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Energy Saving Opportunities for Hotels

- Glen Eigo, Energy Engineer, CL&P
- Roy W. Haller, Manager Energy Services, UI
- March 18, 2010



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Southern
Connecticut
Gas

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Agenda

- CT Energy Efficiency Fund (CEEF)
- American Reinvestment & Recovery Act
- C&I 2010 Program Budgets/Caps
- C&I Programs
- Tax Incentives
- Important Reminders
- Contacts
- Questions?



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Energy Efficiency & Background

The overall vision for the future evolution of the CEEF C&I programs is to cost-effectively support a sustainable and competitive business climate for Connecticut's businesses and industries based on bottom-line solutions for economic competitiveness, environmental stewardship, and social responsibility.

- Connecticut Energy Efficiency Fund (CEEF) was created in 1998 by CT State Legislature
- 3 mil /kWh surcharge – it's your money!
- Energy efficiency is a valuable resource
 - Reduces air pollutants and greenhouse gases
 - Creates monetary savings for customers
 - Reduces need for more energy generation
 - Creates jobs



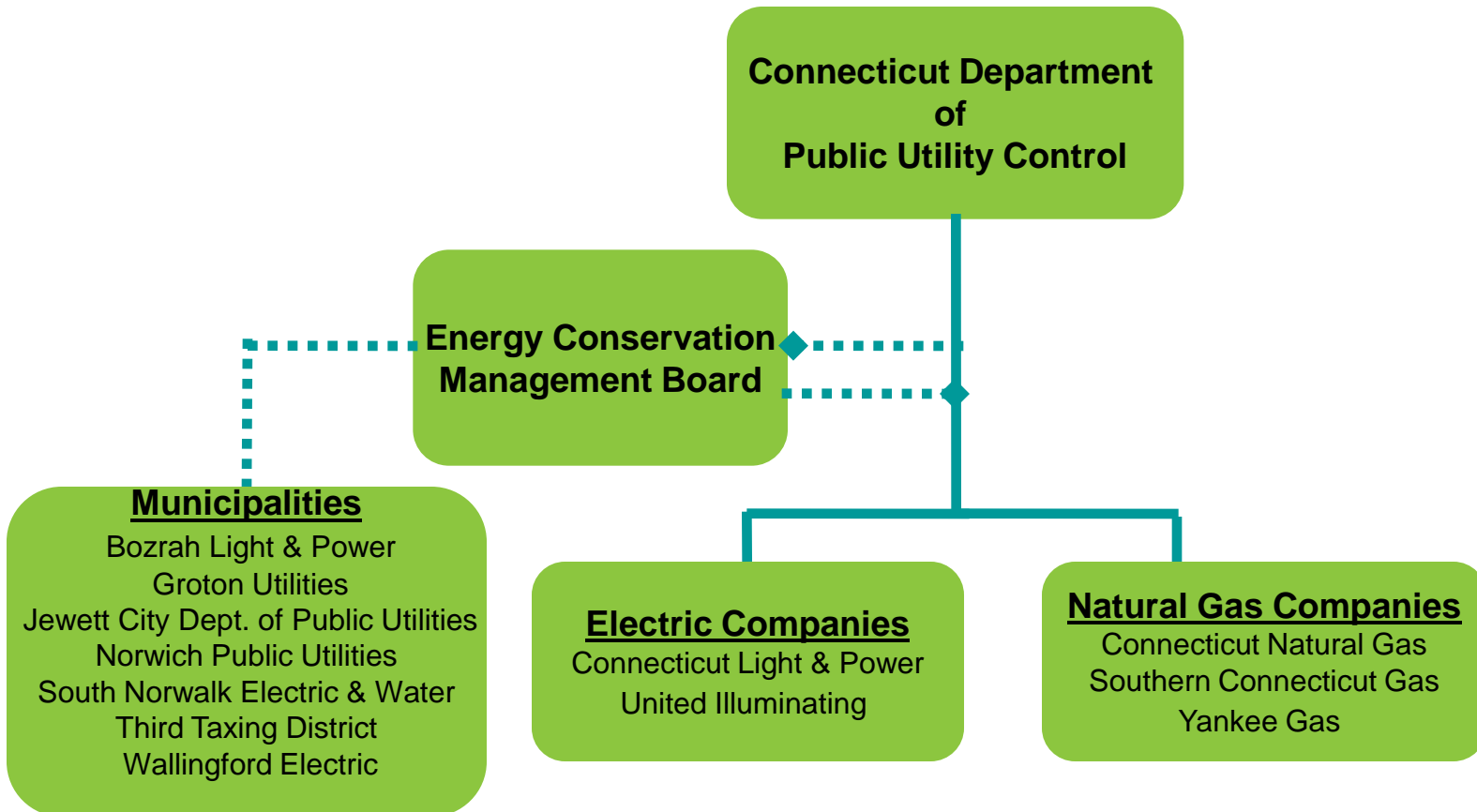
CEEF Programs

- Offer technical assistance to commercial & industrial customers who want to improve energy efficiency
- Offer financial incentives to help implement energy-efficient measures
- No. 3 ranking in ACEEE's 2008 State Scorecard
- Support economic growth in Connecticut*
 - Creates 2,675 direct jobs
 - Creates 4,280 indirect and induced jobs
 - \$137M direct job employment income

*CT Renewable Energy / Energy Efficiency Economy Baseline Study - March 27, 2009



Program Administration



2009 CEEF Program Results*

- 2009 lifetime energy savings – 2.0 Billion kWh
- 2009 summer peak demand savings – 25.7 MW*
- \$324 M saved in electric energy costs
(Lifetime from 2009 investments)
- **~\$24.5 M saved annually**
- Every dollar spent in 2009 on efficiency programs will generate
~\$4 in future lifetime electric system benefits

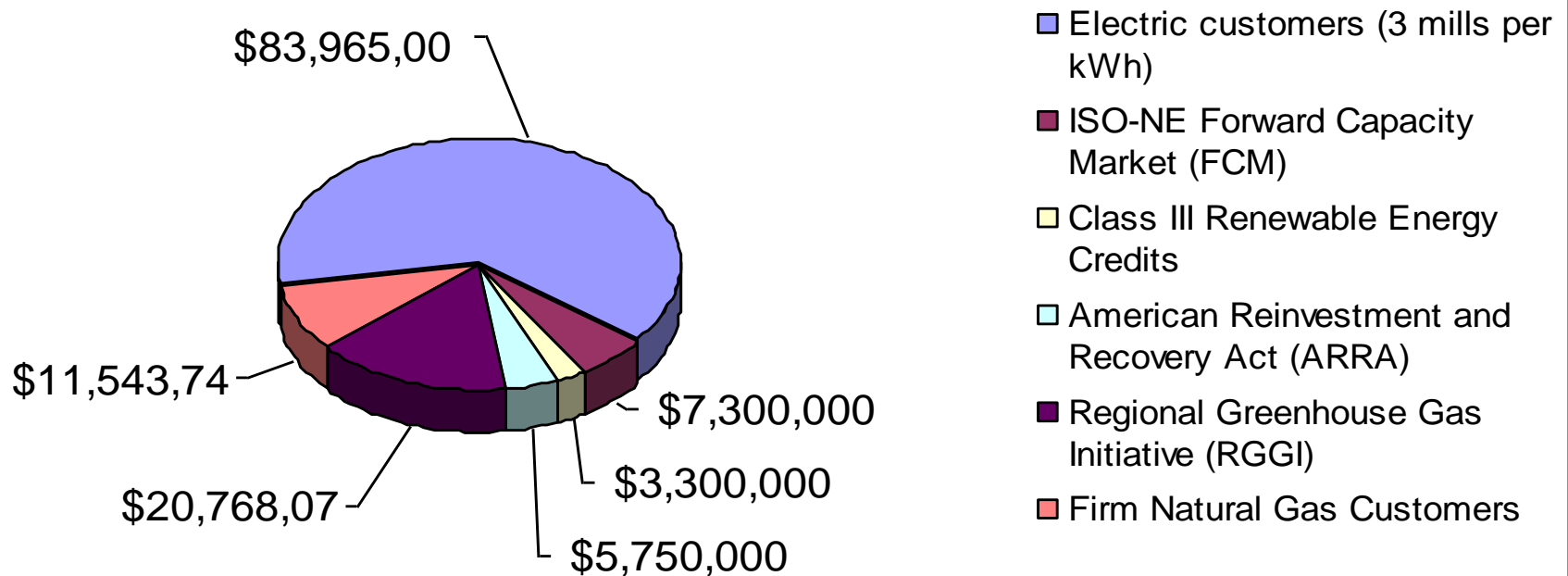
**2009 results are based on CL&P and UI administered programs*



C&LM Funding Sources for 2010

2010 C&LM Revenue Sources

\$132,626,822*



*Pending DPUC Approval

2010 C&I Incentive Budgets*

- CL&P \$ 38,899,000; ~ 40% committed
- UI \$ 9,315,557; ~ 20% committed
- YGS \$ 1,932,262; ~ 75% committed
- CNG \$ 1,120,746; ~ 40% committed
- SCG \$ 1,064,104; ~ 40% committed

**Proposed – Pending DPUC Approval (Dockets 09-10-03 & 08-10-02)
Includes CEEF, RGGI, ODR and ARRA Funds*



American Recovery and Reinvestment Act of 2009 (ARRA)

- ARRA Grant from CT's Office of Policy Management for Energy Opportunities and Small Business Programs
 - CL&P \$4.6M
 - UI \$1.15M
- Funding is targeted to all fuels
- Davis-Bacon Requirement
 - Requires any individual working on a job funded in whole or in part by ARRA to be paid the prevailing wage.
 - Customers must provide weekly timesheets to respective utility documenting the wages paid to all of the workers on the installations.
 - Other provisions, such as posting appropriate DOL wage posters on the job site are required.
- Buy American Requirement
 - Requires items installed in public buildings be manufactured in the US unless no alternative is available.



Commercial & Industrial Programs



New Construction,
Major Renovation &
Equipment
Replacement



Retrofit
Projects &
Small Business



Operations &
Maintenance
Projects



Retro
Commissioning



PRIME



Loans &
Financing



Load
Management



2010 Project Incentive Caps

- \$300,000 Cap (cumulative total) for each meter per year
AND
- \$750,000 Cap (cumulative total) per Federal Tax ID per year

- Contact your Utility Representative regarding large projects with the potential to exceed these cap levels

- The Incentive Cap does not apply to natural gas projects
 - Natural Gas projects in excess \$100,000 may receive funding approval (30 day approval process).



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Energy Conscious Blueprint (ECB)

- Designed to capture electric and natural gas energy savings when they are most cost effective - during the design phase of new construction, major (gut) renovation or adding new equipment.
- Typically referred to as lost opportunities



ECB *(continued)*

Lighting System Related Projects

- Lighting designs/installations \geq 10% less than code
 - Incentives = lesser of \$0.15/sq ft or \$50/fixture
 - Lighting designs/installations \geq 30% less than code
 - Incentives = lesser of \$0.50/sq feet or \$50/fixture
 - Occupancy Sensors \$20/fixture controlled
 - Buildings over 5,000 sq. ft. must have lighting control strategy (as required by code)
 - Subject To Utility Caps
- * Code = ASHRAE 90.1-2004 (all addenda)



ECB *(continued)*

For non-lighting system related projects:

- Incentives up to 95% of the incremental cost for new construction and equipment replacement (consult your utility Representative)
- We measure the incremental cost and the energy savings relative to Building Code* or reasonable & customary design practices
- Agreement is prepared and signed prior to ordering equipment & materials, or construction
- Subject to Utility Caps

*Code = ASHRAE 90.1-2004 (all addenda)



Specific Examples

- New construction
- High reflectivity roofing
- HE brine chillers
- HE heat pump loop system
- HE rooftop HVAC units
- HE lighting, including w/occupancy sensors
- Water-to-air heat wheels
- Variable frequency drives w/ HE motors on fans, pumps & kitchen hoods
- Oversized cooling towers
- CO₂ control for air handling units



Case Study #1

- Installed Measures – project #Awmm, #A1xs, #8SmC
 - EMS Controls, Heat Pumps, Variable Speed Drives, Heat Wheel
- Installed Cost - \$1,283,446
- Incentives - \$ 283,446
- Savings - 158 peak kW, 830,368 kWh, 9.8 M LkWh
- Potential projects
 - Exhaust Heat Reclamation
 - RoofTop VAV System w/ CO₂ Control
 - Domestic Hot Water
 - LED Lighting



Energy Opportunities (EO)

- Designed to improve the energy efficiency of customers' existing facilities via retrofit opportunities.
- Retrofit: to voluntarily exchange or modify inefficient, functioning equipment with high-efficiency alternatives (for the sole purpose of saving energy \$)



EO *(continued)*

- Replace inefficient building systems
- Lighting system replacements & controls
- Heating & cooling system upgrades
- Process system upgrades
- Building control systems & repair
- Incentives designed to pay up to 50% of the retrofit cost for qualified projects



EO *(continued)*

- For Lighting & non lighting system projects
 - Incentive of up to 40% of the installed cost of the energy-efficient system change.
 - Up to 50% for qualified LED / Induction lighting technologies
 - Interior or exterior applications
 - Lighting design must exceed Code by at least 15%.
If not, use Express Lighting Rebate Application
 - We measure the installed cost and the energy savings relative to currently installed equipment.
 - Agreement is prepared and signed prior to ordering equipment & materials



Case Study #2

- Installed Measures – projects # 9fvN, #9Z9D
 - EMS Controls, Lighting
- Installed Cost - \$275,000
- Incentives - \$ 120,014
- Savings - 158 peak kW, 688,069 kWh, 9.4 M LkWh
- Potential projects
 - To be determined



Energy Management Systems (EMS)

- Existing EMS may be upgraded or replaced regardless of system age.
- No incentives will be offered for repair or replacement of pneumatic controls with pneumatic controls.
- For qualifying projects, the incentives will be calculated based on the lesser of:
 - 40% of the installed cost
 - \$500 per point (total system points impacted)
 - avoided energy cost (1yr) - up to \$0.30/Annual kWh and \$700.00/summer peak kW combined



Case Study #3

- Installed Measures – Project EA-09-S-135
 - EMS Controls, Room Occupancy HVAC Control
- Installed Cost - \$275,000
- Incentives - \$ 120,014
- Savings - 688,069 kWh, 9.4 M LkWh
- Potential projects
 - LED Lighting



LED Categories

- LED Lighting eligible for CEEF Incentives falls into 3 categories
- **Group A** – Energy Star® List for LED Products - Luminaires
 - Only Group A luminaires identified on the Energy Star® List will be eligible for CEEF program incentives. http://www.energystar.gov/index.cfm?fuseaction=ssl.display_products_com_pdf
 - Recessed, surface & pendant-mounted luminaires; Under-cabinet shelf-mounted task luminaires; Wall wash luminaires; and Bollards
- **Group B** – DesignLights™ Consortium - Luminaires
 - Outdoor, roadway luminaires, refrigerated case luminaires; and display case luminaires
 - The technical requirements for Group B luminaires can be found at: <http://designlights.org/solidstate.manufacturer.requirements.php>
 - Effective, **June 1, 2010** Group B Luminaires must be identified on the DesignLights™ Consortium Qualified Product List to be eligible for CEEF incentives.
- **Group C** – LED Lamp Replacements
 - Outdoor lamp replacement; Parking Garage lamp replacement; **Omnidirectional, **Decorative, **Directional and **Non-Standard lamps.
 - For Group C items identified above with “**”, the **Energy Star®** requirements are finalized. Effective August 31, 2010 only fixtures identified on the **Energy Star®** list will be eligible for CEEF incentives.



Comprehensive Initiative

- A **Comprehensive** project must meet the following criteria:
 - Must have energy savings from at least two electric end uses and at least two measures
 - At least 15 percent of the value of the project's electric energy savings and peak summer demand reduction must be in a non-lighting end use (based on \$0.50 per annual kWh and \$700.00 per kW)
 - No one measure can have 85 percent or greater of the value of the project's energy savings and peak summer demand reduction (based on \$0.50 per annual kWh and \$700 per kW).



Comprehensive Incentives

- Lesser of:
 - 50% installed cost (electric portion only)
 - Buy-down of project to 2–year payback based on customer electric metered savings
 - Energy savings caps of up to \$0.50/annual kWh + \$700.00/summer peak kW combined
- Comprehensive incentives for firm gas projects:
 - 10% added to all qualifying gas measures (unless capped at Utility energy savings caps)



Case Study #4

- Installed Measures – project # CE-09-C-050
 - Occupancy Sensors for PTAC
 - LED Lighting Retrofits
 - Fluorescent Lighting Retrofits
- Installed Cost - \$699,235
- Base Incentives - \$142,582
- Comprehensive Addition - \$207,034
- Electric Savings - 61 peak kW, 746,392 kWh, 5,444,734 LkWh
- **Estimated Annual Electric Cost Savings - \$95,815**



Operations & Maintenance

- Improve electrical & gas efficiency of equipment through changes/repairs
- Not intended for normal preventive maintenance, repetitive procedures for a customer on a regular basis, or to subsidize major equipment purchases

Typical Measures

- Compressed air system improvements (repair of leaks)
- EMS maintenance, i.e., replacement of defective sensors, relays and actuators, reprogramming

Incentives

- Up to 40% of installed costs



Retro-Commissioning (RCx)

- Provides technical, engineering & implementation support to optimize the operation of your facility with out installing capital equipment
- Improve electrical and/or gas efficiency through changes or repairs Reset chiller discharge temperature
 - Reset pump and fan speeds; Demand ventilation
 - Optimization of AHU supply fan static pressure
 - Broaden humidity set points in data centers
 - Boiler optimization
 - Confirm sequence of operations for EMS equipment
- Facilities must be $\geq 100,000$ sq. ft. with Direct Digital Control system that can conduct trending & reporting
- Incentives up to 100% for investigation fees (*implementation required*)
- Incentives up to 40% for the implementation costs



Small C&I Financing

- Customer Eligibility:
 - Average monthly demand greater than 10 kW and below 350 kW over the past year
 - In business at least 3 years
 - Qualify via 3rd Party lender's business credit review process (starts with the loan application process)
- Projects not eligible
 - Qualify under SBEA program, Municipal Financing or
 - Any new construction/major renovation projects



Small C&I Financing

- Loan Highlights
 - Third-party lender and loan approval
 - Various Low interest loans with positive cash flow
 - (7%-10%)
 - Maximum Loan term not to exceed 5 years
 - (varies with interest rate)
 - Loan amount between \$2,000 and \$250,000 providing interest subsidies on the first \$100,000



Small C&I Financing Example

Market Rate:

11.25%

	Base (Market Rate)	CEEF Financing (7%)	Customer Savings
Project Cost	\$ 100,000.00	\$ 100,000.00	
CEEF Incentive %	40%	40%	
CEEF Incentive	\$ 40,000.00	\$ 40,000.00	
Loan Amount	\$ 60,000.00	\$ 60,000.00	
Annual Energy Savings-\$	\$ 50,000.00	\$ 50,000.00	
Payback Period (Yrs)	1	1	
Loan Term (Yrs)	2	2	
Monthly Loan Payment	\$ 2,803.44	\$ 2,686.35	\$ 117.09
Annual Loan Payment	\$ 33,641.27	\$ 32,236.26	\$ 1,405.01
Customers Cash Flow	\$ 16,358.73	\$ 17,763.74	\$ 1,405.01
Customers Total Payment	\$ 67,282.54	\$ 64,472.52	\$ 2,810.02
CEEF Contribution	\$ 40,000.00	\$ 42,476.34	\$ 2,476.34
CEEF Contribution - %	40.0%	42.5%	
Increase over Incentive (Capped at 12.5%)		6.2%	



Tax Incentives

- Energy-efficient Commercial Buildings Tax Deduction
- Renewable-energy Tax Credits And Grants
- Qualifying Advanced Energy Project Investment Tax Credit
 - *More Info:*
 - www.dsireusa.org
 - www.energytaxincentives.org/business
 - www.energytaxsavers.com
 - www.irs.gov/irb/2006-26_IRB/ar11.html
 - www.treas.gov/recovery



Who's Using Tax Incentives

Facility Type	Reasons
Retailers	<ul style="list-style-type: none"> • Energy is a major operating cost • Centralized facilities management
Distribution Centers	<ul style="list-style-type: none"> • Major growth market • High economic return
Hotels	<ul style="list-style-type: none"> • Meet ASHRAE 2004 = full EPA Act • Bi-Level controls not required in quest rooms
Parking Garages	<ul style="list-style-type: none"> • Large facilities drive large EPA Act benefits
	<i>Table supplied by charlesgoulding@energytaxsavers.com</i>

Business Sustainability Challenge

- Utilizes a holistic approach to educating customers on the value of managing energy as a resource
- Makes energy and carbon management an integral and sustainable part of your business
- Provides businesses an opportunity to achieve long-term sustainability through:
 - energy management practices and investments
 - defined environmental/sustainable objectives
 - continuous improvement objectives



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Small Business Energy Advantage (SBEA)

- Retrofit program for C&I customers with ≤ 200 kW (CL&P) / ≤ 150 kW (UI) average billing demand
- Audits and installation provided by approved contractors
- 0% financing for qualifying customers
- Maximum loan amount - \$100,000
- On the Bill repayment available
- Maximum Loan Term
 - UI - 48 months
 - CL&P - 36 months



SBEA

- Typical measures include:
 - Energy-efficient lighting,
 - Lighting controls,
 - Refrigeration equipment and controls,
 - Compressed air systems,
 - Variable speed drives,
 - Energy management systems
 - Programmable T-stats, etc.
- Incentives up to 40% of installed costs for eligible measures
- Incentives up to 50% for qualified LED / Induction lighting
- Subject to utility caps



CT Clean Energy Fund (CCEF)

- On-Site Renewable DG
- Solar Thermal Program
- Geothermal Heat Pump Incentive Program
- Opportunities for Advanced Technology and Clean Energy Under the American Recovery and Reinvestment Act
- Clean Energy Workforce Development

– *More Info:*

- Connecticut Clean Energy Fund
200 Corporate Place, 3rd Floor
Rocky Hill, CT 06067
Tel: (860) 563-0015
Fax: (860) 563-6978

www.ctcleanenergy.com



Upcoming Training Events

- March – ASHRAE Code 90.1-2004
- April - High Performance Lighting, New Technologies
- April – Daylighting Controls
- May - Boiler System Optimization
- June – Pumping System Optimization

Check CL&P/UI Web Site Events Calendars For Updates/Registration



Summary

- CEEF offers more money than ever for energy efficiency
 - offering funding, financing and technical assistance
- ARRA has created a tremendous opportunity for Energy Efficiency leveraging CEEF funds
- CT is a national leader when it comes to implementing the Energy Efficiency programs
- Maximize the “Double Dip”
 - CEEF \$\$\$; Federal Tax \$\$\$



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How Do You Get Involved?

- Contact your Utility Representative **EARLY** in the process
- Pre-design / Design Phase
- Become aware of utility incentive programs
- Engage a utility representative throughout project
- Sign a Standard Agreement **prior** to proceeding with the project



Web Information

CEEF/DPUC	www.CTEnergyInfo.com
CL&P	www.cl-p.com
UI	www.uinet.com
Yankee Gas	www.yankeegas.com
CNG	www.cngcorp.com
SCG	www.soconngas.com
CCEF	www.ctcleanenergy.com



CL&P Contacts

- **New Construction (ECB):** Lomont White (860) 665-3790
- **Retrofit (EO):** John Matchett (860) 665-3054
- **O&M/RCx:** Dave McIntosh (203) 352-5457
- **Cool Choice/MotorUp Rebates:** Dave Hayward (860) 665-3386
- **Express Lighting Rebates:** Dave Hayward (860) 665-3386
- **Small Business:** Randy Vagnini (860) 832-4753
- **Financing:** Randy Vagnini (860) 832-4753
- **Financing:** Univest; Craig Hemler, 1-866-604-8160 (ext. 116)
- **PRIME:** Rich Asselin (860) 665-3292
- **Residential Programs:** Joe Swift (860) 832-4936
- **Natural Gas Programs:** Rich Asselin (860) 665-3292
- **CL&P Account Executives**



UI Contacts

- **New Construction (ECB):** Roy W. Haller (203) 499-2025
- **Cool Choice:** Michelle LeMoine (203) 499-5828
- **MotorUp:** Michelle LeMoine (203) 499-5828
- **Retrofit (EO):** Roy W. Haller (203) 499-2025
- **Express Lighting:** Michelle Lemoine (203) 499-5828
- **Small Business:** Dennis O'Connor (203) 499-3715
- **Financing:** Roy W. Haller (203) 499-2025
- **Financing:** Univest; Craig Hemler, 1-866-604-8160 (ext. 116)
- **O&M Services:** Marissa Westbrook (203) 499-3314
- **Load Response:** Rick Rosa (203) 499-2632
- **Residential Programs:** Chris Ehlert (203) 499-2965
- **Natural Gas Programs:** Roy W. Haller (203) 499-2025
- **UI Account Managers**



QUESTIONS???



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Connecticut's Energy Efficiency Programs are funded by a Charge on Customer energy bills.
The Programs are designed to help customers manage their energy usage and cost.



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