

Pulp & Paper Roundtable

NYSERDA Opportunities for Industry
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Financial Incentives

Program	Upstate	Downstate
Flexible Technical Assistance	50/50 cost share	50/50 cost share
Electric Efficiency	\$ 0.12 / kWh	\$ 0.16 / kWh
Natural Gas Efficiency	\$15/MMBtu	\$20/MMBtu

Up to \$1,000,000 for Studies

Up to \$5,000,000 for Electric Incentives

Up to \$1,000,000 for Natural Gas Incentives

Focus on Industry and Process

NYSERDA's Objective	Save 1million MWh and 3.7 million MMBTUs by 2015
Focus Contracts	Upstate – CHA Downstate – Energy Resource Solutions Data Centers – Willdan
Targeted Sectors	Manufacturing, forest products, mining & extraction and data centers
Key NYSERDA Programs	FlexTech, IPE, Existing Facilities, New Construction
Eligibility / Funding	Facilities must pay into System Benefits Charge \$150 million

FlexTech Program

Comprehensive, customized energy studies

- Cost share 50/50
- Up to \$1,000,000, max 10% of energy costs
- Engineering feasibility studies
- Energy master plans
- Project specific: Compressed Air
- Retro-Commissioning
- CHP Feasibility Studies
- Energy advisor consulting



Identifies Cost Effective, Site Specific Energy Strategies

FlexTech Program

Customer chooses consultant to meet their needs

Use a NYSERDA consultant

- Choose from contractor list
- Scoping visit – proposal – approve SOW
- NYSERDA pays the engineer up to 50%
- Customer pays the balance

Choose an independent consultant

- Submit application w/ contractor proposal
- NYSERDA approves SOW
- Customer pays the engineer
- NYSERDA reimburses customer up to 50% on approval of a final report

Industrial and Process Efficiency Incentives

Incentive Type	Utility	Upstate	Downstate
Process and Energy Efficiency	Electric	\$0.12/kWh	\$0.16/kWh
	Natural Gas	\$15/MMBtu	\$20/MMBtu
Operations and Maintenance (O&M)	Electric	\$0.05/kWh	\$0.05/kWh
	Natural Gas	\$6/MMBtu	\$6/MMBtu
Minimum project size	\$30,000 minimum incentive		
Simple payback threshold (with incentive)	No less than 6 months		
Maximum incentive	All Projects	50% Project Cost	
	Electric	\$5 million/facility/year	
	Natural Gas	\$1 million/facility/year	

For new construction & existing facilities

Pre-approval required

Industrial and Process Efficiency Incentives

Incentive determined by verified energy savings:

$$\left(\text{Pre-installation usage} - \text{Post-installation usage} \right) \times \text{Incentive rate} = \text{Cash Incentive}$$

Incentive rate =

- \$0.12/kWh electric incentive
- \$15/MMBtu natural gas incentive

Funds distributed post-installation

Process Efficiency

Installation of a new process or improvements to an existing process that result in a gross reduction of energy usage or a net reduction of energy usage per unit of production



- Energy Efficiency projects like efficient lighting, VFD's and upgraded compressed air systems
- Capacity additions that improve the energy use per unit processed
- Waste and scrap reduction
- Throughput increase

Operations and Maintenance

Projects that deliver verifiable annual energy savings resulting from upgrades or initiatives to achieve operations

Operations and Maintenance Incentives	Electric	Natural Gas
	\$ 0.05 / kWh	\$6/MMBtu

Examples:

- Compressed air system leak management
- Replacement of leaking steam traps
- Installation of cogged style fan belts

Application Process

Easy to Apply

- Submit application through Consolidated Funding Application
- Assign Technical Support
- Review Project Savings
- Purchase Order Issued
- Customer Installs Project
- Verify installation



NYSERDA Technical Reviewer Support Throughout



Case Studies

Case Study – Aerospace Component Manufacturing Plant

- ✓ Analysis:
 - ✓ Manufacturing makeup air and exhausts analyzed
 - ✓ 150,000 – 250,000 CFM of makeup air supplied and exhausted annually
 - ✓ 1,700,000 kWh, 32,000 mmBTus, \$435,000 annually
 - ✓ 4-7 air changes per hour

- ✓ Energy Efficiency Improvements:
 - ✓ Exhaust heat recovery
 - ✓ Demand control ventilation
 - ✓ Variable speed drives
 - ✓ Results:
 - ✓ 1,100,000 kWh, 17,200 MMBtus, \$230,000 saved annually; less than 2 year payback

Case Studies

Case Study – Paper Manufacturing Plant

- ✓ Analysis:
 - ✓ Steam plant performance data analyzed; 20,000-35,000 lbs/hr, 80% effic.
 - ✓ Condensate recovery analyzed
 - ✓ System insulation inspected
 - ✓ Steam trap survey conducted

- ✓ Energy Efficiency Improvements:
 - ✓ Combustion control improvements
 - ✓ Steam trap repair
 - ✓ Condensate return improvements
 - ✓ Combustion air intake relocation
 - ✓ Insulation upgrades
 - ✓ Results:
 - ✓ 19,700 MMBtus, \$150,000 saved annually; less than 1 year payback

Case Studies

Glass Manufacturer

Glass products , 375,000 sf manufacturing plant,
500 employees, 24 X 7 operation

Current State

10.4 million kWh

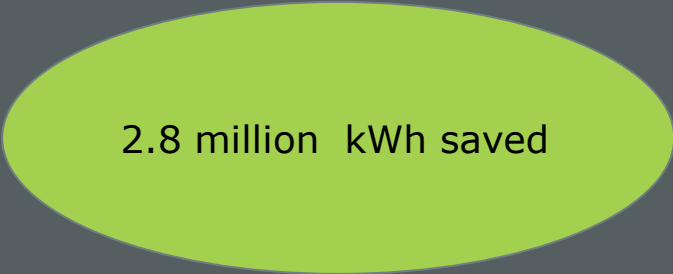


8.2 million selects

Effic: 1.26 kWh/select

Project

- Rotary Fire Polisher Upgrade
- 27% yield improvement



Future State

10.4 million kWh



10.5 million selects

Effic: 0.99 kWh/select

Best Practices

Pulp & Paper Best Practices

- ✓ Steam System Optimization - Supply & Demand:
 - ✓ Trap/Leak Maintenance Program
 - ✓ Maximize Condensate Return
 - ✓ Correction of Misapplications
 - ✓ Temperature/pressure controlled by smaller load use points
 - ✓ Variable Speed Pumps & Fans
 - ✓ Combustion Controls
 - ✓ Blow Down Controls
 - ✓ Boiler Staging Optimization / Automation / Capacity Control
 - ✓ Boiler Technology Selection – Size, Type, Base Load vs. Trim, Demand Profile
 - ✓ Pressure/Temperature Optimization / Control
 - ✓ Heat Recovery: Stack Economizers, Blow Down Exchangers, Discharged Condensate, Combustion Air
 - ✓ Well Insulated System

- ✓ Compressed Air System Optimization - achieves 5-6 cfm/kW:
 - ✓ Leak Management Program
 - ✓ Correct Misapplications
 - ✓ Control Valve Isolation of Intermittent Use Areas or Equipment
 - ✓ Pressure Control / Reduction
 - ✓ Compressor Staging Optimization / Automation / Capacity Control
 - ✓ Compressor Technology Selection – Size, Type, Base Load vs. Trim, Demand Profile
 - ✓ Dryer Technology Selection – Use Requirement, Demand Profile
 - ✓ Makeup Air Temperature Control
 - ✓ Heat Recovery
 - ✓ Staff trained in Compressed Air Challenge Fundamentals

Best Practices

Pulp & Paper Best Practices

- ✓ Process:
 - ✓ Variable Speed Pumps & Fans
 - ✓ Heat Recovery
 - ✓ Regenerative Drives for Slitting/Winding
 - ✓ Free Cooling
 - ✓ Yield/Productivity Improvements
 - ✓ Coating
 - ✓ Drying
 - ✓ Web Control
 - ✓ Vacuum
 - ✓ Freeness Refiner Control

nyserda can help!

- Improve the energy performance of most facilities
- Energy efficiency is less expensive than energy production.
- Many energy measures also generate economic, process, comfort and environmental benefits.
- NYSERDA incentives can help justify projects & shorten payback time.
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