



**Better Buildings Residential Network
Peer Exchange Call Series:
Making the Leap to the Multifamily Market
August 24, 2017
*Call Slides and Discussion Summary***

Agenda and Ground Rules

- Agenda Review and Ground Rules
- Opening Polls
- Residential Network Overview and Upcoming Call Schedule
- Featured Speakers
 - **Elizabeth McCollum**, Program Manager, TRC Energy Services (*Network Member*)
 - **Dan May**, Multifamily Program Coordinator, Minnesota Center for Energy and Environment (*Network Member*)
 - **Brad Carmichael**, Senior Building Science Specialist, JRS Engineering
- Discussion
- Closing Poll and Announcements

Better Buildings Residential Network

Join the Network

Member Benefits:

- Recognition in media and publications
- Speaking opportunities
- Updates on latest trends
- Voluntary member initiatives
- Solution Center guided tours

Commitment:

- Members only need to provide *one number*: their organization's number of residential energy upgrades per year

Upcoming calls:

- September 14: [Keeping Up with the Jones': Key Strategies for Behavior Change](#)
- September 21: [Home Improvement Catalyst: Keeping the Ball Rolling with Homeowners by Delivering More Value](#)
- September 28: [Data Overload: Best Practices for Collecting and Using Information](#)

Peer Exchange Call summaries are posted on the Better Buildings [website](#) a few weeks after the call

For more information or to join, for no cost, email

bbresidentialnetwork@ee.doe.gov, or go to energy.gov/eere/bbrn & click Join

Best Practices: TRC Energy Services

Elizabeth McCollum, Program Manager



Understanding the Multifamily Market

Better Buildings Residential Peer Exchange

Elizabeth McCollum, Program Manager

August 24, 2017

What is Multifamily?

- Physical description
 - Number of dwelling units
 - Number of stories
 - Building square footage
 - Centralization of building systems
- Metering structure
 - Individually vs. master-metered
 - Commercial vs. residential rate
- Ownership structure
 - Rental housing
 - Condominiums

def·i·ni·tion n. 1.
The teacher gave de
of the new words.
of an image (pict
TV screen

Property Types



- Property classifications
 - Market rate housing
 - Class A (luxury) through class D (low socioeconomic status)
 - Affordable (subsidized) housing
 - Tax credit, Section 8, public housing, etc.
 - Low-income
 - Residents qualified for by low income threshold
 - Could be market rate or affordable housing
 - Mixed
- Special considerations
 - University or military housing
 - Single room occupancy
 - Assisted living
 - Hotel/motel conversions

Multifamily Players, Roles, and Values

| Player | Role in Energy Efficiency Upgrades | Values |
|----------------------|---|---|
| Property owner | Makes decisions | Profit Environmental stewardship (in new generation of owners) |
| Asset manager | Influences owner decisions | Net operating income Property value Return on investment |
| Property manager | Serves as point-of-contact Coordinates site visits | Resident satisfaction/retention Cost savings |
| Property maintenance | Fixes what is broken | Time |
| Resident | Lodges complaints | Comfort Being heard Cost savings |
| Potential resident | Creates demand | Amenities Aesthetics Lower costs |

Multifamily Upgrade Trigger Points

| Equipment Failure | Tenant Turnover | Minor Renovation | Property Sale or Refinance | Major Renovation |
|--------------------------------|---|---|--|---|
| Emergency replacement | In-unit upgrades to attract a new resident | Small upgrade scope of work as reserves allow | Financing opportunity for major upgrades | Possible drivers: <ul style="list-style-type: none"> • Property reclassification • Tax credit renewal • Deferred maintenance |
| As-needed (ongoing) | Ongoing (50% annual turnover in market rate, 25% in affordable) | Assessed annually through capital improvements planning | On average every six years | Every 15 to 30 years |
| Quick timeline – within 2 days | Quick timeline – within 1 week | Moderate timeline - 2 to 6 months | Longer timeline - 2 to 24 months | Longer timeline – 6 to 30 months |

Position for Success

- Leverage existing resources and connections
 - Peer networks (industry associations)
 - Trusted contractors
 - Property lists
- Set reasonable expectations
 - Multifamily retrofits take a long time to complete
 - Multiple decision makers
 - Long planning timeline
 - Trust takes time to build
 - Must to earn trust from multiple players (with varying values) to get the job done
 - Peer networks are powerful
 - Great variation in project types requires great flexibility in offerings
 - Err on the simple side
 - Consolidate multiple options behind a single front



Checklist for Entering *Your* Market

☐ Define multifamily

- Building characteristics
- Ownership structures
- Metering requirements

☐ Identify and segment the market

- Define target population
- Understand drivers and values
- Consider trigger points and processes

☐ Leverage channels and resources

- Join local industry organizations
- Acquire property and contact lists
- Tap into existing contractor and consultant networks

☐ Set reasonable expectations

- Typical multifamily retrofit projects take 6 to 18 months
- Earn your spot in the local multifamily network through relationship development
- Maximize flexibility to accommodate a wide range of property types and upgrades scopes





Thank you!

Elizabeth McCollum
TRC Energy Services

Presentation Highlights: TRC Energy Services

- **Marketing multifamily upgrades requires understanding and addressing what is most valuable to specific players in the MF market (property owners, residents, maintenance, etc.).**
 - EE programs can help influence property owner decisions by providing written materials to property managers emphasizing the value of EE upgrades in terms of profit/savings, tenant retention, and other benefits.
- **Capitalize on “trigger points” for multifamily upgrades, such as renovations and property sale/refinance, and be flexible with offerings to accommodate different scopes.**
 - Build relationships with multifamily property owners and managers, local industry organizations, and contractor networks to set up for success.
 - Many MF properties already have trusted contractors, so don't force them to use others.
 - Adjust project scopes to address different MF property types and upgrade needs.

Best Practices: Minnesota Center for Energy and Environment

Dan May, Multifamily Program Coordinator

MAKING THE LEAP TO THE MULTIFAMILY MARKET

Better Buildings Residential Network Peer Exchange Call

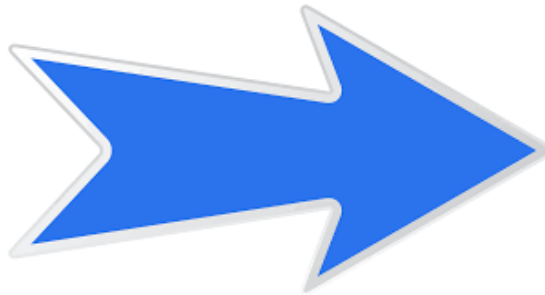


Dan May

**Multifamily Program
Coordinator**

Making the Transition from Single Family to Multifamily

- Familiarity with single family audits and installs is very helpful
 - Many similarities
- MF is mix of residential and commercial/business
 - For both rebates and building components
- Abundance of opportunity for multifamily upgrades





Differences between Single Family and Multifamily

- Management and ownership structure
 - Determining the “decision maker” can be difficult
 - Decision makers do not live in the building
- Building systems more complex in MF
 - Especially HVAC
 - Central heating systems
 - Central ventilation systems
- Utility bill structure
 - Most common setup is gas and water is “master-metered” and paid by owner, and in-unit electricity paid by tenant
- Rebate structure

Typical MF recommendations

| Measure | Payback period | Savings potential |
|---|----------------|-------------------|
| GAS MEASURES | | |
| Boiler replacement – at end of life | Short | Large |
| Hot water heater replacement – at end of life | Short | Large |
| Insulation/building shell measures | Medium-Long | Medium-Large |
| New boiler reset/cutout controls | Short | Small-Medium |
| Pipe insulation | Short | Small |
| ELECTRIC MEASURES | | |
| Lighting | Short | Large |
| Appliance replacement | Long | Medium |
| Motor and pump upgrades | Long | Medium |
| A/C replacement | Long | Medium |

MERC Multifamily Program

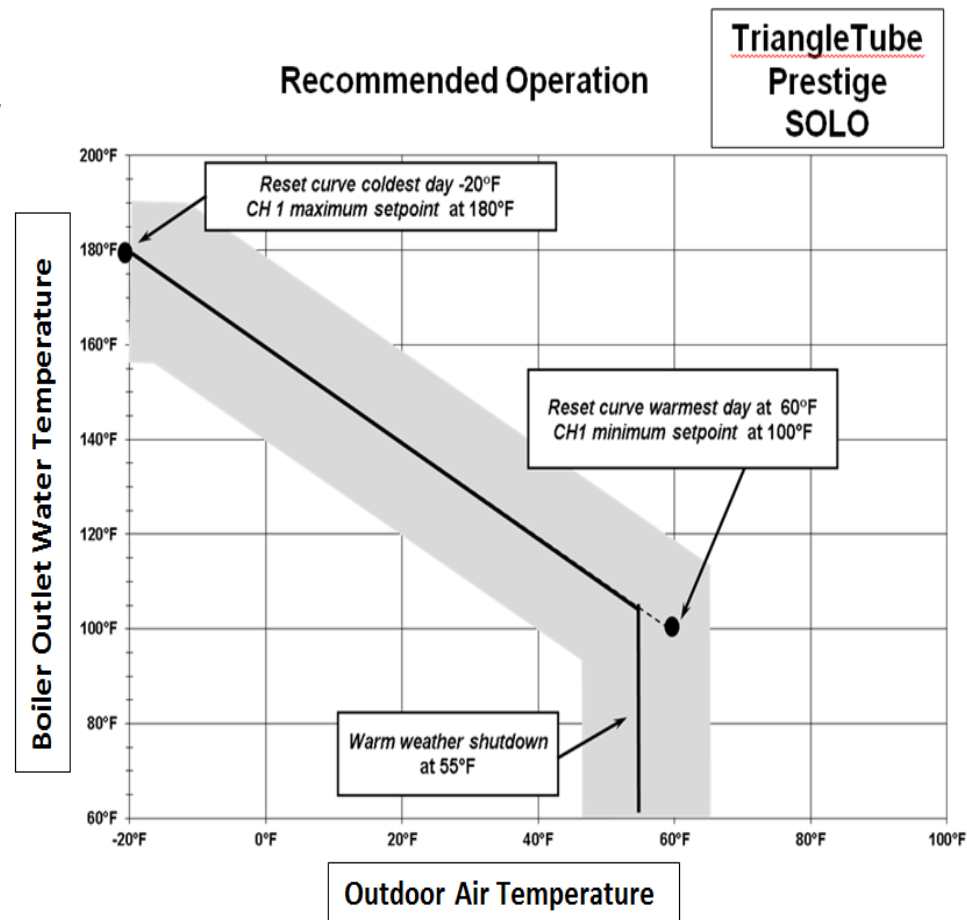


- Installation of high-efficiency faucet aerators and showerheads
- Comprehensive assessment of major mechanicals (heating, water heating, ventilation equipment)
- Report on cost-effective investments
 - Payback and other investment analysis
- Recommissioning of existing controls
- Assistance with finding contractors, bid review, work scopes, rebates



Keys to success: Make it easy!

- Customized guides for building systems and controls
 - Boiler outdoor reset control guidelines
- Standard forms to inform residents of program activity
- Follow-up assistance
- Building operator education



• Other keys to success

- Develop long lasting relationships
 - Many owners and management companies have large building portfolios that can utilize your services
- Understanding of building needs/priorities
- Technical expertise
 - Familiar with common systems in MF buildings
 - If this is a weak spot, partner with other organizations, acquire other resources





Lessons learned

- Lots of opportunity in MF energy efficiency
 - Many buildings unaware of potential upgrades, rebates, etc.
- Follow-up is critical to getting upgrades completed
 - Decision makers are busy, be persistent!
- Can have many different stakeholders
 - Important to understand priorities
- Communicate other benefits besides energy savings
 - Reduced maintenance, comfort, equipment longevity, etc.

THANK
you!



Presentation Highlights: Minnesota Center for Energy and Environment

- **There is significant untapped energy savings in the multifamily sector, often from low-hanging fruit and quick payback items.**
 - Upgrades in common spaces (e.g., lighting, common heating/boilers) often payback faster than upgrades to individual units.
 - Multifamily property owners are often unaware of rebates for which they are eligible.
 - CEE provides standard forms for multifamily upgrades to let residents know what to expect and make the process easy.
- **Working with Condo Homeowner Associations on EE upgrades can require additional time and attention.**
 - A common barrier is getting Homeowner Associations to vote, since participation varies and the spectrum of opinions can be wide.

Best Practices: JRS Engineering

Brad Carmichael, Senior Building Science
Specialist

Multifamily Renovations - Energy

Brad Carmichael, PE, Assoc. AIA

Sr. Building Science Specialist, JRS Engineering





Opportunity - Density

- EUI per SF 40% higher (60:43 btu/sf)
- EUI per person 29% lower (27:38 btu/pp)
- Harness urban planning advantages

Opportunity - Existing

- Substitutive rather than Additive
- Net reduction vs a baseline
- Embodied energy is important

Opportunity - Scale

- Long term portfolio holders
- Fewer decision makers
- Structured decision making

Different Decision Metrics

- Buildings not Owner-occupied or collectively Owned
- O&M costs and ROI very important
- Life-cycle decision making
- Challenges with capital costs of scale



Different Resident Habits

- Maintenance often contracted out
- Inspection and review may be contracted out
- Individual consumption often not metered
- Priorities vary by resident and unit orientation
- Passive or automated systems can have advantages



Different Code Requirements

- IBC & IEBC vs. IRC
- ASHRAE 90.1 vs. IECC
- Many renovations require compliance
- Similar exemptions for alterations, renovations or repairs
- Different paths to compliance, different prescriptive requirements, different compliance software.



Piggyback Improvements

- Renovations at multifamily scale have large capital cost
- Often challenge for ROI with no baseline renovation
- Embodied energy is a hurdle with no baseline renovation
- Multifamily often has more planned renovations/renewals
- Planned renovations/renewals provide a baseline capital cost
- Opportunities for additional energy efficiency measures
- Opportunities to bundle
- Performance can be better justified when measured against a baseline



Seattle: Substantial Alteration

- Triggered by major renovations
- Renovations are rare improvement opportunity
- Full compliance with some sections of Building Code (e.g. egress, sprinklers, finishes)
- Different Compliance Options for Energy
 - Full prescriptive
 - Envelope within 20% of code
 - Total performance within 15% of code
 - Operating energy consumption within 20% of code
- Good model- progressive approach to renovations



Envelope Precautions

- Residential savings calculators may not translate
- Wall exposure differences
- Insulation
- Moisture
- Ventilation
- Airtightness and Air Quality
- Combustibles

Presentation Highlights: JRS Engineering

- **Given the large cost of MF upgrades, piggybacking energy efficiency on planned improvements is important.**
 - Multifamily properties often have more planned renovations/renewals than the single-family residential sector.
 - Property owners may be more likely to consider the return on investment for an EE upgrade when it is bundled with other renovations.
- **Building envelope improvements in the multifamily sector are much more complicated than in the single-family market**, due to factors such as higher wall exposure, additional insulation, moisture and ventilation issues, and code requirements.

Upcoming Seasonal Messaging Opportunities

AUGUST

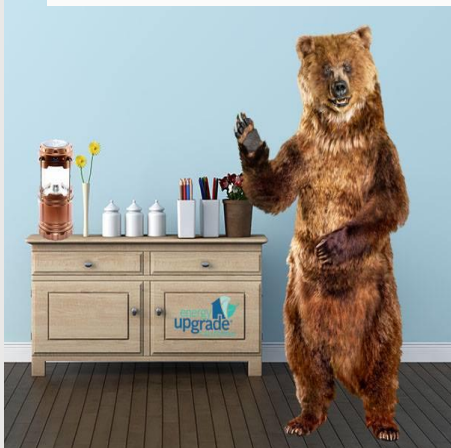
November 5
End of Daylight Saving Time

November 23
Thanksgiving

Make Your
Thanksgiving
Energy Efficient
This Year

Energy Upgrade California

Facebook Post: With [#DaylightSavingTime](#) ending tomorrow, Bear is gearing up for darker days by using off-grid [#energy](#) sources like solar lights to save money!



**The Residential Energy
Services Network (RESNET)**
[Poster](#)

Addenda: Attendee Information and Poll Results

Call Attendee Locations



Call Attendees: Network Members (1 of 2)

- American Council for an Energy-Efficient Economy (ACEEE)
- AppleBlossom Energy Inc.
- Austin Energy
- Boulder County, CO
- Center for Energy and Environment
- Center for Sustainable Energy
- City of Cambridge, MA
- City of Charlottesville, VA
- City of Chula Vista, CA Conservation Section
- City of Fort Collins, CO
- City of Plano, TX
- CLEARResult
- Connecticut Green Bank
- County of San Luis Obispo
- Efficiency Maine
- Efficiency Nova Scotia
- Elevate Energy
- Empower Efficiency, LLC
- Enhabit
- Evergreen Consulting Group, LLC
- Fujitsu General America Inc.

Call Attendees: Network Members (2 of 2)

- Institute for Market Transformation (IMT)
- International Center for Appropriate and Sustainable Technology (ICAST)
- Johnson Environmental
- National Grid
- New York State Energy Research & Development Authority (NYSERDA)
- Northeast Energy Efficiency Partnerships (NEEP)
- Rhode Island Department of Energy Resources
- Rocky Mountain Institute
- Rural Ulster Preservation Company (RUPCO)
- Xcel Energy

Call Attendees: Non-Members (1 of 2)

- Affordable Community Energy Services Company
- AHP Homeownership Center
- AjO
- Association for Energy Affordability
- Build SMART, LLC
- Building, Mind and Body, LLC
- City of Asheville, NC
- City of Longmont, CO
- Clean Foundation
- Cook County Dept of Environmental Control
- County of San Diego, PDS
- Danfoss
- EfficiencyOne
- Energy Outreach Colorado
- Energy Solutions
- EnergyWorks
- Eversource
- Florida Department of Agriculture and Consumer Services
- Fox Energy Specialists
- Franklin Energy Group
- Frontier Energy
- HDR Consulting

Call Attendees: Non-Members (2 of 2)

- Hydro-Québec Research Institute
- Lockheed Martin Energy
- Massachusetts Clean Energy Center
- Mercy Housing Management Group
- NANA
- Natural Resources Canada
- NORESKO, LLC
- Oberlin College
- PDT Architects
- Proctor Engineering
- Rebuilder Group, Inc.
- Rhode Island Housing
- Salcido Solutions
- SnoPUD
- Southern Energy Management
- Stone Energy Associates
- Town of Mendon
- University of Minnesota - Center for Sustainable Building Research
- University of Washington - Integrated Design Lab
- Washington State Housing Finance Commission

Opening Poll #1

- Which of the following best describes your organization's experience with the multifamily energy upgrade market?
 - Some experience/familiarity – **38%**
 - Limited experience/familiarity – **30%**
 - Very experienced/familiar – **26%**
 - No experience/familiarity – **7%**
 - Not applicable – **0%**

Closing Poll

- After today's call, what will you do?
 - Seek out additional information on one or more of the ideas – **66%**
 - Consider implementing one or more of the ideas discussed – **21%**
 - Make no changes to your current approach – **10%**
 - Other (please explain) – **3%**