



# ***Electric Motors Program 2011 & Beyond***

**Kevin Morley  
NSTAR Electric & Gas  
CEE Motors & Motor Systems Committee  
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# What is Mass Save ?



CLC – [efficiency@caperightcompact.org](mailto:efficiency@caperightcompact.org)

National Grid – [efficiency@us.ngrid.com](mailto:efficiency@us.ngrid.com)

NSTAR – [efficiency@nstar.com](mailto:efficiency@nstar.com)

Unitil/FG&E – [efficiency@unitil.com](mailto:efficiency@unitil.com)

WMECO - [efficiency@wmeco.com](mailto:efficiency@wmeco.com)

Bay State Gas – [efficiency@baystategas.com](mailto:efficiency@baystategas.com)

Berkshire Gas – [efficiency@berkshiregas.com](mailto:efficiency@berkshiregas.com)

New England Gas – [efficiency@sug.com](mailto:efficiency@sug.com)



# Energy Efficiency Incentive Programs

## **New Construction Program**

- Lost Opportunity or New Construction Market
- Focus on Time-Dependent Projects where the installation of energy efficient equipment and systems are for new construction, major renovations and replacement of failed equipment

## **Retrofit Program**

- Retrofit Market
- Targets energy efficient opportunities for existing buildings and equipment
- Replaces inefficient equipment or systems
- Reduces owners current operating costs

# Application Types

- **Prescriptive Application** for common EE measures.
  - Applications include: Electric Motors (Motor-Up) and Motors & Variable Speed Drives
  - Easy to use applications with pre-determined incentives
  - Energy savings calculated by installation type, facility type, and load shape data
- **Custom Application** for any other EE measure submitted for program incentive consideration.



# Program Applications

**RETROFIT**

## Lighting – Systems & Controls

Choose Program Administrator for Application  
 Cape Light Compact  National Grid  NSTAR  
 Unitil  Western Massachusetts Electric Company

**Customer Information**

COMPANY NAME \_\_\_\_\_ APPLICATION DATE \_\_\_\_\_  
 INSTALLATION SITE \_\_\_\_\_ PHONE NUMBER \_\_\_\_\_  
 CONTACT PERSON \_\_\_\_\_ FAX NUMBER \_\_\_\_\_  
 E-MAIL ADDRESS \_\_\_\_\_ SQ. FT. (covered by this application) \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_  
 STREET ADDRESS \_\_\_\_\_ CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_  
 MAILING ADDRESS (if different) \_\_\_\_\_ CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_  
 ELECTRIC COMPANY NAME \_\_\_\_\_ ELECTRIC ACCOUNT # (for copy of electric bill) \_\_\_\_\_  
 GAS COMPANY NAME \_\_\_\_\_ GAS ACCOUNT # (for copy of gas bill) \_\_\_\_\_

**Building Type (select one)**

<input type="checkbox"/> Assembly	<input type="checkbox"/> Fast Food	<input type="checkbox"/> Hotel	<input type="checkbox"/> Multi Story Retail	<input type="checkbox"/> Religious	<input type="checkbox"/> Small Retail
<input type="checkbox"/> Automobile	<input type="checkbox"/> Full Service Restaurant	<input type="checkbox"/> Large Refrigerated Space	<input type="checkbox"/> Multifamily high-rise	<input type="checkbox"/> K-12 Schools	<input type="checkbox"/> University
<input type="checkbox"/> Big Box	<input type="checkbox"/> Grocery	<input type="checkbox"/> Large Office	<input type="checkbox"/> Multifamily low-rise	<input type="checkbox"/> Small Office	<input type="checkbox"/> Warehouse
<input type="checkbox"/> Community College	<input type="checkbox"/> Heavy Industrial	<input type="checkbox"/> Light Industrial	<input type="checkbox"/> Other		
<input type="checkbox"/> Dormitory	<input type="checkbox"/> Hospital				

**Payment Method**

CHECK PAYABLE TO: (fill in data below)  Customer  Vendor/Installer

TAX ID# \_\_\_\_\_ COMPANY TYPE: Check one:  Incorporated,  Not Incorporated,  Exempt

**Vendor Information**

VENDOR/INSTALLER \_\_\_\_\_ STREET ADDRESS \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_  
 CONTACT PERSON \_\_\_\_\_ CITY \_\_\_\_\_  
 PHONE NUMBER \_\_\_\_\_ E-MAIL \_\_\_\_\_

**Customer Acknowledgment**

Pre-Installation — I certify that all statements made in this application are correct to the best of my knowledge and that I have read and agree to the Terms and Conditions on the back of this form.

AUTHORIZED SIGNATURE \_\_\_\_\_ NAME (print) \_\_\_\_\_ ANTICIPATED COMPLETION DATE: \_\_\_\_\_ DATE \_\_\_\_\_

Post-Installation — I certify that I have seen the Energy Efficiency Measures that have been installed and I am satisfied with their installation.

AUTHORIZED SIGNATURE \_\_\_\_\_ NAME (print) \_\_\_\_\_ DATE \_\_\_\_\_

**For Program Administrators Only**

Required Inspections	Date	Inspector	Project Costs:
Pre-Inspection:	Date	Inspector	Labor \$:
Post-Inspection:	Date	Program Manager	Material \$:
Approval	Date	Program Manager	
Pre-approved Incentive:	Date	Program Manager	
Final Incentive:	Date	Program Manager	

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**NEW CONSTRUCTION**

## 2010 Variable Speed Drive

Choose Program Administrator for Application  
 Cape Light Compact  National Grid  NSTAR  
 Unitil  Western Massachusetts Electric Company

**Customer Information**

COMPANY NAME \_\_\_\_\_ APPLICATION DATE \_\_\_\_\_  
 INSTALLATION SITE \_\_\_\_\_ PHONE NUMBER \_\_\_\_\_  
 CONTACT PERSON \_\_\_\_\_ FAX NUMBER \_\_\_\_\_  
 E-MAIL ADDRESS \_\_\_\_\_ SQ. FT. (covered by this application) \_\_\_\_\_  
 STREET ADDRESS \_\_\_\_\_ CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_  
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 GAS COMPANY NAME \_\_\_\_\_ GAS ACCOUNT # (for copy of gas bill) \_\_\_\_\_

**Building Type (select one)**

<input type="checkbox"/> Assembly	<input type="checkbox"/> Fast Food	<input type="checkbox"/> Hotel	<input type="checkbox"/> Multi Story Retail	<input type="checkbox"/> Religious	<input type="checkbox"/> Small Retail
<input type="checkbox"/> Automobile	<input type="checkbox"/> Full Service Restaurant	<input type="checkbox"/> Large Refrigerated Space	<input type="checkbox"/> Multifamily high-rise	<input type="checkbox"/> K-12 Schools	<input type="checkbox"/> University
<input type="checkbox"/> Big Box	<input type="checkbox"/> Grocery	<input type="checkbox"/> Large Office	<input type="checkbox"/> Multifamily low-rise	<input type="checkbox"/> Small Office	<input type="checkbox"/> Warehouse
<input type="checkbox"/> Community College	<input type="checkbox"/> Heavy Industrial	<input type="checkbox"/> Light Industrial	<input type="checkbox"/> Other		
<input type="checkbox"/> Dormitory	<input type="checkbox"/> Hospital				

**Project Type (select one)**

<input type="checkbox"/> Change in the use or function of the Building Space	<input type="checkbox"/> New Building	<input type="checkbox"/> Expansion of an Existing Building	<input type="checkbox"/> Planned Replacement of Equipment
<input type="checkbox"/> New Equipment for New Process or Expanded Operation	<input type="checkbox"/> Renovation of Existing Equipment	<input type="checkbox"/> New Controls for Improved Operations	<input type="checkbox"/> Replacement of Failed Equipment

**Payment Method**

CHECK PAYABLE TO: (fill in data below)  Customer  Vendor/Installer

TAX ID# \_\_\_\_\_ COMPANY TYPE: Check one:  Incorporated,  Not Incorporated,  Exempt

**Vendor Information**

VENDOR/INSTALLER \_\_\_\_\_ STREET ADDRESS \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_  
 CONTACT PERSON \_\_\_\_\_ CITY \_\_\_\_\_  
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AUTHORIZED SIGNATURE \_\_\_\_\_ NAME (print) \_\_\_\_\_ DATE \_\_\_\_\_

**For Program Administrators Only**

Required Inspections	Date	Inspector	Project Costs:
Pre-Inspection:	Date	Inspector	Labor \$:
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Approved Incentive:	Date	Program Manager	
Final Incentive:	Date	Program Manager	

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# Prescriptive VSD Applications

- Set incentives
- VSD & Motor energy savings calculated using load shapes and custom analysis
- 13 Prescriptive HVAC & Process Installation Types
- Eligible Sizes from 5hp to 100hp
- Prescriptive applications provide a means of a “door opener” for other energy efficiency opportunities (Premium Efficiency Motors, Lighting, HVAC, etc.)

## VSD Benefits

- Reduced energy usage: Motor and equipment are speed controlled to provide the optimum flow
- Improved power factor: Phase power factor can be improved to closer to 1.0
- Limited over-speed capability (depending on VFD sizing)
- Slower speed and built in soft start reduces mechanical stresses
- Motor usually runs cooler

## What Drives Drives?

- Lower Motor Speeds = Electrical Energy Savings
- Cost Savings
- Equipment Savings – Longer Equipment Life
- Optimal Control Processes
- Increased Flexibility
- Utility Energy Efficiency Incentives



## Case Study: Prescriptive VSD Project

- **PROJECT: Medical Campus, BOSTON  
(Prescriptive Retrofit)**
- **Air handlers 24/7 operation**
- **Total of 24 VFD, 1300 HP and 400,000 CFM**
- **Converted to VFD controls**
- **Annual savings of 2,998,432 kWh or  
approximately \$400,000**
- **Prescriptive Incentive of \$82,500**



## 2011 Program Modifications

- Integration and Adoption of New Motor Efficiency Standards in Energy Efficiency Motor Programs
- Development of New Motor Incentive Application for New Construction, End-of-Life Equipment Replacement, and Lost Opportunity installations (Motor-Up) based upon CEE data
- Expand VSD prescriptive installation types in order to increase Program participation
- Increase Customer/Vendor Outreach and Education (Motor Management Programs, VSD Installation Benefits, etc.)