THE INDUSTRIAL AND
PROCESS EFFICIENCY PROGRAM

Incentives to improve processes, products and profitability.

The New NY WORKS for Energy

nyserda
Energy. Innovation. Solutions.

Program Overview

We provide process improvement programs for data centers and manufacturers.

NYSERDA's Industrial and Process Efficiency (IPE) Program has one primary goal: to provide incentives that help New York manufacturers and data centers make energy-efficiency improvements that measurably reduce energy costs.

Whether your goal is to increase productivity and capacity, or enhance reliability and uptime, the Industrial and Process Efficiency incentives can help offset the cost of your energy-efficiency project and improve your return on investment.

NYSERDA allocates funds for these incentive programs with support from the New York State utility System Benefits Charge (SBC). If you pay into this charge through your electricity and/or natural gas bill, your facility is eligible to participate.

Eligible projects include those that increase manufacturing output, improve IT efficiency, minimize energy use in building support systems, and even offset the cost of installing equipment in a new energy-efficient facility. If your cost-saving project can measurably reduce energy use and make your business more competitive, NYSERDA has the incentives to help you implement it.

Read on to learn how the Industrial and Process Efficiency Program can support your specific business goals.

Three Ways to Make Your Facility More Efficient

PROCESS EFFICIENCIES

Install a new process or improve your existing process to achieve a gross reduction of energy usage, or a net reduction of energy usage per unit of production/compute. Process efficiency projects can include:

- Industrial and data center process improvements or new installations
- Capacity additions that improve the energy use per unit processed
- Quality improvement
- Waste and scrap reduction
- Throughput increase
- Information Technology (IT) improvements, including server virtualization, storage consolidation, thin clients, applications management, and server load prioritization and optimization

ENERGY EFFICIENCIES

Reduce on-site energy consumption of your new or existing facilities with projects like these:

- Energy recovery from an industrial process
- Space conditioning improvements
- Pumping system improvements
- Compressed air efficiency
- Fluid and support system improvements
- Other projects that reduce energy consumption

OPERATIONS & MAINTENANCE EFFICIENCIES

Improve operations in your existing facilities to effectively reduce your energy usage. O&M projects may involve:

- Compressed air leak management
- Replacement of leaking steam traps
- Installation of cogged-style fan belts
- Burner tune-up
- Server power management

Partner with NYSERDA

Improving product quality and process. Upgrading system performance. Enhancing operations. While NYSERDA offers incentives to make these energy-efficiency initiatives more cost-effective, it also has qualified, objective technical staff who will ensure your business goals are achieved.

Our technical experts — many of which are LEED® certified or Certified Energy Managers — are at the leading edge of their respective fields, and are involved with the nation's most respected energy-related associations. But most importantly, they are resourceful partners who will help you clearly understand the value of your energy-efficiency initiatives.

In addition to our staff, a network of specialized energy consultants, all competitively selected for their proven expertise, supports NYSERDA. They will meet you to discuss your energy and business priorities, provide assistance in understanding and applying for NYSERDA IPE program funds, and are available to address any questions or concerns.

NYSERDA consultants and contractors can help you implement your energy-efficiency project.

"The NYSERDA mission of assisting New York companies to find ways to reduce their energy consumption is a perfect strategic fit with our core value of continuous improvements of our products and processes. This common purpose was the driving force behind the very successful energy consumption strategies implemented in our most recent project."

— ROBERT K. IRVING, PRESIDENT, IRVING TISSUE

"The NYSERDA incentive is a primary factor in selecting the NY-based servers for virtualization rather than servers located in states without such programs. Furthermore, it increases the total affordability of our consolidation and virtualization program, allowing us to do more with our limited investment resources."

— JOHN ADAMS, IBM, CHQ, ENTERPRISE ON DEMAND

"New York State's willingness to invest in energy-efficient technology through the NYSERDA program enabled the University of Rochester's Center for Research Computing to deploy an innovative technology (GPUs) to meet the computational needs of the research community. The NYSERDA funding was invaluable as the University sought to reduce its energy footprint without compromising its ability to support world-class computational research."

— DAVID E. LEWIS, VICE PRESIDENT FOR IT AND CHIEF INFORMATION OFFICER, UNIVERSITY OF ROCHESTER

DETERMINE WHAT'S BEST FOR YOUR BUSINESS

When it is time to identify and prioritize which projects can maximize your energy productivity savings, turn to NYSERDA. To help you get started, our Industrial and Process Efficiency team can:

- Explain incentive eligibility requirements
- Schedule a site visit
- Assist you with the application process

Organizations interested in Industrial and Process Efficiency opportunities should contact: IPEOutreach@nyserda.ny.gov

Industrial Manufacturing

Get funding for your plant's next process-efficiency project.

Process Efficiency Improvements

Produce faster, better and at a lower cost. It is the goal every manufacturer strives for, and one NYSERDA can help you achieve. The more energy-intensive your facility, the more energy is embedded in production. Industrial and Process Efficiency incentives help offset the costs of implementing projects that increase productivity and process efficiency and reduce waste, thereby reducing energy consumption on a per unit of production basis. Eligible process efficiency improvement projects include, but are not limited to:

- **Throughput increases —** Improve production line capacity without increasing energy usage by reducing the energy required to produce each unit.
- **Scrap reduction —** Make changes to the production process that result in less waste, improved energy efficiency and increased product competitiveness.
- **Quality improvements —** Improve process control to reduce your process variation and enhance production quality. The resulting increased yield of acceptable product, reductions in rework and safety stock all impact the overall process energy usage.
- **Standard cost improvement —** There is much to be gained from the energy-efficiency savings you achieve when implementing capital projects. Please do not overlook these kinds of project savings; be sure to include them in your cost analysis.
- **Process controls and optimization —** Implement control strategies to lower product variability, increase throughput, improve safety and reduce energy usage. Controls are often put in place to reduce idle time or temperature, or to ensure that process support systems, such as pollution prevention and dust collection systems, are on only when the process is running.

NYSERDA has provided Potsdam Specialty Paper with $2.65 million in financial incentives for recent projects.

NYSERDA helped Ball Corporation reduce energy consumption by 963,600 kWh annually.

Lean Manufacturing

The more efficient you can make a process, the less energy it will require to perform that process. By reducing wasted time and resources in your processes, you can make a significant impact on your energy savings. Integrate lean manufacturing into your energy-saving approach by using one or more of the following techniques:

- **5S —** Reduce workplace waste and optimize productivity through a cyclical methodology of sorting, straightening, sweeping, standardizing, and sustaining to achieve continuous improvement.
- **Kaizen Event —** Take decisive, quick action on a particular area or process in order to improve it.
- **Six Sigma —** Reduce variation in processes by striving to achieve Six Sigma, the long-standing unit of measure that represents “almost perfect” — all product within specification, all the time.
- **Total Quality Management (TQM) —** This strategy emphasizes process management. Use it to capitalize on the involvement of management, workforce, suppliers and customers to ensure better product quality.
- **Value Stream Mapping —** Include energy as you use this tool to help visualize the entire lean manufacturing process. A map of the present manufacturing flow can reveal opportunities for change and improvement.

NYSERDA can help reduce process energy usage.

Industrial Manufacturing

Building Systems Improvements

Ensuring building systems operate as efficiently as possible is key to developing a more energy-efficient facility. NYSERDA incentives can help you make manufacturing facility upgrades and improvements. Eligible facility efficiency improvement projects include, but are not limited to:

- **Motors —** Install premium-efficiency motors to significantly reduce production process costs. Premium motors run cooler and are better able to withstand variations in voltage.
- **VFDs —** For variable load and demand, variable-frequency drives (VFDs) allow motors to adjust at a controlled rate to meet specific demands. These devices are very effective in producing energy savings in pump and fan applications.
- **Air Recovery System —** Provide a controlled way to ventilate your facility, while minimizing energy loss.
- **Vacuum System —** Vacuum generation can produce considerable energy consumption. Optimize your system to improve efficiency and reduce operating costs.
- **Pumping Systems —** Prevent profit drain by optimizing your pumping systems for best efficiency. This is an important way to reduce energy and maintenance costs.
- **Dust Collection —** Install VFDs on dust collector fans, incorporate closed-loop systems or install controls so the dust collection system only runs when needed by production. Improving the efficiency of your dust collection system can reduce energy costs.

NYSERDA helped Gleason Works reduce its peak electrical demand by 182 kW.

TOP
NYSERDA incentives helped Garlock Sealing Technologies enhance its lake-water cooling system.

BOTTOM
NYSERDA provided 50% of the project costs for Southeastern Container's process improvements.

Lighting, HVAC and Compressed Air Improvements

There is tremendous opportunity to reduce annual operational expenses and increase efficiency with energy-saving support systems.

Lighting

Effective, efficient lighting design and technology can have a plant-wide effect, reducing energy bills while improving the quality of light. Lighting efficiency improvement measures include:

- Replace lamps and ballasts or fixtures.
- Install lighting controls such as timers, dimmers and occupancy sensors to optimize facility lighting use during operating and non-operating hours.

HVAC

Make improvements that better balance and reduce overall consumption in your HVAC system. Cost-saving HVAC-related efficiency measures include:

- Install controls to set back temperatures during non-production, such as weekends.
- Implement demand-control ventilation to decrease the amount of outside air that is heated and cooled.
- Install VFDs on pump systems, air handling systems and recirculation fans.
- Install high-efficiency boilers or upgrade existing boilers with condensing units or economizers to decrease natural gas use.
- Select and size appropriate system components, such as chillers, to better address your facility's demand.

Compressed Air

Compressed air systems are commonplace in most facilities, yet are often overlooked when it comes to energy efficiency. Consider how you can increase potential savings by:

- Replacing a compressed air end-use motor with an electric motor to decrease annual energy costs as much as six times.
- Optimizing operation and control of your air compressor plant.
- Reducing energy costs and demand charges through the installation of compressed air storage.

Data Centers

NYSERDA helped reduce GlobeOP's data center operations' energy use by 440,000 kWh per year.

IT Infrastructure Efficiency Improvements

Optimizing infrastructure is an important strategy when it comes to cost-effectively handling today's ever-increasing data demands. NYSERDA can help you improve your facility's energy performance with incentives focused on reducing net energy, or in the case of expansion, improving energy usage on a per unit of compute basis. Eligible energy-efficiency improvements include, but are not limited to:

- **Installation of next-generation servers —** Invest in new server technology to increase computing capacity with no energy load growth.
- **Server virtualization —** Reduce the number of physical servers to cut energy usage, relieve space constraints and reduce the cooling load.
- **Storage consolidation —** Centralize and share storage resources to provide direct energy savings or increase storage capacity with no energy load growth.
- **Fat to thin client conversion —** Reduce energy consumption at the point of use by replacing desktop PCs with thin client terminals in large networks.
- **IT capacity management —** Effectively match the supply and demand of IT resources, not only at initial design, but through ongoing configuration management. This can prevent over-provisioning of assets and save energy.

Computing Efficiency Improvements

The Industrial and Process Efficiency Program can support expansion projects aimed at creating more efficient load growth by analyzing computing efficiency. Computing efficiency is based on the work load type or business process for your project, and examines the energy used per unit of measurable computing capacity.

Examples include:

Work Load Type	Metric
Scientific Computing	FLOPS
Storage	Bytes (Terabytes)
Transaction Processing	Transactions, claims, trades
Telecommunications	Calls or connections, call minutes, data rates
Web & Email Hosting	Users/customers, searches, hours of availability
General Network Applications	Users, hours supported

NYSERDA Data Center improvements helped TW Telecom cut energy costs by $40,000 a year.

Support System Improvements

Operating a data center at peak efficiency requires a combination of efficiency improvements, and that includes improvements to your support systems. Consider how you can leverage incentives to help reduce on-site energy consumption with energy-efficiency projects like these:

- **Cooling systems —** Upgrade or install more efficient CRAC units and economizers, and leverage free cooling to reduce non-IT energy use.
- **Airflow management —** Increase cooling system efficiency by improving supply and return air systems, floor tiles, blanking panels and hot aisle/cold aisle separation. This will ensure proper flow of cooling air to IT equipment.
- **UPS system upgrades —** Upgrade or install high-efficiency UPS systems to minimize energy waste due to switching losses.
- **Power distribution improvements —** Improve energy efficiency by minimizing energy losses with high-efficiency PDUs.

XAND Corporation qualified for $590,000 in NYSERDA funds for capital improvements.

Additional Energy Efficiency Considerations

NYSERDA can help you implement cost-saving process improvements.

Improving Efficiency through Expansion and New Design

By using energy-efficient design and technologies from the start, you can significantly cut operational costs and enhance your energy-saving potential in a newly constructed or expanded facility. The Industrial and Process Efficiency Program can help industrial and data center customers obtain incentives to cost-effectively incorporate those energy-efficiency measures.

Incentives can be used to offset the cost of installing commercially available energy-efficient technologies or process equipment in your new industrial facility or data center. Eligible improvements include:

- Lighting, HVAC and other building measure improvements that go above and beyond applicable codes.
- Productivity-based, energy-saving process equipment that increases throughput, reduces scrap or increases computing load.

Achieving Measurable Operational-Based Energy Savings

Proper operation and timely maintenance measures are key to reducing energy use and costs. It's important to incorporate O&M practices into your long-term planning. Operations and Maintenance incentives help support the cost-effective energy-efficiency projects that upgrade, initiate and generate energy savings based upon improved operation and maintenance.

Projects eligible for operational-based incentives include, but are not limited to:

- Additional maintenance of air system auxiliary equipment (dryers, filters, intercoolers, regulators, drain systems) that improves energy efficiency
- Identifying and repairing steam traps
- Replacement of fan belts with cogged styles that reduce slippage
- Resolving leaks in a compressed air system

IBM qualified for $1,084,800 in NYSERDA incentives.

How to Apply

Submit Your Application

Within 90 days of contracting, and prior to any demolition or removal of existing equipment or new equipment, installation applicants should provide the following:

- A Consolidated Funding Application
- A utility bill documenting your System Benefits Charge
- Preliminary energy savings calculations

Submit an Engineering Analysis

- NYSERDA will assign a technical reviewer to assist in the NYSERDA process and calculate the energy savings for each project (at no cost to you).
- A pre-installation inspection is conducted to understand the project and document the base case.
- Energy-savings calculations are completed based upon data supplied by the customer. For process efficiency projects, production data is also collected.
- A Measurement and Verification (M&V) plan is developed for:
  - Standard electric efficiency projects saving more than 1,000,000 kWh annually
  - Custom electric efficiency projects saving more than 500,000 kWh annually
  - LED lighting projects saving more than 1,000,000 kWh annually
  - Natural gas efficiency projects saving more than 10,000 MMBtu annually
  - At NYSERDA's discretion, M&V may be required or waived for any project.

NYSERDA Issues a Purchase Order

- Once energy savings is estimated, a purchase order is issued for the anticipated incentive amount.
- The applicant has two years from the purchase order issue date to install the improvement.

CONTINUED ON REVERSE

How to Apply, continued

Receive Post-Installation Verification

- Once the improvement is installed and operational, contact the technical reviewer for verification.
- If there are any changes, your energy savings estimate is updated.
- Documentation of project cost is collected.
- If the project is below the M&V threshold, 100% of the incentive is paid upon approval of the post-installation report.
- For projects requiring M&V, 60% of the incentive is paid upon the approval of the post-installation report and the data collection for M&V is initiated.

Measurement and Verification

- Data is collected per the M&V plan, and depending on the project, may be up to one year in duration.
- Once the M&V is completed, the technical reviewer will review the results and issue a report to NYSERDA. Final incentive levels may be adjusted based upon data gathered during M&V.
- Final incentive payment is issued.

For more information or assistance with the application process, please contact one of these NYSERDA-contracted representatives:

Industrial

CHA
P: 585-232-5610 x 290
E: IPEOutreach@nyserda.ny.gov

Or

ERS
P: 212-789-8182
E: IPEOutreach@nyserda.ny.gov

Data Centers

Willdan Energy Solutions
P: 212-785-0292
E: IPEOutreach@nyserda.ny.gov

About NYSERDA

NYSERDA (New York State Energy Research and Development Authority), a public benefit corporation, offers objective information and analysis, innovative programs, technical expertise and funding to help New Yorkers increase energy efficiency, save money, use renewable energy, and reduce their reliance on fossil fuels. NYSERDA professionals work to protect the environment and create clean-energy jobs. NYSERDA has been developing partnerships to advance innovative energy solutions in New York since 1975.

To find out how you can reduce your energy consumption and costs, visit NYSERDA.ny.gov

Toll Free: 1-866-NYSERDA

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