



# Introduction to the RTU Campaign

**SWEEP Webinar**

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# Agenda

- Campaign Summary
- Why RTUs?
- Website and Resources
- Roles and Benefits
- Campaign Goals
- Utility Supporter Role
- Next Steps

## RTU Campaign Quick Overview

- **What:** Move the commercial building RTU market to greater adoption of high efficiency RTUs and RTU controls
- **Who:** Campaign organizers, supporters, and DOE
  - Organizers: ASHRAE, RILA, and others to be announced
  - Supporters: Utility programs, efficiency organizations, and manufacturers
  - Participants: Building owners
  - Department of Energy provides technical support
- **How:** Recruit building owners and operators to pledge to:
  - Evaluate their buildings for opportunities
  - Replace their RTUs or retrofit with controls
  - Share energy savings with the campaign
- **When:** The project launches May 2013 through November 2014



## Why RTU's? - Energy Savings in Commercial Building Cooling

- Commercial packaged roof top air conditioning units (RTUs) can be up to 50% more efficient than RTUs available ten years before
- Advanced controls can save up to 40% with paybacks as short as 2 years
- Nationally, RTUs are used in over 60% of U.S. commercial buildings
- Typical life is 15 to 20 years, and replacement is often only after failure
- Urgency leads to replacement with a new version of the old unit



- Advanced Control Retrofit
  - For units <10 years old and >7 tons of cooling capacity
  - Reduce RTU energy consumption by up to 40% with a 2-4 year payback
- RTU Early Retirement and High Efficiency Replacement
  - For units > 10 years old
  - CEE Tier 2 and above efficiency levels
  - RTU Challenge specification can reduce RTU energy use by up to 50% compared with Standard 90.1

# RTU Efficiencies

		90.1-1999		90.1-2001		90.1-2004 ( $< 1/23/06$ )		90.1-2010		CEE (1/6/2012)				RTU Challenge
										Tier 1		Tier 2		
Type	Btu/h	SEER	EER	SEER	EER	SEER	EER	SEER/ IEER	EER	SEER/ IEER	EER	SEER/ IEER	EER	IEER
split	< 65,000	10.0	9.0	10.0	9.0	10.0		13.0		14.0	12.0	15.0	12.5	
single pkg		9.7	8.8	9.7	8.8	9.7		13.0		14.0	11.6	15.0	12.0	
elec res.	< 135,000		8.9		10.3		10.3		11.2	13.0	11.7	14.0	12.2	18
all other			8.7		10.1		10.1		11.0	12.8	11.5	13.8	12	
elec res.	< 240,000		8.5		9.7		9.7		11.0	12.5	11.5	13.2	12.2	18
all other			8.3		9.5		9.5		10.8	12.3	11.5	13.0	12	
elec res.	< 760,000		8.5		9.5		9.5		10.0	11.3	10.5	12.3	10.8	
all other				8.3		9.3		9.3		9.8	11.1	10.3	12.1	10.6
elec res.	> 760,000		8.2		9.2		9.2		9.7	11.1	9.9	11.6	10.4	
all other				8.0		9.0		9.0		9.5	10.9	9.7	11.4	10.2

10 - 15 year old  
equipment

“High efficiency” for this  
program



## Benefits of RTU Replacements and Retrofits

- Substantial efficiency gains over older and possibly degraded units
- Reduce operating costs
- Avoid expensive maintenance problems
- Aligns with R22 phase out
- Improved dehumidification, comfort control, or IEQ
- Multiply the savings with a deep building retrofit
- Take advantage of attractive financial incentives
- Utility efficiency programs make it easier

### Energy Savings Examples

- Supermarkets can save up to \$52,000 per year (up to \$8,700 per RTU)
- Stand-alone retail stores can save up to \$24,000 per year (up to \$5,900 per RTU)
- Strip malls can save up to \$23,000 per year (up to \$2,300 per RTU)
- Small office buildings (5,500 sq. feet) with one RTU can save up to \$2,400 per year

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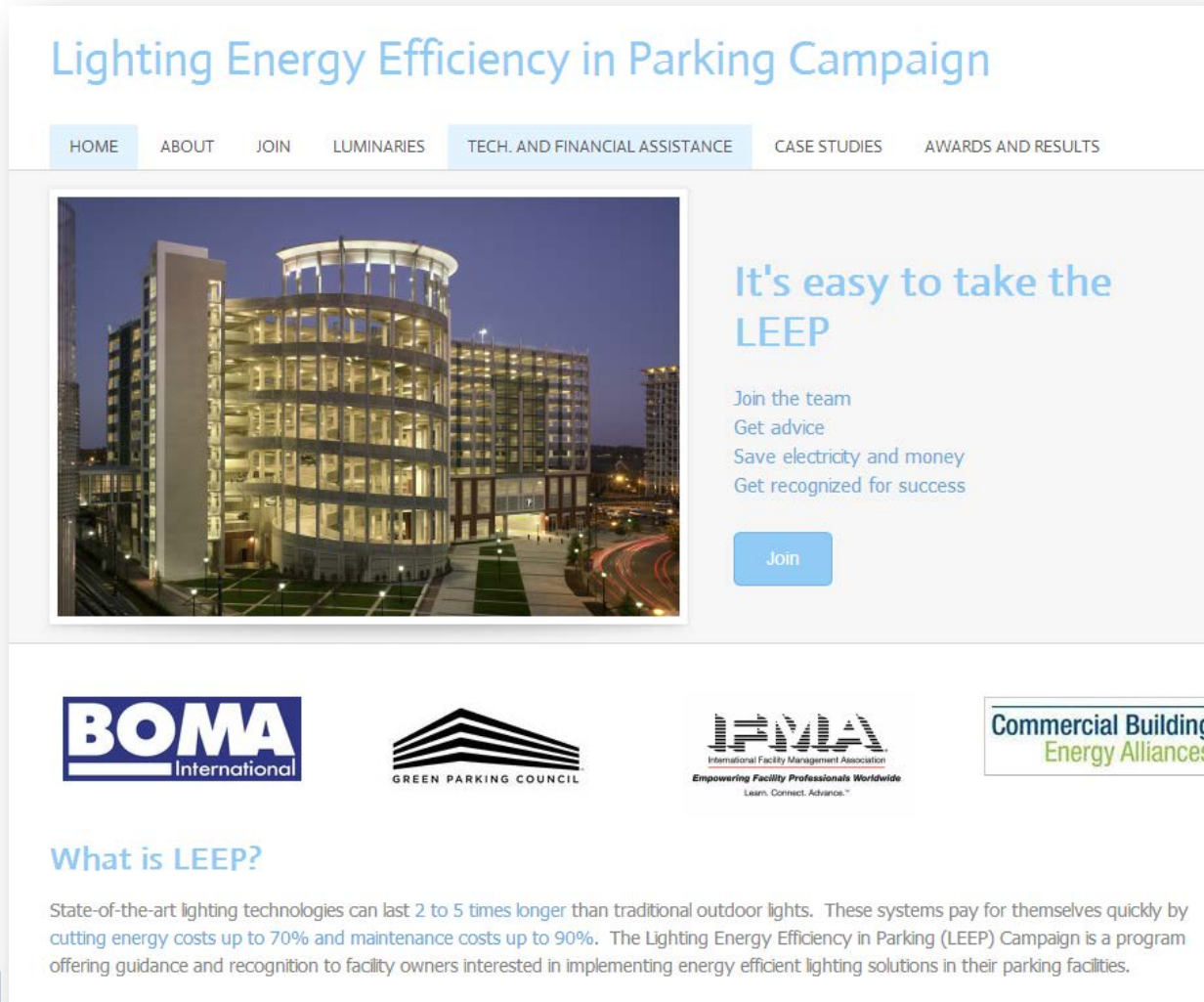
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# What might it look like when launched?

Example from recent Lighting Energy Efficiency in Parking campaign

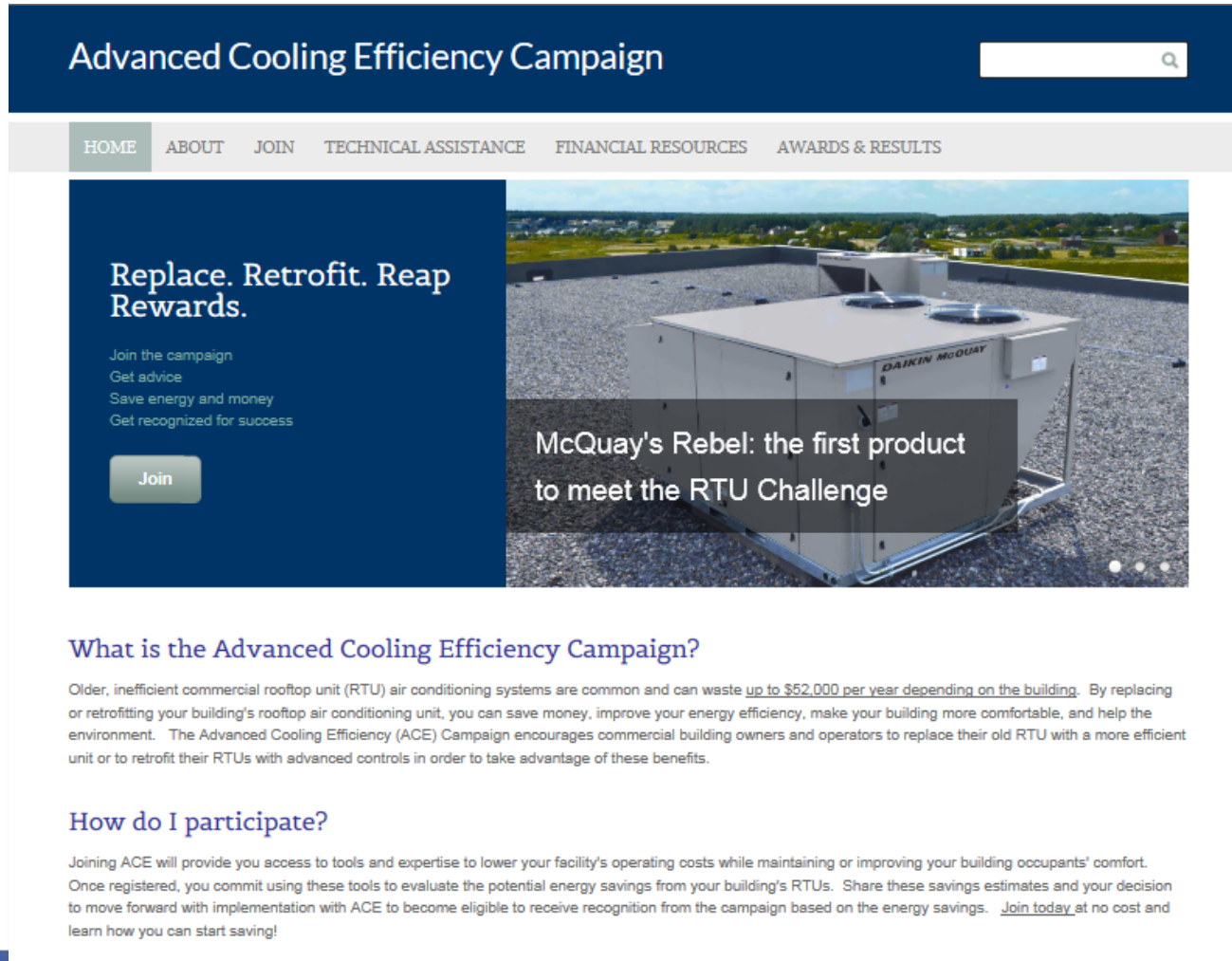
Example:  
Leepcampaign.org



The screenshot shows the homepage of the Leep Campaign website. At the top, the title "Lighting Energy Efficiency in Parking Campaign" is displayed in blue. Below the title is a navigation menu with links for HOME, ABOUT, JOIN, LUMINARIES, TECH. AND FINANCIAL ASSISTANCE, CASE STUDIES, and AWARDS AND RESULTS. The main content area features a large image of a modern building at night, illuminated from within. To the right of the image, the text reads "It's easy to take the LEEP" in blue, followed by a list of benefits: "Join the team", "Get advice", "Save electricity and money", and "Get recognized for success". A blue "Join" button is positioned below the list. At the bottom of the page, there are logos for BOMA International, Green Parking Council, IFMA (International Facility Management Association), and Commercial Building Energy Alliances. Below the logos, the heading "What is LEEP?" is followed by a paragraph explaining that state-of-the-art lighting technologies can last 2 to 5 times longer than traditional outdoor lights, cutting energy costs up to 70% and maintenance costs up to 90%. The Leep Campaign is described as a program offering guidance and recognition to facility owners interested in implementing energy efficient lighting solutions in their parking facilities.

# What might it look like when launched?

## Conceptual Design



**Advanced Cooling Efficiency Campaign**

HOME ABOUT JOIN TECHNICAL ASSISTANCE FINANCIAL RESOURCES AWARDS & RESULTS

**Replace. Retrofit. Reap Rewards.**

- Join the campaign
- Get advice
- Save energy and money
- Get recognized for success

[Join](#)

**McQuay's Rebel: the first product to meet the RTU Challenge**

**What is the Advanced Cooling Efficiency Campaign?**

Older, inefficient commercial rooftop unit (RTU) air conditioning systems are common and can waste up to \$62,000 per year depending on the building. By replacing or retrofitting your building's rooftop air conditioning unit, you can save money, improve your energy efficiency, make your building more comfortable, and help the environment. The Advanced Cooling Efficiency (ACE) Campaign encourages commercial building owners and operators to replace their old RTU with a more efficient unit or to retrofit their RTUs with advanced controls in order to take advantage of these benefits.

**How do I participate?**

Joining ACE will provide you access to tools and expertise to lower your facility's operating costs while maintaining or improving your building occupants' comfort. Once registered, you commit using these tools to evaluate the potential energy savings from your building's RTUs. Share these savings estimates and your decision to move forward with implementation with ACE to become eligible to receive recognition from the campaign based on the energy savings. [Join today](#) at no cost and learn how you can start saving!

- Technical assistance to help building owners and decision makers
- Guidelines to determine whether to retrofit or replace
- Performance data from DOE and other demonstrations
- Right-sizing guidance
- Energy savings calculators
- Procurement specification (performance, installation, and quality maintenance)
- Example quality maintenance contract
- Case studies targeted at both end users and utilities

## Building Owner and Operator Barriers to RTU Efficiency

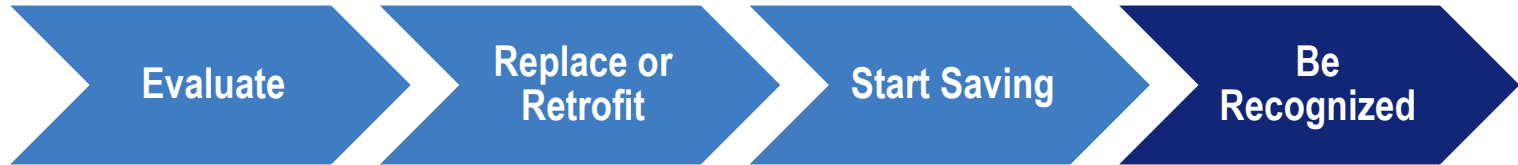
Barriers	Potential solution(s)
First cost drives buying decisions	<ul style="list-style-type: none"> <li>• A list of RTU incentives and financing resources</li> <li>• Manufacturer supporter financing</li> <li>• Utility supporter relationships with local debt providers</li> </ul>
Lack of awareness of the benefits of high efficiency units	<ul style="list-style-type: none"> <li>• Financial and technical calculators</li> <li>• Case studies</li> <li>• Strong campaign partners</li> </ul>
Split incentives between owners and tenants	Examples of energy aligned- leases or owners/tenants that have successfully negotiated upgrades
Uncertainty/mistrust about savings claims	<ul style="list-style-type: none"> <li>• 3<sup>rd</sup> party demonstrations</li> <li>• Case studies</li> </ul>
Lack of expertise about how to specify advanced equipment/ what to buy	<ul style="list-style-type: none"> <li>• Sample procurement specifications</li> <li>• A list of RTU incentives and financing resources</li> </ul>

- Why RTUs?
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  - Recruit participants to join the campaign
  - Support utility and efficiency RTU programs
  - Case studies and making the business case
  - Recognizing participants
- Utility Supporter Role
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## Partner Roles and Benefits

	Role	Benefits
<b>Organizer</b>	<ul style="list-style-type: none"> <li>• Provide input on campaign design</li> <li>• Lead recruiting on a national scale</li> <li>• Sponsor participant recognition</li> </ul>	<ul style="list-style-type: none"> <li>• Enhance organization's brand by leading the campaign</li> <li>• Represent member interests in how the campaign and its resources are developed</li> </ul>
<b>Supporter</b>	<ul style="list-style-type: none"> <li>• Feature logo on and link to the campaign website</li> <li>• Provide input to or review case studies of energy savings</li> <li>• Assist recruiting of participants</li> </ul>	<ul style="list-style-type: none"> <li>• Enhance brand by partnering with other organizations</li> <li>• Leverage campaign marketing and resources to enhance your own programs</li> <li>• Collaborate with DOE to document energy savings</li> </ul>
<b>Participant</b>	<ul style="list-style-type: none"> <li>• Evaluate buildings for opportunities for retrofit or early retirement</li> <li>• Share data with the campaign</li> <li>• Implement either an RTU retrofit or an RTU early retirement</li> </ul>	<ul style="list-style-type: none"> <li>• Access to DOE technical resources and webinars</li> <li>• Save energy and money</li> <li>• Earn campaign recognition for achievements</li> </ul>

## Goal: Recruit Participants to Join the Campaign



<b>Description</b>	Evaluate the business case for high-efficiency RTU improvements	Commit to retrofitting or replacing at least one RTU	Share expected and actual energy savings and provide feedback	Recognition will be awarded to participants in a variety of categories
<b>Resources</b>	<ul style="list-style-type: none"> <li>• Case studies</li> <li>• Calculators</li> <li>• Technical advisors</li> </ul>	<ul style="list-style-type: none"> <li>• RTU specifications</li> <li>• Financing/incentives list</li> </ul>	<ul style="list-style-type: none"> <li>• Calculators</li> <li>• Technical advisors</li> </ul>	Exact form of recognition (plaque, certificate, etc.) to be determined
<b>Important Dates</b>	Campaign launches May 30, 2013	Limited technical assistance is available until July 2014	Deadline to report savings claims is September 2014	Awards announced November 2014





# Goal: Support Utility and Energy Efficiency RTU Programs

## **The campaign will link to RTU incentive programs and efficiency program resources**

- Feature your logo on the campaign website
- Link from your RTU program to the campaign website for access to additional resources
- Enhance your RTU program brand by partnering with organizations with similar interests

## **Campaign organizers, DOE, and other utilities will work together to document the business case for RTU control retrofitting and early retirement**

- Review development of campaign resources, including case studies
- (Optional) Raise the profile of your RTU program and resources by being featured as a case study that documents energy savings





## Building owner and operator case studies

- Leverage third party demonstrations
- Target case studies at a variety of building types
- Highlight conditions where RTU replacements and retrofits make the strongest business case

## Utility case studies

- How are utilities attributing energy savings and demand reduction to RTUs and RTU controls?
- What is the estimated cost effectiveness of an RTU?
- Case studies reduce the time, effort, and dollars needed to be spent on making the case to regulators



## Goal: Recognizing Participants for Achievement

- Participants are eligible for campaign awards if they replace their RTU (minimum CEE tier 2) or if they retrofit their RTU with advanced controls
- Building owners and operators must also submit energy savings estimates to the campaign
- Awards will be conferred in at least the following categories:
  - Highest absolute annual savings at a single site (retrofit and new construction)
  - Highest percentage savings at a single site (retrofit and new construction)
  - Largest number of site replacements and retrofits
  - Largest portfolio-wide annual energy savings
  - Largest percentage of sites with replacements or retrofits
- Awards will be announced at the conclusion of the campaign In November 2014

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## Utility Campaign Supporters

### Join the campaign as a supporter:

- Promote the campaign and encourage participation
- Leverage the campaign technical and financial resources
- Highlight rebates, promotions or incentives you are offering that can benefit organizations replacing RTUs
- Collaborate with the campaign on case studies
- Earn recognition for being a utility sponsor

### Ask of utility program administrators

- What challenges have you run into before when creating incentive programs for commercial RTUs?
- What barriers do you currently face?

### Interested?

- Contact Andres Potes at [andrespotes@waypointbuilding.com](mailto:andrespotes@waypointbuilding.com) or Michael Deru at [michael.deru@nrel.gov](mailto:michael.deru@nrel.gov)



### Pre Launch

- Finalize organizer commitments
- Recruit early adopter supporters and participants
- Finalize program materials and website

### Launch May 2013

- Host webinars
- Provide technical support
- Recruit additional supporters
- Work with supporters to recruit participants
- Author case studies and additional resources
- Participants report first year results and are recognized for achievements by December 2013

