



### 2014

Energy Efficiency Program for Business

# Cooling Systems Technical Training





Safety First
Exits
Restrooms
Other site features



SAVE MORE.







#### House Keeping Issues







Please Silence Cell Phones and Pagers





### 2014 Training Schedule

1Q March 6: Energy Efficient Cooling Systems

2Q June 5: Michigan Energy Code for New Construction/Major Renovations

(LEED)

3Q Sept. 4: EMS Systems

4Q **Nov. 6: TBD** 





#### Agenda

- 8:30 Welcome & Opening Remarks
- 8:35 Technology Presentations
- 9:35 Break
- 10:05 Technology Presentations
- 11:05 Energy Efficiency Program for Business Overview
- 11:25 Closing Remarks
- 11:30 Networking





### **Technology Presentations**



### Program purpose

# To help commercial and industrial contractors and customers\*:

- Improve energy efficiency.
- Increase energy efficiency awareness.
- Reduce energy consumption.
- Reward businesses for installing energy-saving measures.

\*Residential and Multi-Family customers do not qualify for this Program



### Program funding

- Michigan Public Act 295 (2008) implemented a statewide "Energy Optimization Surcharge" that is added to all rate payers' bills each year to achieve these goals:
  - Help customers save energy, manage costs.
  - Reduce generation, offset new capacity.
- This "surcharge" is rebated through the program as incentives that:
  - Target specific energy-saving equipment and technologies.
  - Encourage energy-efficiency building and systems design.



#### **Since 2009**

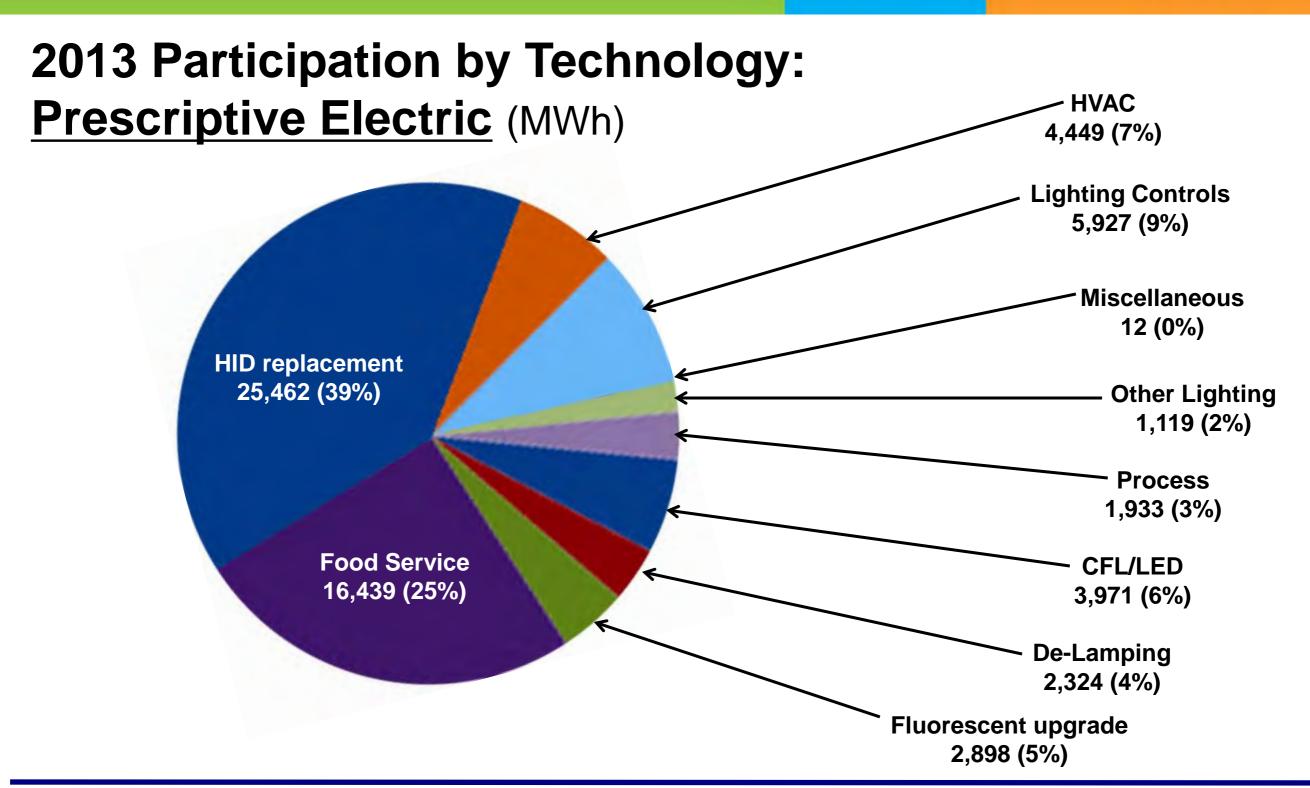
- More than \$75 million in cash rebates has been paid to Michigan businesses.
  - Electric: \$64 million

- Gas: \$11 million
- More than 30,000 projects have been completed.
- More than:
  - 1,516 GWh
  - 4 million Mcf and
  - \$147 million

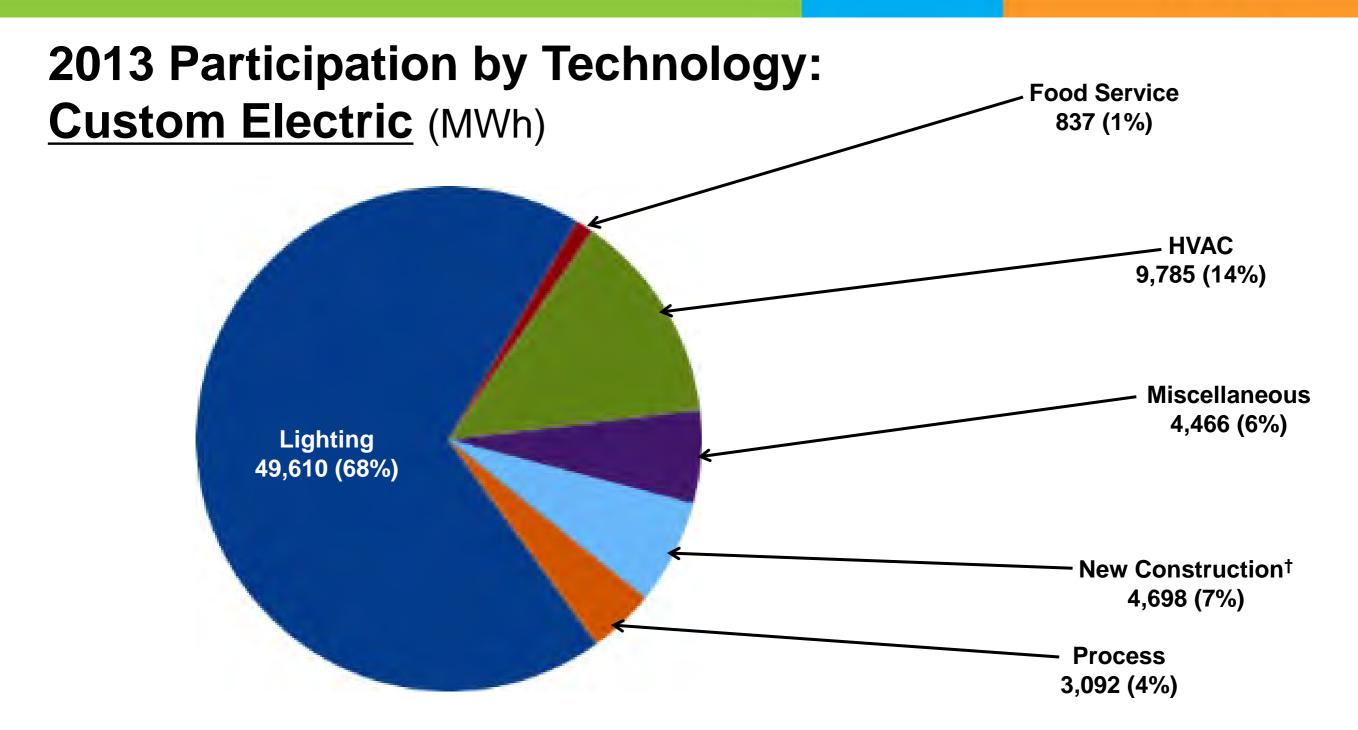
...have been realized in energy savings.





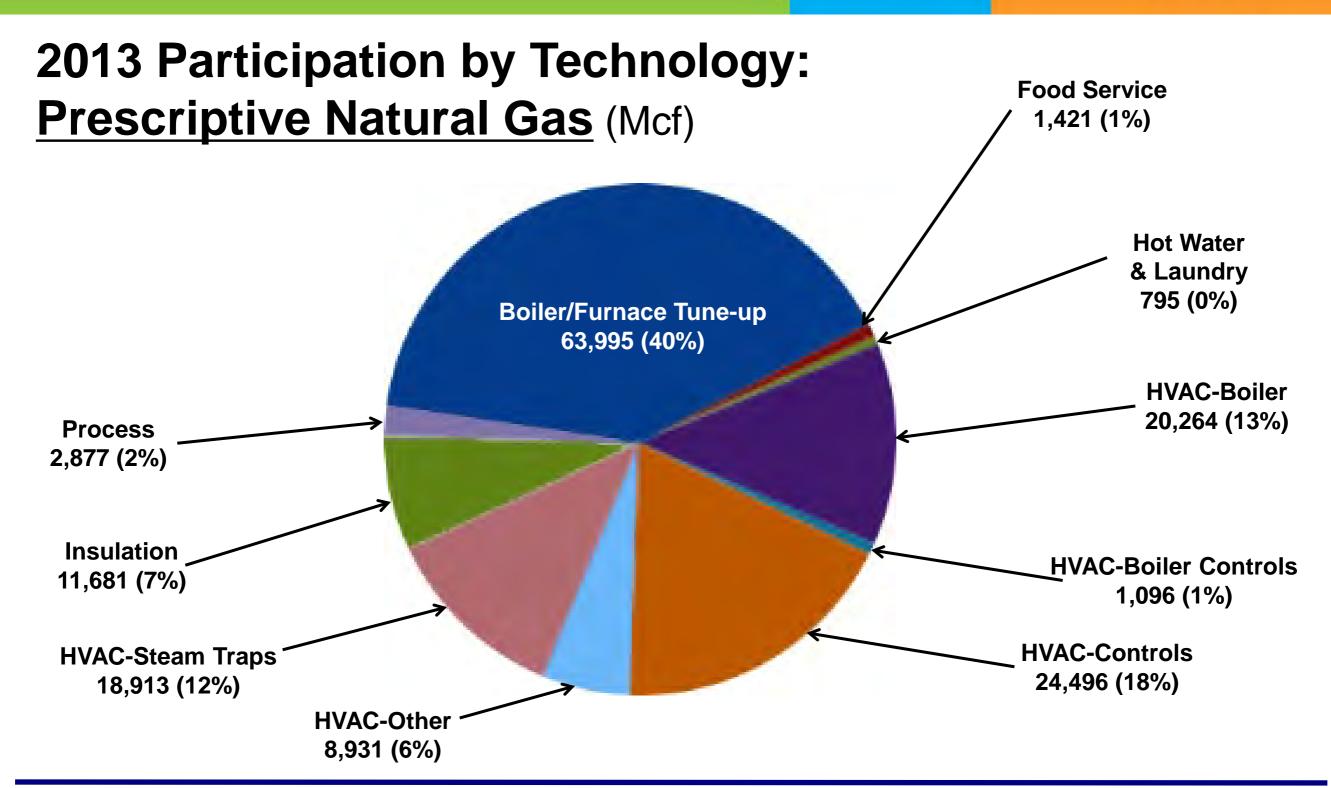








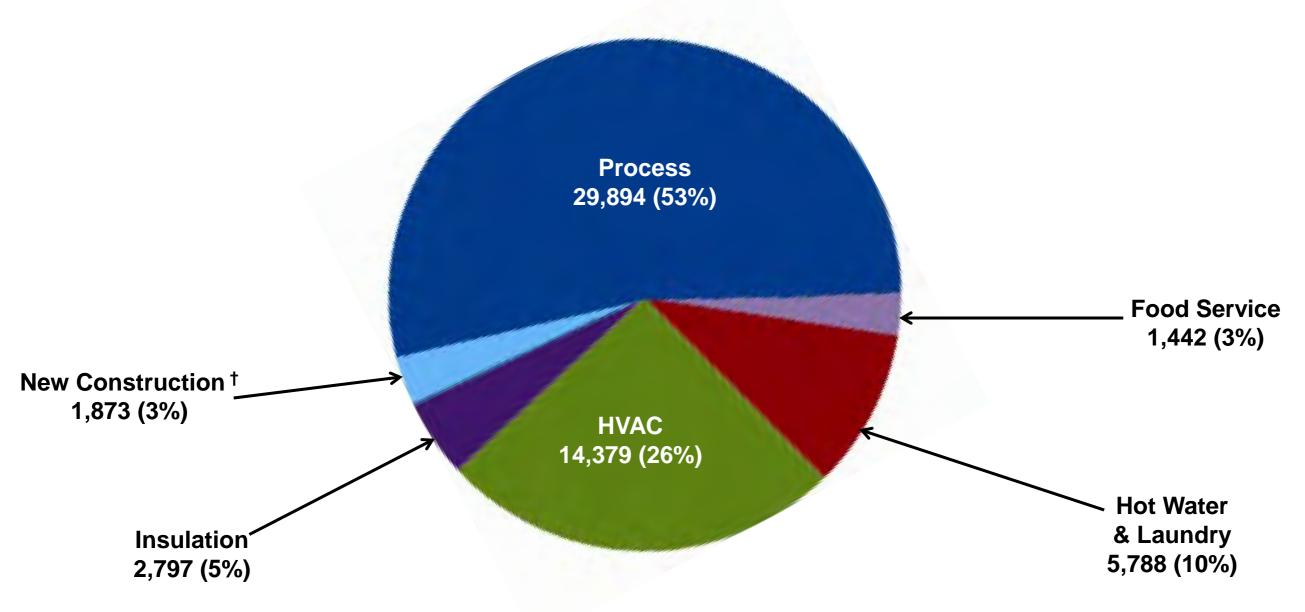








# 2013 Participation by Technology: Custom Natural Gas (Mcf)





# About our Designated Trade Allies





### About our Designated Trade Allies

- **Designated Trade Allies** are businesses that are already familiar with our rebate program, the application process and incentive criteria.
- They include:
  - Contractors, suppliers, designers and consultants.
  - They are listed and searchable on DTE Energy's website database.



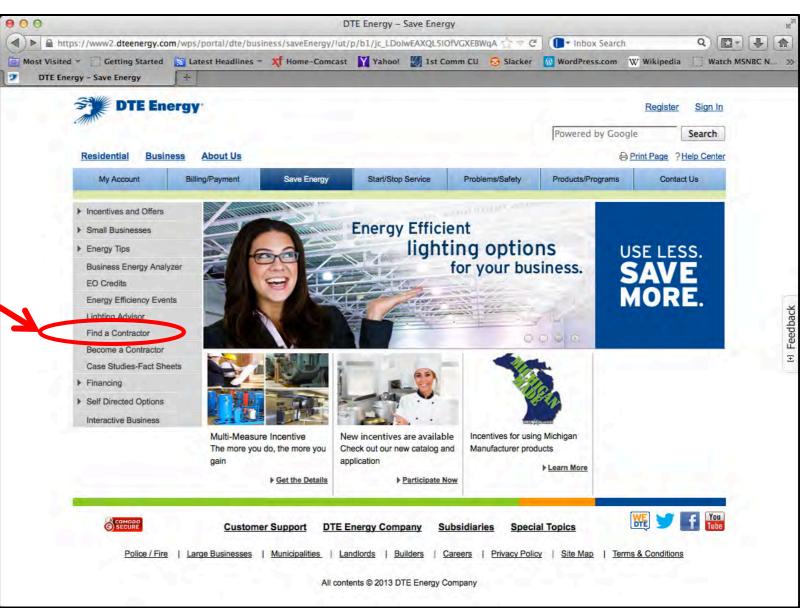




#### **How customers find TAs**

They click on: dteenergy.com/savenow

Then they click on the link at left: Find a
 Contractor

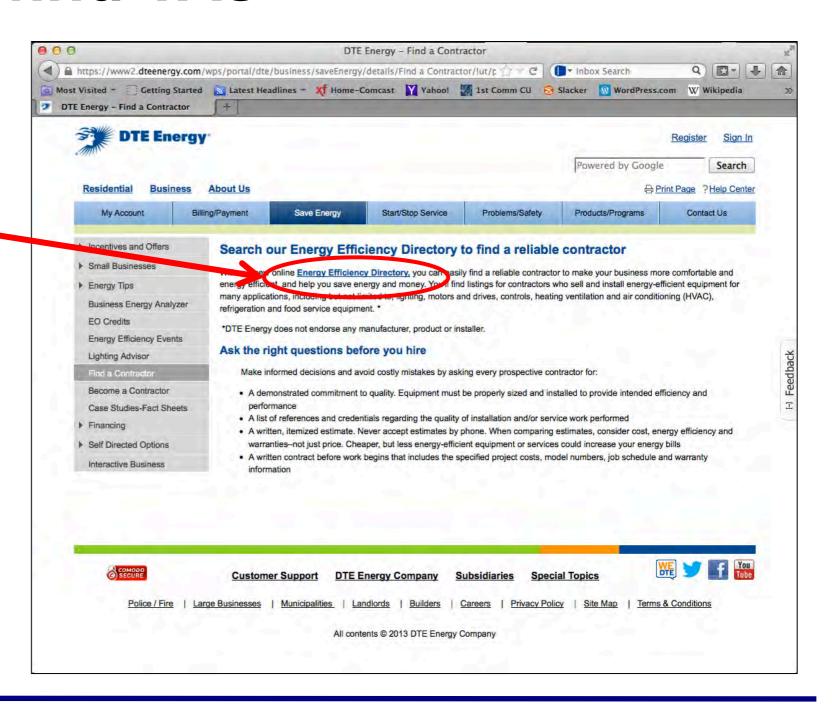






#### **How customers find TAs**

 Then they click on Energy Efficiency Directory link





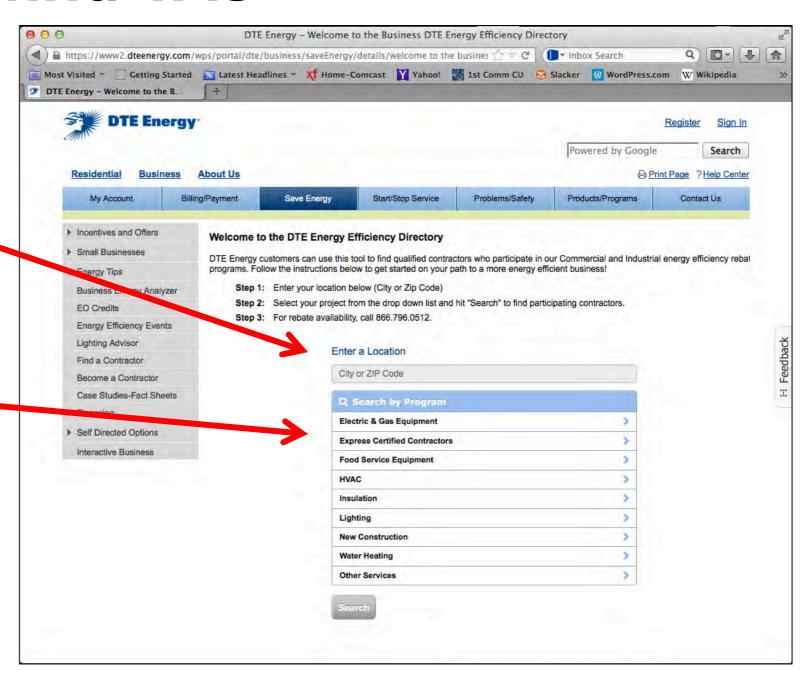


#### **How customers find TAs**

 They can search by their Location (city or ZIP)

<u>or</u>

They can search byProgram Type







### Sources of funding:

- Michigan Saves
  - michigansaves.org
- PACE (Property Assessed Clean Energy private)
  - leanandgreenmi.com
- PACE (Property Assessed Clean Energy public)
  - cec-mi.org/communities/programs/ann-arbor-pace
- DEGC (Detroit Economic Growth Corporation)
  - degc.org

#### Other funding:

- Municipal bonds (schools and government)
- Energy Credits





#### **About Incentives**



### There are three types of projects

#### **Prescriptive**

- <u>Predetermined</u> measures and incentives for the installation of various energy efficient improvements.
- Incentives typically average 20% to 50% of the incremental cost.

#### Custom

- <u>Capital investment</u> projects that increase energy efficiency and are <u>NOT</u> eligible for a Prescriptive Incentive may qualify as a Custom Measure.
- Custom Incentives are determined on a case-by-case basis and are paid per unit energy saved (ex: \$0.08/kWh and/or \$4/Mcf).

### **New Construction Major Renovation**

- New facilities/major renovations of existing facilities or change of use projects.
- Adding load.





#### **About Reservations**

Reservation Applications set aside funds for your project to ensure availability when your project is completed and you submit your Final Application. Here are our guidelines:

#### **Prescriptive**

- Reservation Applications are not required for most Prescriptive projects, <u>BUT</u> they are <u>highly recommended</u>.
- A Reservation Application <u>is required</u> for certain measures: check the Application for details.

#### Custom

A Reservation Application <u>is required</u> for all Custom projects.

### **New Construction Major Renovation**

 A Reservation Application <u>is required</u> for all New Construction and Major Renovation projects (up to 18 months).

Do **NOT** start your project until you receive a **Reservation Letter!\*** 



#### For a customer to receive incentives

- Qualified measures must be installed at facilities served by DTE Energy.
- Projects must involve a <u>capital investment</u> that results in an improvement in energy efficiency of a system or building.
- The equipment installed must be new and meet the specifications spelled out in the Catalog.
- For each site, there must be at least one meter that is on an eligible rate schedule.
- The customer must be in good standing with DTE Energy and <u>not</u> be a Residential or Multifamily customer.



### These do not qualify for an incentive

- Customers who self-direct (and have opted out of the program)
- Load shifting/demand limiting projects.
- Renewable energy projects.
- Power quality improvements.
- Fuel switching projects.
- On-site electricity generation.
- Changes in operational and/or maintenance practices or simple control modifications that do NOT involve capital costs.



### Our Program timeline is simple:

**Reservation Application** 

Application Review (may require pre-inspection)

Reservation Letter issued (Proceed with project)

#### **Install Measures**

(Project must start within 30 days and be completed within 90 days of approval or end of Program year, whichever comes first.)

Final Application & Review (may require post-inspection)

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### Our Program timeline is simple:

Reservation Application ation Application to Letter: 4-6 weeks

cation Review (may require pre-inspection)

Reservat

**Letter to Final Application:** 90 days or less

with project)

Install

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(Project must start within 30 days and be completed within 90

of approval or end of Program year, whichever comes first.)

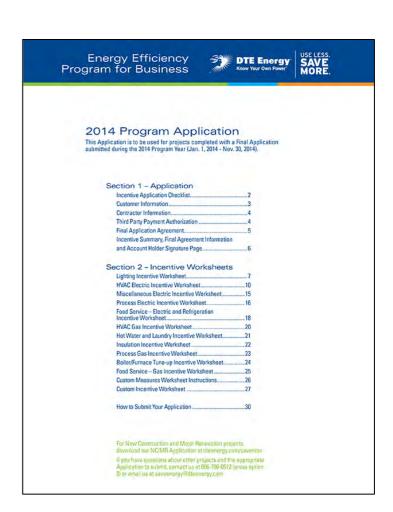
Final Application & Review

**Final Application to Check:** 4-6 weeks



### **About your Final Application:**

- Your Final Application must be submitted within 60 days of completion of your project and include all supporting documentation.
- Failure to do so could result in delay of payment or cancellation of your Application.







#### **Prescriptive**



### **Prescriptive**

• Pre-determined measures with specific energy savings and cash

rebates:

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E	LEC
Lighting	
CFLs	
Controls	
Delamping	
Exit Signs	
Interior/Exterior Linear Fluorescent replacing HI High Performance (HP) Linear Fluorescents	D
LED Lamps	
LED Refrigerated Door Case Lighting	
Low Wattage (LW) Linear Fluorescents Occupancy Sensors	
Pulse Start Metal Halide	
Tariota Starte Internal America	
HVAC	
Air-Cooled/Water-Cooled Chillers	
Air Source/Closed Loop/Ground Source Heat Pu Chilled Water Reset	mps
Cool Roof	
Hotel Guestroom Energy Management System (	
HVAC Occupancy Sensor for Large Office Building	
Packaged Terminal Air Conditioner & Heat Pump	).
Programmable Thermostat (AC)	
Setback/Setup Controls (AC)	
Unitary and Split Air Conditioning Systems	
Variable Frequency Drive - HVAC Fan/Pump Window Film	
Window Pilm	

#### CTRIC Miscellaneous Electric High Efficiency Clothes Washer Intelligent Surge Protector PC Network Energy Management Controls **Process Electric** Barrel Wraps for Injection Molders & Extruders Compressed Air measures Electronically Commutated Plug Fans High Efficiency Process Pumps Industrial 3-Phase High Frequency Battler Charger Insulated Pellet Dryer Ducts Variable Frequency Drive for Process Pumping VSD Air Compressor Food Service & Refrigeration Anti-Sweat Heater Controls Beverage Vending Machine Controllers Commercial Kitchen Ventilation Hood Door Gaskets on Coolers and Freezers Energy Efficient Ice Machines **ENERGY STAR\*** Commercial equipment

Evaporator Fan Motor Controls Floating Head Pressure Controls

Vertical Night Covers

Strip Curtains on Walk-in Cooler and Freezer Doors

	GAS		
ous Electric  ncy Clothes Washer Surge Protector s Energy Management Controls ectric os for Injection Molders & Extruders d Air measures ly Commutated Plug Fans ncy Process Pumps Phase High Frequency Battler Charger ellet Dryer Ducts quency Drive for Process Pumping npressor ce & Refrigeration Heater Controls ending Machine Controllers is on Coolers and Freezers ient Ice Machines AR* Commercial equipment Fan Motor Controls ad Pressure Controls ns on Walk-in Cooler and Freezer Doors ht Covers	HVAC  Boiler Modulating Burner Control Controls Demand Controlled Ventilation Destratification Fans High Efficiency Furnace Infrared Heaters Programmable Thermostat Setback/Setup Controls Space Heating Boilers Steam Traps  Hot Water and Laundry Domestic Hot Water Heating System Dry Cleaning Boiler Descale (Kettle/Tube-Type) Gas Water Heater High Efficiency Clothes Washer High Efficiency Pool Heater (Gas Heat) Ozone Laundry System  Insulation  Domestic Hot Water Pipe Wrap Greenhouse Heat Curtain Greenhouse Infrared Film Pipe Wrap — Steam and Hot Water Boiler Pool Covers	Roof Insulation (Flat/Attic) Truck Loading Dock Seals Truck Loading Dock Leveler Ramp Air Pit Seals Wall Insulation  Process Gas Air Compressor Exhaust Heat Recovery Furnace Tube Inserts High Efficiency Process Boiler (Water/Steam) Tank Insulation  Boiler/Furnace Tune-up Boiler Tune Up Domestic Hot Water Boiler Tune-up Furnace/RTU Tune-up Process Boiler Tune-up Process Boiler Tune-up Food Service Commercial Kitchen Ventilation Hood ENERGY STAR* Convection Ovens ENERGY STAR* Griddles ENERGY STAR* Steam Cookers Large Vat Fryers Night Covers (Vertical) Ovens Pre-Rinse Sprayers (Gas Water Heat)	





#### Custom



#### **Custom:**

- Measures that do not fall within any specific prescriptive program.
- Energy savings and cash rebates are calculated on a case-by-case basis.
- Can be combined with prescriptive measures.





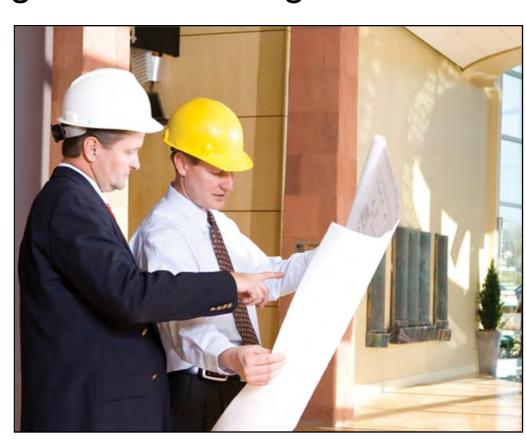


# **New Construction Major Renovation**



### New Construction/Major Renovation:

- New facilities/major renovations of existing facilities/change of use.
- Adding load.
- Two types of Applications:
  - Whole Building Design Approach:
    - Based on three tiers of efficiency
    - Requires energy modeling.
  - System Approach:
    - Pre-determined to optimize energy systems.





# **New Construction Major Renovation**



#### Projects are eligible if they include:

- New building projects wherein no structure or site footprint presently exists:
  - Brand new building or addition to an existing building.
- Major tenant improvements that <u>change the use</u> of the space.
- Major tenant improvements that <u>add new load</u>.





# New Construction Major Renovation

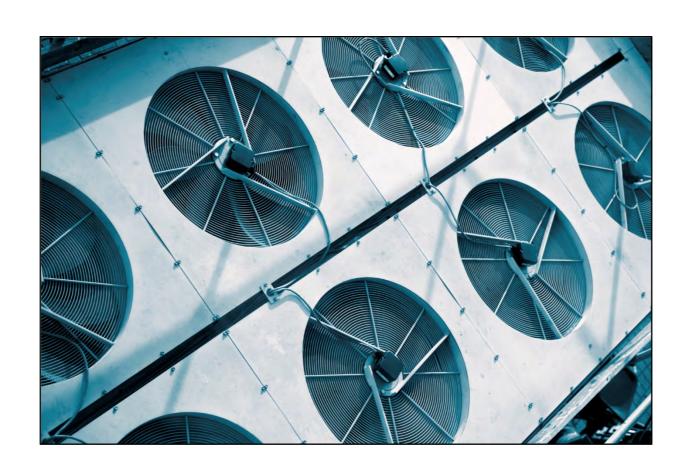


#### **Choosing an Approach:**

 Whole Building Design Approach vs.

 Systems Approach Request a Technical **Assistance Incentive Whole Building** Yes Approach Is an Energy **Submit Reservation Application** Model Feasible? **Systems Submit** No **Reservation Application Approach** 





# About Cooling System Opportunities

# **Cooling System Opportunities**



### Savings possibilities

Cooling Measures	Savings*	<u>Source</u>
VFDs – supply fans/secondary CW pumps	up to 70%	PNNL
Programmable Tstat/Setback-Setup	15%-35%	U.S. DOE
Water-cooled chillers	10%-35%	U.S. DOE
Economizer with DCV	10%-26%	PNNL
Cool Roof	10%-15%	U.S. DOE
Packaged/Split AC	8%-12%	EPA
Chilled Water Reset Controls	5%-15%	ASHRAE
Geothermal heat pumps	25%-50%	U.S. DOE

<sup>\*</sup>Peak cooling demand savings



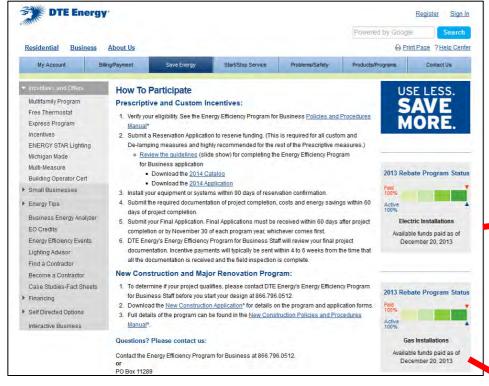


# Getting Started in 2014





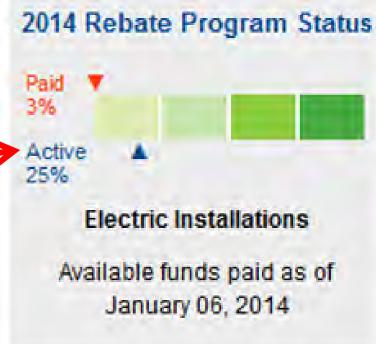
**About Program funding** 



These funding gauges provide real-time information on the Program's progress throughout the year.

This is especially important as the Program Year winds down and funding becomes limited.





## 2014 Program Catalog & Application



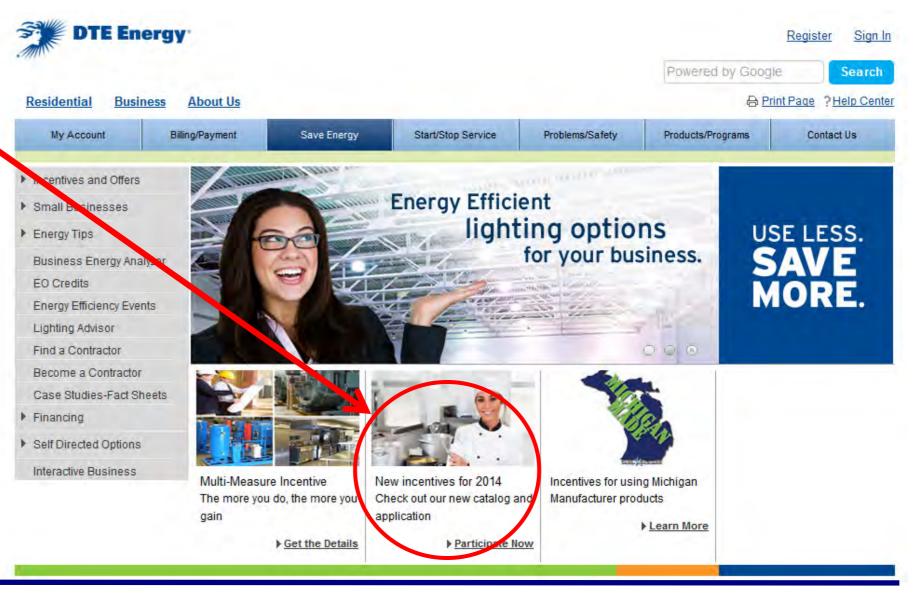


# To find the gauges – and download an electronic Catalog and Application

1) visit: dteenergy.com/savenow

Then select:

2) "Participate Now"



\*Requires Acrobat Reader

## 2014 Program Catalog & Application



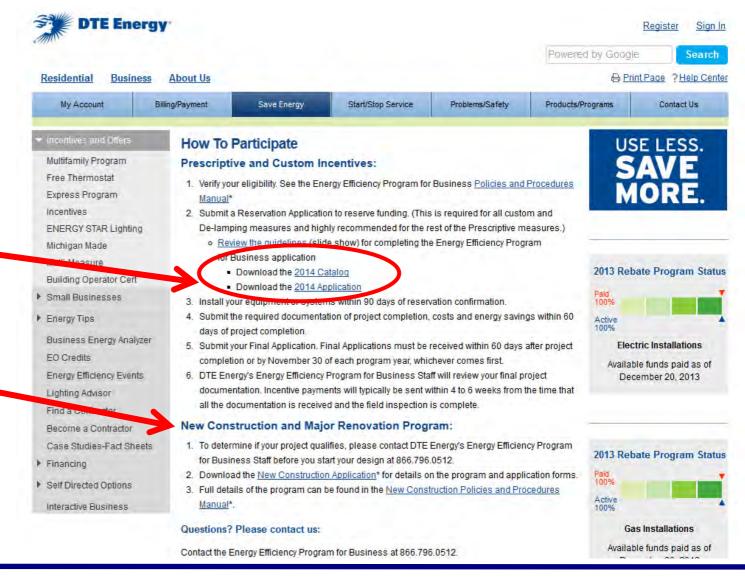


# To find the gauges – and download an electronic Catalog and Application

1) visit: dteenergy.com/savenow

Then select:

- 2) "Participate Now"
- 3) Select and download:
  - 2014 Catalog\*
  - 2014 Application
- **4)** The New Construction Application is below —



\*Contact us for a print copy





### **About our Catalog**

- It includes specifications and details for every <u>Prescriptive</u> incentive measure.
- It includes specifications and details on how to submit a <u>Custom</u> project.
- Use it as a desktop reference for all your projects.

Program for Business

2014 Measures
and Specifications
Catalog







# 2014 Program Catalog





# There are five <u>electric</u> categories of measures in the Catalog:

- Lighting
- Miscellaneous
- Process
- Food Service/Refrigeration
- •HVAC

#### There are 64 measure areas

 Each area lists specific types of measures within that section

The Application matches the Measure sequence of the Catalog

List of Eligible Prescriptiv	e Electric Measures
Lignoria	Miscellanemus Electric
Central Lighting Controls	High Efficiency Clothes Washer
Compact Fluorescent Screw-in Lamps (CFL)	Intelligent Surge Protector
(CFL) Reflector Flood Lamps	PC Network Energy Management Controls
Compact Fluorescent Fixtures	
Daylight Sensor Controls	Process Electric
Delamping. 12	Barrel Wraps for Injection Molders & Extruder
Exit Signs Retrofit	Compressed Air Pressure Flow Controller
Exterior Lighting Bi-level Control w/Override	Compressed Air Audit with Leak Repair
Exterior Linear Fluorescent replacing HID	Compressed Air Cycling Dryer
Exterior CFL replacing HID	Electronically Commutated Plug Fans
Garage/Exterior High-Intensity Discharge (HID) Conversion 10	Engineered Nozzle 19
High Performance (HP) Linear Fluorescents	High Efficiency Pumps
Interior High-Intensity Discharge (HID)	Industrial 3 Phase HF Battery Chargers
to Fluorescent Fixture 10	Insulation for Pellet Dryer Ducts
LED Interior Linear	Tank Insulation
LEO Lamps	VFD for Process Fatis
LED or Induction Interior High Bay	VSD Air Compressor
LED Traffic Signals	Constitution C. Berlinson Const.
LED Refrigerated Door Case Lighting	Anti-Sweat Heater Controls 21
Low Wattage (LW) Linear Fluorescents	Beverage Vending Machines
Case Lighting	Commercial Kitchen Ventilation Hood 21
Docupancy Sensor	Door Gaskets on Coolers and Freezers
Pulse Start Metal Halide. 10	ECM Motor für Refrigerator Cases, Freezers and Coolers 22
Switching Controls for Multilevel Lighting	Energy Efficient los Machines 22
Tubular Skylights (Light Tubes)	Efficient Refrigeration Condenser
THE STREET OF STREET OF STREET	ENERGY STAR® Commercial Solid Door Refrigerators 21
HVAC Electric	ENERGY STAR® Commercial Solid Door Freezers
Air-Cooled Chilles	ENERGY STAR® Steam Cookers
Air Source Heat Pumps	ENERGY STAR® Holding Cabinets
	Evaporator Fan Motor Controls
Chilled Water Reset - Water Cooled	Floating Head Pressure Controls 21
Closed Loop Heat Pumps 13	LED Refrigerated Door Case Lighting
Cool Roof. 15	Commence Comment of CO. D. Comment
Economizer 15	Door Case Lighting
Ground Source Heat Pump 14	Refriguration Savings due to Lighting Wattage Reduction 22
High Performance Glazing 15	Strip Curtains on Walk-in Cooler and Freezer Doors 22
Hotel Guestroom Energy Management System (Air Conditioning) 14	Vertical Night Covers
HVAC Occupancy Sensor, Large Office Building 14	
Packaged Terminal Air Conditioner & Heat Pump 13	
Programmable Thermostat (Air Conditioning)	
Room Air Conditioners	
Setback-Setup Controls (Air Conditioning)	
Unitary and Split Air Conditioning Systems	
Variable Frequency Drive - HVAC Fan/Pump	
Water-Cooled Chiller	
Window Film, 15	

# 2014 Program Catalog





# There are six <u>natural gas</u> categories of measures in the Catalog:

- •HVAC
- Insulation
- Process
- Hot Water & Laundry
- Boiler/Furnace Tune-up
- Food Service

#### There are 44 measure areas

 Each area lists specific types of measures within that section

The Application matches the measure sequence of the Catalog

#### List of Eligible Prescriptive Gas Measures 24 Domestic Hot Water Pipe Wrap ..... Boiler Water Reset Control 24 Greenhouse Heat Curtain 24 Greenhouse Infrared Film High Efficiency Furnace. 24 Truck Loading Dock Seels. HVAC Occupancy Sensor, Large Office Building 25 Wall Insufation 27 Programmable Thermestat Space Heating Boilers. 24 Furnace Tube Inserts. 28 24 High Efficiency Process Boiler (Water/Steam) ...... Variable Frequency Drive on Secondary Boiler/Furnace Tune-up Hot Water and Laundry Boiler Tune Up. Gas Storage Water Heater ..... . 26 Furnace/RTU Tune-up ENERGY STAR® Convection Ovens ENERGY STAR® Fryers ..... ENERGY STAR® Steam Cookers

To download an interactive application, go to: dteenergy.com/savenow

# Food Servic

# 2014 Program Catalog







eezer eezer eezer

ΓAR® Icentive

ΓAR®



passive infrared occupancy sensor to turn off fluorescent lights and other vending machine systems when the surrounding area is unoccupied for 15 minutes or longer. Incentive is per vending machine.

#### Anti-Sweat Heater Controls

Incentives are available for anti-sweat heater controls. Eligible control devices that sense the relative humidity in the air outside of the display case and reduces or turns off the glass door (if applicable) and frame anti-sweat heaters at low-humidity conditions. Technologies that can turn off anti-sweat heaters based on sensing condensation on the inner glass pane are also eligible. Incentive is per total number of doors controlled.

#### Floating Head Pressure Controls

Incentives are available for installing automatic controls to lower condensing pressure at lower ambient temperatures in multiplex refrigeration systems. Controls installed must vary head pressure to adjust condensing temperatures in relation to outdoor air temperature. The controls must replace existing constant pressure or manually controlled systems to achieve lowered head pressure in order to maintain a minimum saturated condensing temperature of 70°F, or a 20°F variance below design head pressure during mild weather conditions. Incentive is per ton of refrigeration.

Commercial Kitchen Ventilation (CKV) Hood with Demand Control

Specifications are detailed for every prescriptive measure offered under the 2014 Program.

## 2014 Program Catalog & Application





### **About our Application**

Use it as a:

Reservation Application

#### and a

Final Application

**NOTE:** Funds <u>must</u> be reserved for all custom projects and for certain prescriptive measures.

We **encourage** you to submit a Reservation Application for all **prescriptive** projects.

#### Energy Efficiency **DTE Energy** SAVE MORE Program for Business 2014 Program Application This Application is to be used for projects completed with a Final Application submitted during the 2014 Program Year (Jan. 1, 2014 - Nov. 30, 2014). Section 1 - Application Incentive Application Checklist. Customer Information. Contractor Information. Third Party Payment Authorization Final Application Agreement. Incentive Summary, Final Agreement Information and Account Holder Signature Page. Section 2 - Incentive Worksheets Lighting Incentive Worksheet... HVAC Electric Incentive Worksheet. Miscellaneous Electric Incentive Worksheet. Process Electric Incentive Worksheet. Food Service - Electric and Refrigeration Incentive Worksheet. HVAC Gas Incentive Worksheet. Hot Water and Laundry Incentive Worksheet. 21 Insulation Incentive Worksheet 22 .23 Process Gas Incentive Worksheet Boiler/Furnace Tune-up Incentive Worksheet. 24 .25 Food Service - Gas Incentive Worksheet. .26 Custom Measures Worksheet Instructions Custom Incentive Worksheet .27 How to Submit Your Application For New Construction and Major Renovation projects. download our NC/MR Application at deenergy.com/savenow If you have questions about other projects and the appropriate Application to submit, contact us at 866-796-0512 (press option 3) or email us at saveenergy@dteenergy.com

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### Thank you for joining us today!



And a thank you to our:

**Vendors • Presenters • Customers** 





#### A reminder:

1Q March 6: Energy Efficient Cooling Systems

2Q June 5: Michigan Energy Code for New Construction/Major Renovations (LEED)

3Q Sept. 4: EMS Systems

4Q Nov. 6: TBD

... back here at UM-Dearborn





#### If you have questions or would like help completing the 2014 Application, contact our office

Email: saveenergy@dteenergy.com

Phone: **866-796-0512** (press option 3)

Fax: 877-607-0744

Website: dteenergy.com/savenow



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