



REALIZE: Catalyzing a Zero-Carbon Residential Revolution



GETTING TO ZERO



Increase the Value of Your Investment

Plan and cost-effectively
implement projects across your
entire portfolio with a “zero-over-
time” approach

Chart your path to a net zero portfolio
in three easy steps:

- 1 Use existing asset management
timelines to organize properties by
building life-cycle events or “triggers”
- 2 Prioritize energy efficiency retrofits
on cohorts of properties for deep
energy and dollar savings
- 3 Start now to plan your pipeline for
improvements over time

Email us at realize@rmi.org to find out
more

Owning and managing multifamily properties,
especially affordable multifamily buildings, is not
easy. It's a challenge to look beyond day-to-day
management and consider efficiency upgrades.

And while most owners understand that building retrofits can
improve the value of the property and resident satisfaction, it is
still a daunting and risky endeavor. A longer-term plan that sets in
motion a process to effectively and efficiently navigate the barriers
to develop, finance, and construct important upgrades can go a
long way to reducing the impediments to success many owners
encounter when undertaking energy retrofits.

“Right-timing” key energy renovations across multiple properties
provides a roadmap to a better-performing building portfolio,
resulting in lowered operating costs, improved net operating
income and asset values and, for subsidized properties,
improved financial performance to ensure preservation
as affordable housing. Further, deep energy retrofits can
enhance the “green” reputation of the property while positively
positioning owners and managers in the event of mandatory
retrofit requirements and/or volatile and higher prices for
fossil fuel energy.



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A Path to Profitability

Better building performance. Increased comfort for tenants. Lower operating costs and higher net operating income. Increased asset values. Higher potential for preservation as affordable housing. Good for the environment.

All good, but where does the money come from and how does it work?

There isn't one right kind of financing for all projects. Through REALIZE, RMI will work with you and your existing financing and project implementation partners to match the right financing to each property in your portfolio. We can connect you with vetted companies and providers to finance and make effective and reliable energy and water improvements to your properties.

Typical Financing Options

- As part of long-term mortgage and/or tax credit financing secured by the building
- Second mortgage financing secured by the asset
- On-bill repayment of project financing through a utility
- Property tax bill repayment of project financing (PACE and C-PACE)
- Power purchase agreements (PPAs) for on-site renewable energy projects
- Utilization of property reserves



Innovative Financing Solutions

Off-Balance Sheet

To provide a new option to unlock the market, REALIZE is partnering with a number of public purpose-minded financial entities (e.g., green banks, community development finance institutions), backed by larger providers of pools of capital, to finance energy and water efficiency projects in multifamily portfolios. The property owners take on no debt, and therefore do not need to provide recourse to their property or balance sheet, instead making regular payments to the project developer of a portion of the savings for the duration of the agreement.

Typically, the installed improvements generate savings for longer than the agreement, which are then captured 100% by the owner. The financial entity and the project implementation company each share in any project performance risk, providing a strong incentive to ensure that the project performs as designed and saves the owner what it promised for the long term.

Here's how some owners and managers of real estate portfolios are using this new financing tool:

- **For efficiency projects between capital events:** Such projects can produce benefits and positive cash flows sooner and enhance prospects for preservation for affordable housing properties.
- **To leverage capital event projects to secure additional environmental and cash flow benefits:** By expanding the project scope, building reserves can pay for a new heating system while the additional cost of upgrading it to a higher efficiency system can be financed by the resulting energy savings.
- **Using cash flow from efficiency measures to meet other building needs:** The present value of the cash flow can be used to finance an additional tenant amenity or needed building improvement that otherwise is not financeable.



Energy Services Plan for Rental Unit Efficiency

Often, property owners are reluctant to invest in rental unit energy savings when the tenant pays the utility bill as there isn't a way for owners to recapture the cost of the improvements or benefit from higher net operating income and asset value. REALIZE offers a solution that shares the project benefit between the owner and tenants to facilitate deeper, more valuable, whole-building efficiency projects. An energy services plan lowers tenant total occupancy costs while at a minimum repaying the owner's investment, with a project performance guarantee provided by the project developer.



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The REALIZE RetroKit

The idea behind a “retro-kit” is to make it easier to achieve multifamily, net-zero-emissions retrofits, resulting in better-performing real estate assets; more comfortable, affordable homes for tenants; job creation; increased American competitiveness; and an expanding economy.

The REALIZE RetroKit concept builds upon an inspiring and innovative model from the Netherlands, known as Energiesprong. Energiesprong has facilitated almost 5,000 zero-energy retrofits over the past five years, with 100,000 more planned across Europe. The model stimulates the development of standardized, prefabricated net-zero retrofit systems to reduce construction times and performance risk, while working with building owners to aggregate demand across portfolios to negotiate down the cost of these packages.

The REALIZE RetroKit seeks to further the deployment of advanced construction technologies with four categories of benefits to owners and tenants:



QUALITY

Net-zero energy homes with performance warranties



NON-INTRUSIVE

Renovation within a week to 10 days



AFFORDABLE

Financed through energy cost savings



LOOK & FEEL

Attractive and comfortable homes

The REALIZE RetroKit

The program solves several historically intractable barriers to achieving energy efficiency in the multifamily sector:

- Split incentives, where tenants capture savings rather than building owners, preventing the use of savings to finance deeper energy improvements
- Difficulty in underwriting energy savings
- Lack of visible improvements to the building that would generally inform asset value

RMI is serving as a market facilitator in order to ensure all components of the REALIZE RetroKit benefit both building owners and tenants.

REALIZE is working with manufacturers and developers, architects, engineers, and contractors to develop semi-standardized, turnkey retrofit packages that reduce project complexity, installation times, and project risk, and provide expanded building improvements that may have once been out of reach for major capital improvements.



Photo courtesy of Energiesprong International

Benefits to Owner	Shared Benefits to Owners and Tenants	Benefits to Tenants
Low Income Housing Tax Credit (LIHTC) Competitiveness Additional 9% LIHTC points can be earned in many markets	Reduced Tenant Displacement and Disruption Predominantly exterior-based retrofit allows tenants to stay in place reducing tenant relocation costs	Improved Air Quality Enhanced ventilation and elimination of combustion provides significantly enhanced indoor air quality
Improved Debt Capacity Improved net operating income allows for increased debt capacity and an increased pipeline of financeable projects	Performance Guarantee Retrofit package includes a performance guarantee to reduce risk to owners and tenants	Improved Comfort Reduced draftiness and temperature variability
Access to Capital Eligibility for pools of capital organized in support of this approach for rapid retrofitting and building improvements	Access to Capital New sources of financing can extend the ability of owners to do more on properties they would have otherwise not been able to address; better properties for owners and tenants	Enhanced Privacy Improved building shell provides reduced noise infiltration
Reduced Contractor Risk Standards and guidelines with contractor training, coupled with turnkey for offsite constructed technologies, reduce complexity and potential construction risk	Fewer On-site Construction Days Fewer disruptions to on-site operations and maintenance avoids headaches for property management staff; tenants can return to normal activities more quickly	Lower Utility Bills In tenant-metered properties, residents will experience consistent energy expenditures, with a level of reduced utility expenditures directly benefiting their wallet
Minimized Labor Costs Off-site fabrication may yield cost savings in high-cost or supply-constrained markets	More Available Units Lower labor costs in proformas can mean more units can be built or rehabbed; in affordable housing this can mean more availability of affordable units	Improved Property Aesthetics Tenants can potentially see improvements in site maintenance and amenities
Reduced Costs Coordinated procurement among a cohort of building owners serves to further drive retrofit costs down	Increased NOI Provides opportunities to allocate net operating income to other uses benefitting the property and tenants, whether through enabling additional capital improvements or adding to operating reserves	Pride Tenants enjoy their “like new” homes and demonstrate pride in where they live

Capturing Real Benefits: Zero Over Time

REALIZE offers an innovative approach for multifamily portfolio owners to improve their existing building stock and set building portfolios on a financially viable path to achieve zero energy and zero carbon emissions.

RMI's zero-over-time (ZOT) methodology provides building owners and operators a portfolio-wide roadmap for undertaking deep energy and water efficiency, electrification, renewable energy, and energy storage projects that are timed with major building life-cycle events, or triggers, (e.g., recapitalization, equipment upgrades, changes in usage).

This not only lowers incremental upgrade costs but also offers a way to replace equipment before it fails; make better, cost-effective decisions about multiple opportunities at key milestones; and consolidate and communicate company policy throughout the organization. By considering the portfolio as a whole, projects across multiple properties can be developed together to further lower construction and financing costs.

Together, we can help you create a plan that will produce the greatest savings, all the way to net-zero energy status for most properties in your portfolio, while being cash flow positive and producing higher net operating income and asset valuations.

A Roadmap for Success

Initial Consultation

- Identify portfolio needs, opportunities, and constraints
- Consider broad and deep solutions that go beyond “business as usual”
- Determine opportunity for collaboration

Needs Assessment

- Work with personnel across asset management, property management, building operations, and executive management
- Understand needs, opportunities, and constraints from each portfolio team's point of view
- Describe what an engagement would entail
- Identify development, contractor, and financial partners
- Formally engage with RMI

Portfolio Analysis and Roadmap Development

- Portfolio team shares data on properties: energy and water usage and cost, capital structure and timing, specific property needs and constraints
- RMI team, working with portfolio team as needed, delivers initial ZOT plan for the maximal and fastest path for the portfolio to achieve financeable deep retrofits all the way to net zero
- Portfolio team and RMI fine-tune plan and set short-term goals for a) the immediate development of first projects, b) project construction, c) analysis and development of projects to time with capital events, especially over the next five years, and d) a regular process to push portfolio planning deeper into the future
- Begin work in these four streams

Project Development

- Conduct property walkthroughs
- Develop and sign audit and analysis memorandum of understanding with the project development company to present possible projects in multiple properties that will meet the portfolio's objectives and financial goals
- Present proposal for beneficial, technically sound, and financeable projects
- Develop the contract and secure project financing
- Move to construction

Project Construction and Followup

- Begin construction, with fair inclusion of minority and women contractors and workers
- Post construction: perform quality control, commissioning, building operator training, monitoring of energy and water usage and building performance, corrective work

Plan Future Projects Aligned with Capital Events

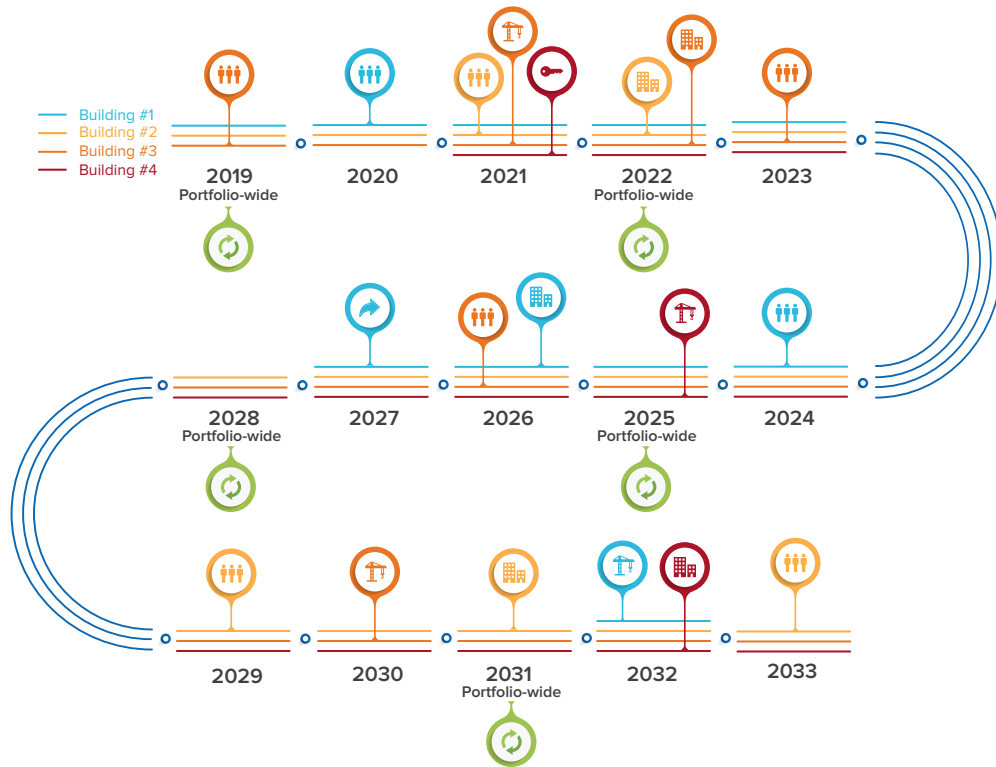
- Think big
- Maximize building improvements and tenant enhancements and lower building energy and water usage.
- Look for electrification and net-zero opportunities
- Feed projects into the development and financing and construction/post-construction processes
- Coordinate through RMI with other portfolios' project development processes to maximize market power through group procurement to minimize costs especially of major building components and through lower transaction costs

Update, Refine, and Extend the Zero-Over-Time Plan

- Incorporate experience and learnings to date
- Factor in developments in technology, cost of building components, construction practices, regulatory requirements, subsidies and tax credits, and energy and water prices
- Include new portfolio properties and revisit previously retrofit properties



TRIGGER EVENT CALENDAR



TRIGGER EVENT KEY



New Construction or Major Renovation

Actions to Consider

- Design all new construction to net zero
- Use non-fossil fuel HVAC systems
- Install roof-mounted solar PV



New Building Entering Portfolio

Actions to Consider

- Standardize property condition report to include energy audit and functional performance tests
- Explore all options to improve building performance and increase value



Building Leaving Portfolio

Actions to Consider

- Standardize property conditions report to include energy audit and functional performance tests
- Support a higher valuation by documenting energy and water enhancements and their financial impact



Major Equipment Replacement

Actions to Consider

- Upgrade the efficiency of major HVAC or water heating equipment.
- Pair building shell improvements to minimize equipment capacity size
- Fuel switching from gas to electric



Unit Turnover

Actions to Consider

- Green lease language
- Adjust energy charge based on lease structure
- Plug load budget
- Tenant energy feedback
- Low-/no-cost ECMs
- Build energy improvements into every unit turnover

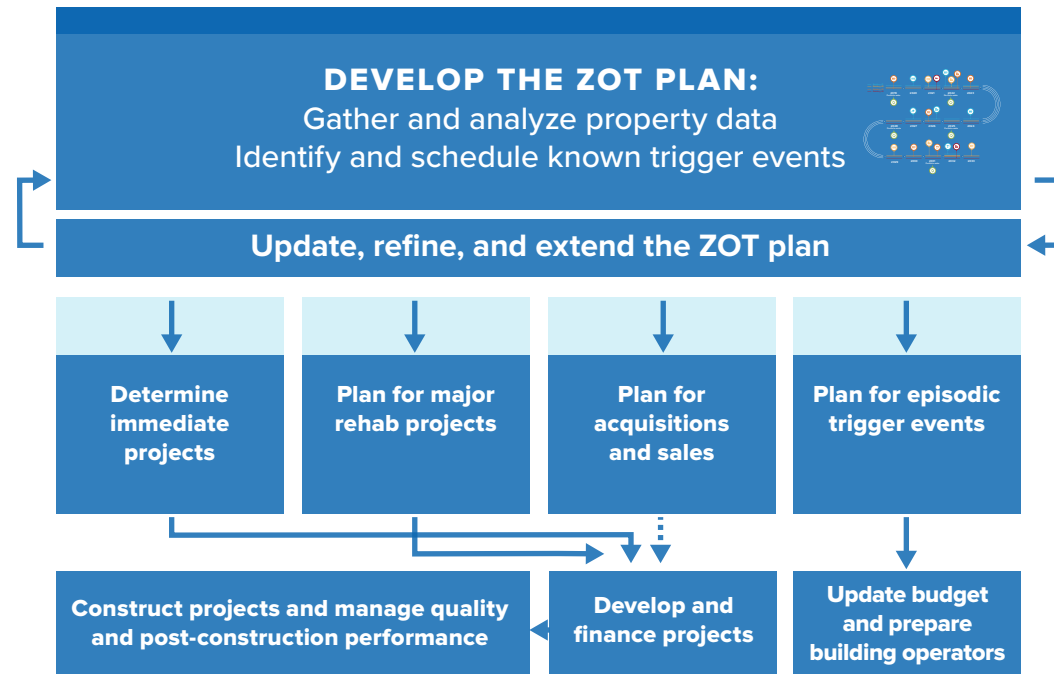


Regular Energy Checkups

Actions to Consider

- Continuously:
 - Tenant engagement
 - Commissioning
- Every three years:
 - Assess new utility rates
 - Reconsider solar PV, energy storage and major efficiency improvements

HOW WE DO IT TOGETHER: THE ZERO OVER TIME PROCESS





Buildings Are Key to Combatting Climate Change

The REALIZE program sees a future where existing buildings are retrofit to net-zero carbon emissions. Buildings are responsible for 39% of US carbon emissions, contributing significantly to climate change.

Fairness for All

A retrofit revolution will need increasing numbers of skilled construction workers, contractors, and other personnel, which requires expanded training and support for workers and small businesses. To meet this demand, and to ensure fairness, all communities must be welcome to participate, especially those that historically have been excluded from the construction industry.



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About Rocky Mountain Institute

Rocky Mountain Institute (RMI)—an independent nonprofit founded in 1982—transforms global energy use to create a clean, prosperous, and secure low-carbon future. It engages businesses, communities, institutions, and entrepreneurs to accelerate the adoption of market-based solutions that cost-effectively shift from fossil fuels to efficiency and renewables. RMI has offices in Basalt and Boulder, Colorado; New York City; the San Francisco Bay Area; Washington, D.C.; and Beijing.

Learn More: [RMI.org](https://rmi.org)

