers

Proactive Energy Management

Establishing a corporate energy strategy and program (making a commitment, forming a team)

Collecting and understanding energy data (current energy usage)

Identifying energy saving goals and opportunities

Engaging employees (behavioral change around energy)

Tracking energy performance and assessment (continuously measuring your performance and reassessing your goals)

Strategies

for Commercial and Industrial Customers

Smarter Buildings

Remote Energy Management

Real Time Energy Management (RTEM)

Networked Buildings

Distributed Energy Resources (DER)

Strategies

for Commercial and Industrial Customers

Energy Efficiency Solutions

HVAC and Heat Pumps

Building Envelope

Lighting and Lighting Controls

Motors and Variable Frequency Drives (VFDs)

Process Efficiency

Benchmarking and Technical Guidance

Strategies

***for Commercial
and Industrial
Customers***

Clean Technology and Energy Supply

Solar

Solar Plus Storage

Combined Heat and Power & Fuel Cells

Energy Storage

Electric Vehicles and Charging Stations

Green Energy Procurement

Strategies

for Commercial and Industrial Customers

Buildings Operations and Maintenance

Operations and Maintenance Training

Creating a Staffing Pipeline

Energy Management Resources (e.g. calculators)

Retro-Commissioning

Technology Advisory Services – e.g. Onsite
Energy Manager (OsEM)

Renewables



*New York State has
committed to building*

up to 2,400 megawatts

of offshore wind power
by 2030, enough to power
up to **1.2 million homes**

Renewables



Lower opporating costs through reduced electric bill

In New York, since 2011, the cost to install solar has been **reduced by half** and is expected to continue to decline

5,572 commercial and industrial solar installations as of September 2018, with **866** in the pipeline

Strong job growth with **12,000+** employed in solar industry

**NY-Sun aims to have 3 gigawatts
of installed capacity by 2023**

Renewables



\$40 million for solar projects that integrate energy storage

Reduces electricity costs

Makes buildings more resilient during peak electric usage or grid outages

Provides clean energy to the grid

30,000 New Yorkers will work in the energy storage sector by 2025

1,500 megawatts of energy storage in New York State by 2025

GHG Reduction

40%
by 2030

from 1990 levels

***Transportation is responsible for
33% of statewide GHG emissions***

Green your fleets with alternative fuel vehicles

Install EV charging stations making it easier
than ever for businesses and their employees
to go electric

Financing



NY Green Bank increases the availability of capital for projects featuring proven clean energy technologies across New York State

Energy efficiency

Clean energy generation

Clean transportation

Clean energy storage

Growing the Clean Energy Economy

*430+ new and improved
clean energy products
have been commercialized
as a result of NYSERDA's
technology and business
development investments*

NYSERDA-supported resources across the State

Proof-of-Concept Centers

Incubators

Entrepreneurs-In-Residence

Manufacturing Corps (M-Corps)

76West

Cleantech Leadership Institute

Test and Commercialization Institute

StartupGPS

Workforce Development

Nearly **\$70 million** over the next ten years to change the landscape of New York's workforce through clean energy workforce development and training

NYSERDA will provide opportunities for:

- > Training building and operations staff to properly operate and maintain building systems
- > Providing on-the-job training for new clean energy workers
- > Supporting internships for students looking to gain hands-on skills at a clean energy company
- > Enhancing curricula to meet the demands of clean energy employers
- > Establishing a talent pipeline that can reduce the business cost of hiring new workers

What's Next

Advancing Innovative Energy Solutions

***a series of topical energy
webinars and resources
for members of the
Business Council of NYS***

**Attract, Retain, and Grow
Through Workforce Development**

Energy Efficiency is Power for Productivity

The Future of Transportation is Already Here

Building Operational Intelligence

Generating Big Savings for Small Businesses

**Distributed Energy Resources:
The New Return on Investment**

Resources

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IPEOutreach@nyserdera.ny.gov

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nyserdera.ny.gov/solar-plus-storage
info@nyserdera.ny.gov

Electric Vehicles and Charging Stations:

nyserdera.ny.gov/charge-ny
info@nyserdera.ny.gov

NY Green Bank:

greenbank.ny.gov
info@greenbankny.gov

For a listing of all programs:

nyserdera.ny.gov/all-programs

**For more information about
how NYSERDA can help your
business, contact:**

Joe Berman, Senior Advisor
Market Development
Joe.Berman@nyserdera.ny.gov
518-862-1090, ext.3443