



2018 C&I Energy Efficiency Programs
MACNY Breakfast Meeting – March 13, 2018

- National Grid Service Territory
- Eligibility Requirements
- Commercial & Industrial Programs
 - Prescriptive Electric & Gas Incentives
 - Custom Electric & Gas Incentives
- Demand Response Program
- Cost shared Technical Assistance Services

Safety Moment: Safe Digging



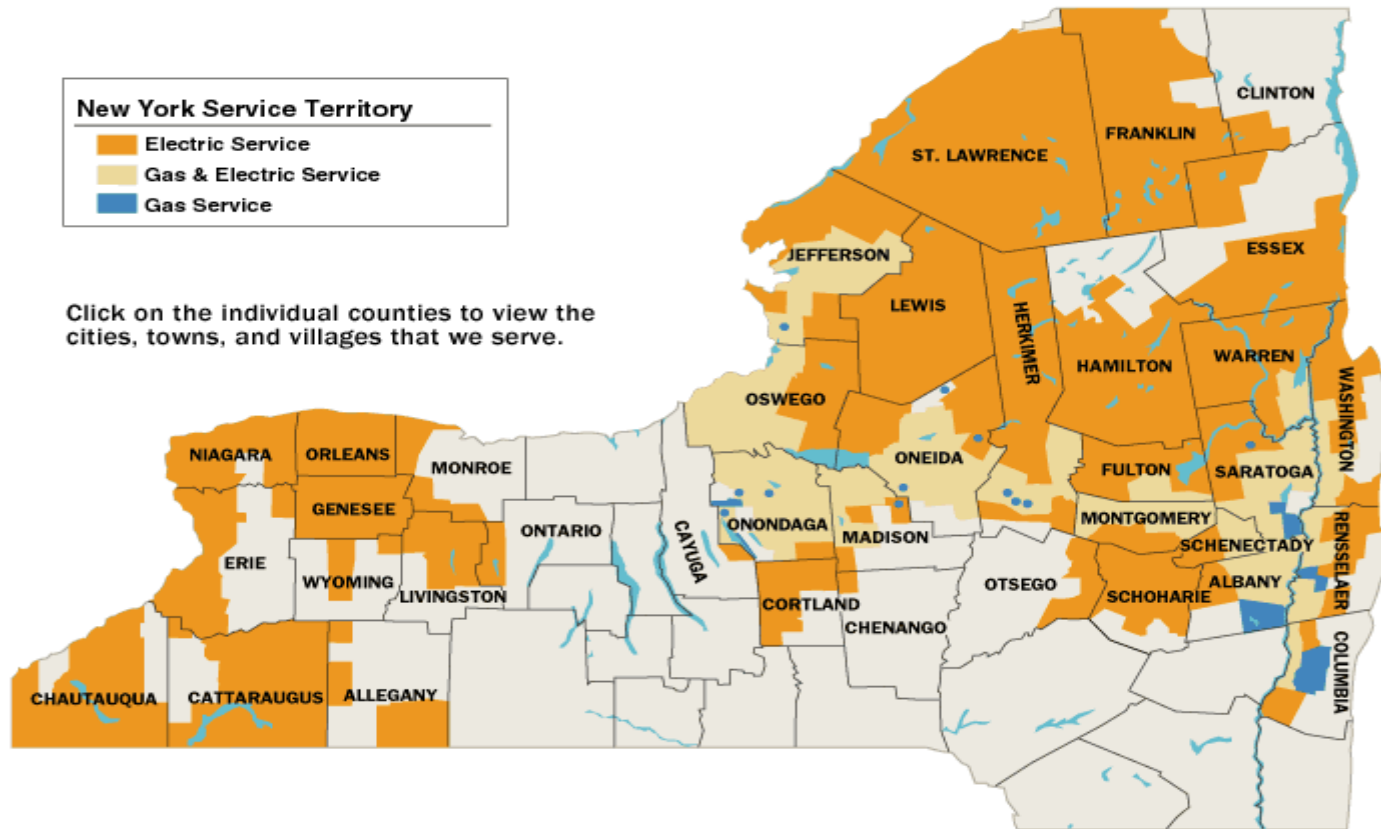
**For more information
visit Dig Safe:**

<http://call811.com/before-you-dig>

National Grid is reminding the public to call Dig Safe at 811 before undertaking any digging projects or excavations. **A call to Dig Safe to mark underground utilities is not only the safe thing to do – it's the law!**

Introduction

National Grid Service Territory



Eligibility Requirements

- Must be a National Grid Customer and Pay
- Systems Benefit Charge (SBC) with Rate Codes

Rate Code	Electric	Gas
SC2	Small	Small
SC3	Large	Large
SC3A	TOU	
SC4	NYPA	
SC5		Firm
SC6		Interruptible
SC7	Standby	50k Transport
SC8		1M Transport
SC11	Special	
SC12	Empire	

Large Commercial Industrial Prescriptive Gas & Electric Programs

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Prescriptive Incentives

Gas & Electric

Electric

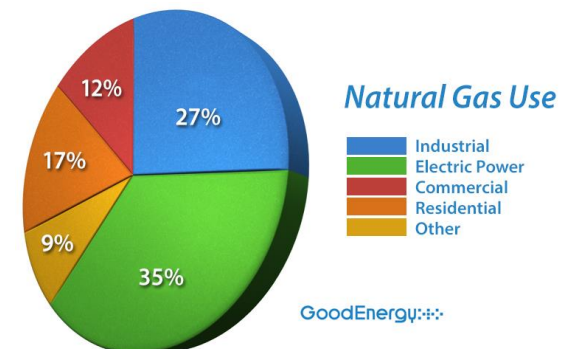
- Lighting and Controls
- Energy Management System (EMS)
- Compressed Air Systems
- Motor Controls (VFD's)*
- Refrigeration Systems *

Gas

- Water Heating & Boiler Controls (Wi-Fi T-stat)
- Steam Trap/Surveys
- Insulation
- Commercial Kitchen Equipment



**Custom – Express Application*



Prescriptive Electric Incentives

Lighting & Controls

Lighting Systems

Achieve significant energy cost savings and enhance the visual appearance, comfort, safety and profitability of your facility by installing high efficiency lighting improvements.

Fixture Type	Incentive Per Fixture	Fixture Type	Incentive Per Fixture
Simple Fluorescent Lamp and Ballast Replacement	\$10 - \$15	Integral LED Directional Replacement Lamps	\$5 - \$15
Commercial Interior Fluorescent Fixture Options	\$20 - \$30	LED Linear and U-Bend Replacement Lamps	\$3 - \$8 (incentive per lamp)
Low Bay and High Bay Fluorescent Lighting	\$35 - \$50	LED Exterior Garage and Canopy Fixtures	\$100 - \$150
Industrial Interior Fluorescent Fixtures	\$20-\$30	LED Interior Low Bay and High Bay Fixtures	\$35-\$175
LED Exterior Wall/Pole/Arm Mount Fixtures	\$25-\$265	LED Interior Panel Fixtures and retrofit kits	\$25 - \$40
LED Mogel Screw Based HID Replacement Lamps	\$30-\$70	LED pin based CFL Replacement Lamps	\$4 (incentive per lamp)



Lighting Controls

Incorporating lighting controls and occupancy sensors into your lighting design adds to your energy savings and improves your working environment.

Fixture Type	Incentive Per Control
Controls for Lighting Systems	\$10-\$25

Prescriptive Electric Incentives Energy Management Systems (EMS)

Trust is Good, but Control is Better

- Whole EMS with BMS (Building Energy Management System) & Central Operating Station

- Existing building installing new EMS or existing EMS adding additional

Total Sq. Ft.	Incentive per pt.	Eligible Points
5,000 – 40,000	\$225	16 – electric & 4 – natural gas
40,001 – 80,000	\$275	48 – electric & 12 – natural gas
80,001 – 200,000	\$225	128 – electric & 32 – natural gas

■ BMS Incentives

- Hotel Occupancy Sensors - \$75 per sensor - must include occupancy sensor, window/door switch, and setback req.
- Vending Machine & Cooler Controls - \$30 - \$75 per control

Prescriptive Electric Incentives Compressed Air Systems

Make it Better

- Engineered Nozzles, Storage, Zero Loss Drains
- Refrigerated Dryers
- Install new compressor with Load/No Load ,VFD/VDC
- Replace single modulating control equipped oil flooded rotary screw compressors
 - >15HP ≤ 75HP operating at 145 psi or less

Typical Lifetime Compressed Air Costs in Perspective—Costs Over 10 Years

Assumptions in this example include a 75-hp compressor operated two shifts a day, 5 days a week at an aggregate electric rate of \$0.05/kWh over 10 years of equipment life.

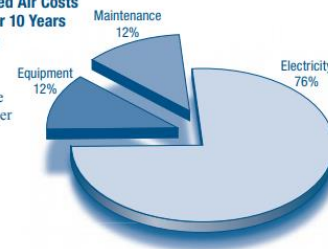


TABLE 1: PRESCRIPTIVE HIGH EFFICIENCY AIR COMPRESSOR INCENTIVES

Horsepower	Incentive per HP Load/No Load	Incentive per HP Variable Speed	Incentive per HP Variable Displacement
≥15 to <25	\$160	\$200	N/A
≥25 to <50	\$100	\$150	N/A
≥50 to <75	\$90	\$100	\$100

TABLE 3: PRESCRIPTIVE DRYER INCENTIVES

CFM Range	Incentive per CFM Cycling and VSD dryers
Less than 100 CFM	\$4.00
100-199 CFM	\$3.20
200-299 CFM	\$2.40
300-399 CFM	\$2.40
400 and greater CFM	\$2.40

TABLE 2: STORAGE INCENTIVES

Incentive per Gallon
\$2.75

TABLE 4: ZERO-LOSS CONDENSATE DRAIN INCENTIVES

Incentive per drain (Limit 3 per facility)
\$120 Each

TABLE 5: ENGINEERED AIR NOZZLES

Air Nozzle Size	Incentive per Nozzle
1/8"	\$20/Ea
1/4"	\$20/Ea

Prescriptive Electric Incentives

Motor Drives & VFD's

Slow Things Down

- Constant Speed or Volume applications ...
- Great for oversized..
 - Chilled & Hot Water Pumps
 - Supply or Return Fans
 - Cooling Tower Fans & Condenser Water Pumps

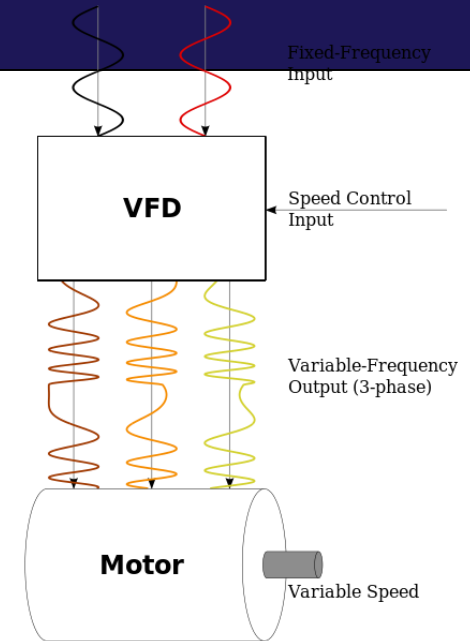


Table 2: Variable Frequency Drive Installation Size and Incentives *

Horsepower	Incentive	Horsepower	Incentive	Horsepower	Incentive	Horsepower	Incentive
1	\$450	7.5	\$1,300	30	\$2,750	100	\$5,500
1.5	\$450	10	\$1,350	40	\$3,000	125	\$5,500
2	\$600	15	\$1,600	50	\$3,500	150	\$5,500
3	\$700	20	\$1,850	60	\$4,000	200	\$6,500
5	\$1,000	25	\$2,500	75	\$4,500		

* If the controlled HP falls between the HP listed on the VFD Incentive amounts in the table above, the incentive is based on the lower controlled HP.

Prescriptive Electric Incentives Refrigeration Systems

Ring Up the Savings

Reduce Energy = Higher Profits

- Floating Pressure Heads
- VFD's for Evaporation and Condensing Fans
- Heat Recovery
- Compressor Sequencing
- Anti-sweat heater controls, electronically commutated motors (ECM),

10 Efficiency Improvement Opportunities

Table 1. Summary of industrial refrigeration energy efficiency improvement opportunities

Strategy	Energy efficiency opportunity	Capital cost		Operational risk	Value
		New	Retrofit		
1	Floating head pressure control	L	L	L	H
2	Raise suction pressure	n/a	L-M	M	H
3	VFD for evaporator fans	L	L-M	L	M
4	VFD for compressors	L	H	L	M
5	VFD for evaporative condenser fans	L	L	L	L-M
6	Heat recovery (oil cooling)	M	M	L	M
7	Improved compressor sequencing and capacity control	L	L-M	L	M
8	Improve hot gas defrost dwell period	L	L	M	L-M
9	Convert liquid injection oil cooling to external oil cooling	M	H	M	M
10	Reduce parasitic loads	M	M	L	L

L = low, M = medium and H = high.

1 EEG is the Industrial Refrigeration Energy Efficiency Guidebook, Reindl, D. T., Jekel, T. B., and Elleson, J. S., IRC, (2004)

2 Cold Front is the IRC's quarterly newsletter available at www.irc.wisc.edu/?/newsletter.

Incentive Application Process

Punch List for all incoming applications

- Completed application with
 - Account Number
 - Customer W-9
 - Cut Sheets with model number
 - Est. Cost of Project – material & labor
- Additional supporting documentation may be requested to validate hours and savings



Custom Programs

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Custom Incentive Program

Gas & Electric Custom Incentives

Does it Save Energy?

- A project where kWh savings can be achieved
 - Compressed air system improvements – leaks, reduced operating pressures
 - Large control projects
 - Industrial process improvements leading to energy savings
 - Large lighting projects with construction costs greater than \$100,000
 - Existing buildings – major renovations or change of use (compare to baseline)
- Project must pass a benefit cost analysis
 - Quantified demand and energy savings (Excel, energy modeling programs)
 - Project costs, equipment details current & proposed
 - Cut Sheets on equipment

Custom Electric Program

- Custom projects are generally defined as anything that is not prescriptive and has opportunity for significant energy savings. Custom incentives will be the lesser of either:
 - Up to 50% of the installed costs or program limits
- Customers need to work closely with National Grid's Sales Teams and Technical Support Consultants to ensure maximum savings and timely processing.



- Lighting and controls
- Motor Controls
- Compressed Air
- Refrigeration
- Process Improvements

Gas Custom Program

- Custom projects are generally defined as anything that is not prescriptive and has opportunity for significant energy savings. Custom incentives will be the lesser of either:
 - Up to 50% of the installed costs;
 - Up to \$1.50 per therm;
 - Maximum incentives available, **\$100,000** per project
- Customers work closely with National Grid's Sales Teams and Technical Support Consultants and PEX team.



- EMS Systems
- Combustion Controls
- Thermal Blanket Insulation
- Heat Recovery
- Stack Economizers
- Process Improvements

Other Programs

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ProNet – Trade Professional Website

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ProNet Resources:

- Applications
- Webinars
- Newsletters

The screenshot displays the ProNet website interface. At the top, there is a yellow banner for 'Electrical & Energy Management' with the subtext 'Professional Network'. To the right is the 'nationalgrid' logo and tagline 'HERE WITH YOU. HERE FOR YOU.'. Below the banner is a navigation bar with links: 'My E-Action', 'Explore the eLibrary', 'Ask an Expert', 'Newsletters', 'Tools You Can Use', and 'Preferences'. The main content area features a search box labeled 'Your Area of Interest: Please Select' and a link to 'Not renee.devine@nationalgrid.com?'. The featured article is 'Compressed Air Systems: Controlling Artificial Demand'. It includes a 'Key Points' section with three bullet points, a paragraph explaining the cost of leaks, and a photograph of compressed air lines. A 'Webinar' link is also visible in the sidebar.

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Your Area of Interest:
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Compressed Air Systems: Controlling Artificial Demand

Key Points

- Small, undetected leaks can cause a compressed air system to operate at an artificially high pressure.
- Artificial demand can be eliminated by lowering demand-side pressure using intermediate control.
- Select the right type of controller to match compressor output to demand.

Leaks in a compressed air system waste as much as 30 percent of the compressor's output, costing thousands of dollars each year. Fixing these leaks is the first step in reducing this waste. However, because system pressure increases after the leaks are repaired, undetected leaks can become larger.

This can lead to a condition called artificial demand, in which the compressor system operates at an artificially high pressure in order to satisfy production needs at all times, including peak demand periods. The production machinery and equipment consume more air than is necessary. Artificial demand can be

Webinar: Office Worker Performance and the Indoor Environment

- Here's the link: <https://www.nationalgridus.com/ProNet>

Demand Response Programs

Upstate New York

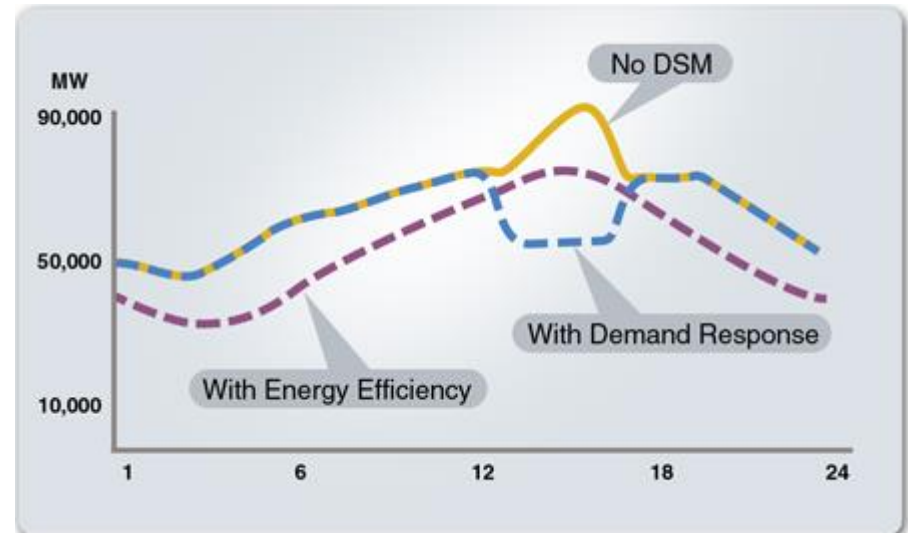
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Demand Response

Commercial System Relief Program (CSRP)

- Peak-shaving program that targets large C&I customers
- Transmission-level and distribution-level customers can participate in a monthly reservation payment option by pledging a contractual load
- Reservation-option participants are required to shed the contracted load level during called DR events and are also paid for performance for participation in DR events



Anticipated Programs

- LED Street Lighting (expected launch Q2 2018)
 - Prescriptive incentive based on LED wattage installed
 - Applicable for all roadway lights, regardless of National Grid or customer ownership
 - Company goal of converting 10% of total lights each year
- Tiered incentive structure to deliver dynamic incentives
- Additional funding opened for new initiatives:
 - Partnership opportunities with third parties
 - Midstream/Upstream opportunities
- Goal of expanding customer engagement and delivering value

Upcoming Events

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2018 Upstate New York **Energy Efficiency Summit**



ALBANY

TUESDAY, MARCH 27

Albany Capital Center, Albany, NY



SYRACUSE

WEDNESDAY, MARCH 21

Marriott Syracuse Downtown, Syracuse, NY

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Questions

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