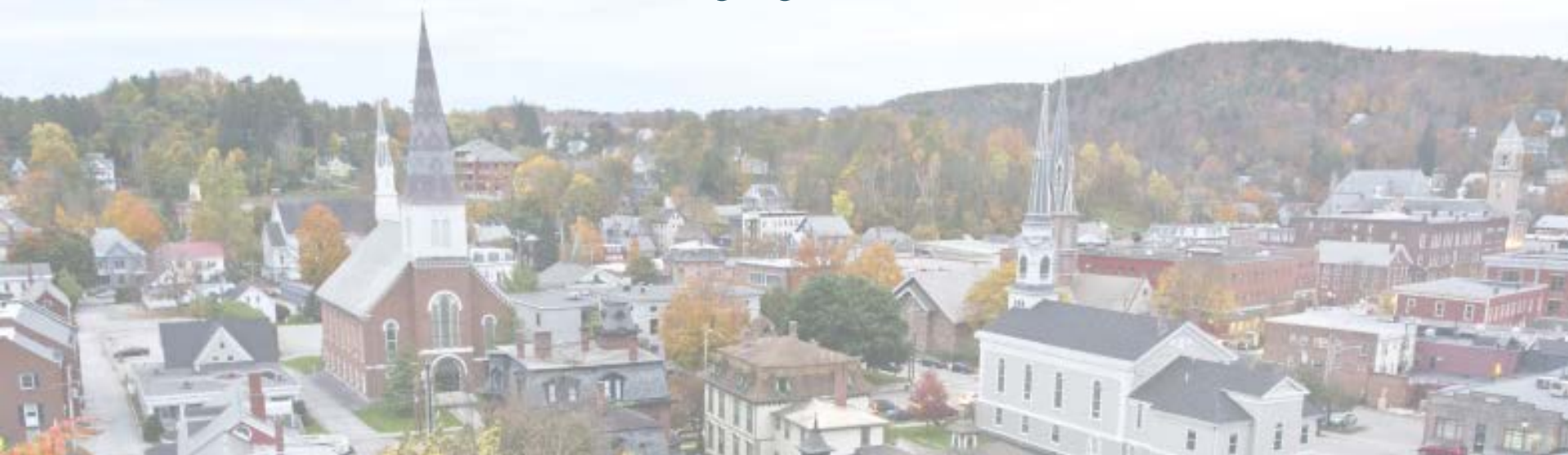




Maximizing Benefits while Shifting the Portfolio and Evolving Efficiency Vermont

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About VEIC

Mission-driven nonprofit

30+ years reducing economic & environmental costs of energy

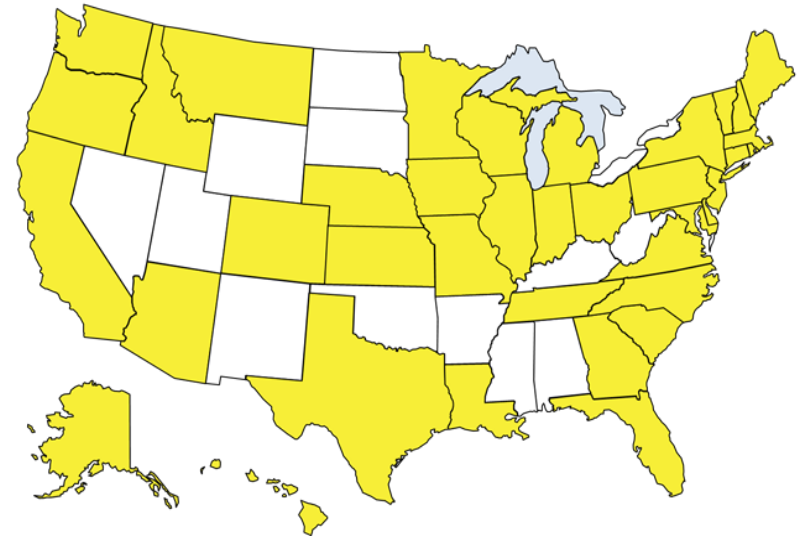
Over 300 staff; offices in Vermont, Ohio, & Washington DC

Design and deliver:

- Energy efficiency
- Renewable energy
- Transportation efficiency

- We “think and do”

- 30 Consultants
- 60 Engineers and TA experts
- 10 Data analytics and EM&V experts



- Clients

- Utilities
- Regulators / Consumer Advocates
- Environmental Groups
- Foundations

About Efficiency Vermont

- Performance-based energy efficiency utility
- Founded in 2000
- Administered by VEIC, regulated by the PUC
- Help Vermont residents and businesses reduce their energy costs



Efficiency As a Resource in VT

Efficiency comprises 16% of VT's electric portfolio, delivered at less than half the cost of purchasing new power.



16.2%

Percentage of Vermont's 2018 electric needs met by efficiency

The Saving Power of Efficiency



3.6¢/kWh⁵

Cost of saving electricity with efficiency

VS



8.4¢/kWh

Cost of supplying electricity



\$16.56/MMBtu⁶

Cost of saving fossil fuel with efficiency

VS

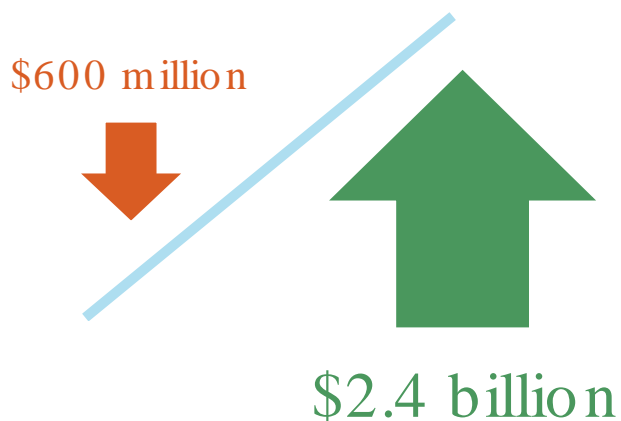


\$18.08/MMBtu

Cost of supplying fossil fuel

Source: Efficiency Vermont's 2017 Annual Report

Efficiency Vermont Impact



Since 2000:

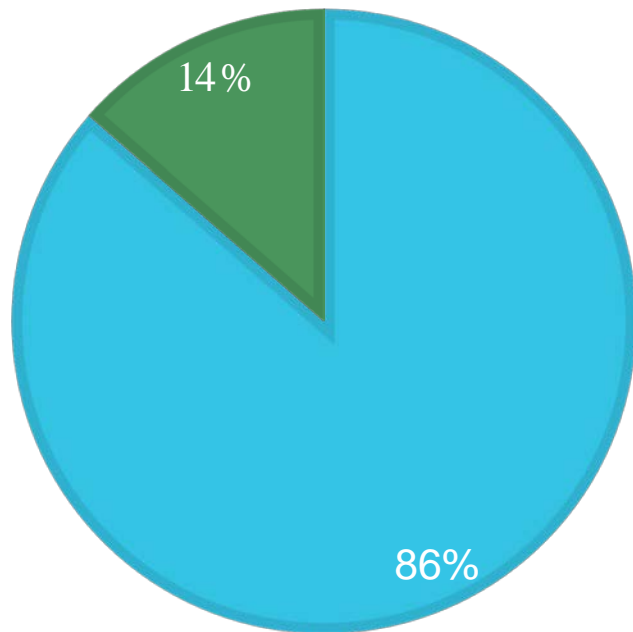
- We have generated \$2.4 billion in electric energy savings, using \$600 million in ratepayer funds
- We have removed 11 million metric tons of GHG, equivalent of removing 2,660,000 cars from the road for a year

Source: Efficiency Vermont's Annual Reports

2017 Budget and Results

2017 Budget: \$60.5M

■ Electric ■ Thermal



139,376 MWh saved
The electricity it takes to power 14,538 homes for a year



201,836 MMBtu saved
The fuel it takes to heat 2,191 homes for a year



\$182.8 million saved by Vermonters

The amount Vermonters will save in energy and water costs over the lifetime of their 2017 investments in efficient equipment and building improvements

Avoided pollutants

820,000 US tons
Carbon dioxide
374.9 US tons
Nitrogen oxides
306.3 US tons
Sulfur oxides



Every **\$1** invested in efficiency = **\$2.00** saved²

Shifting the Portfolio

LED Screw Base Lamp - Bulb Volume

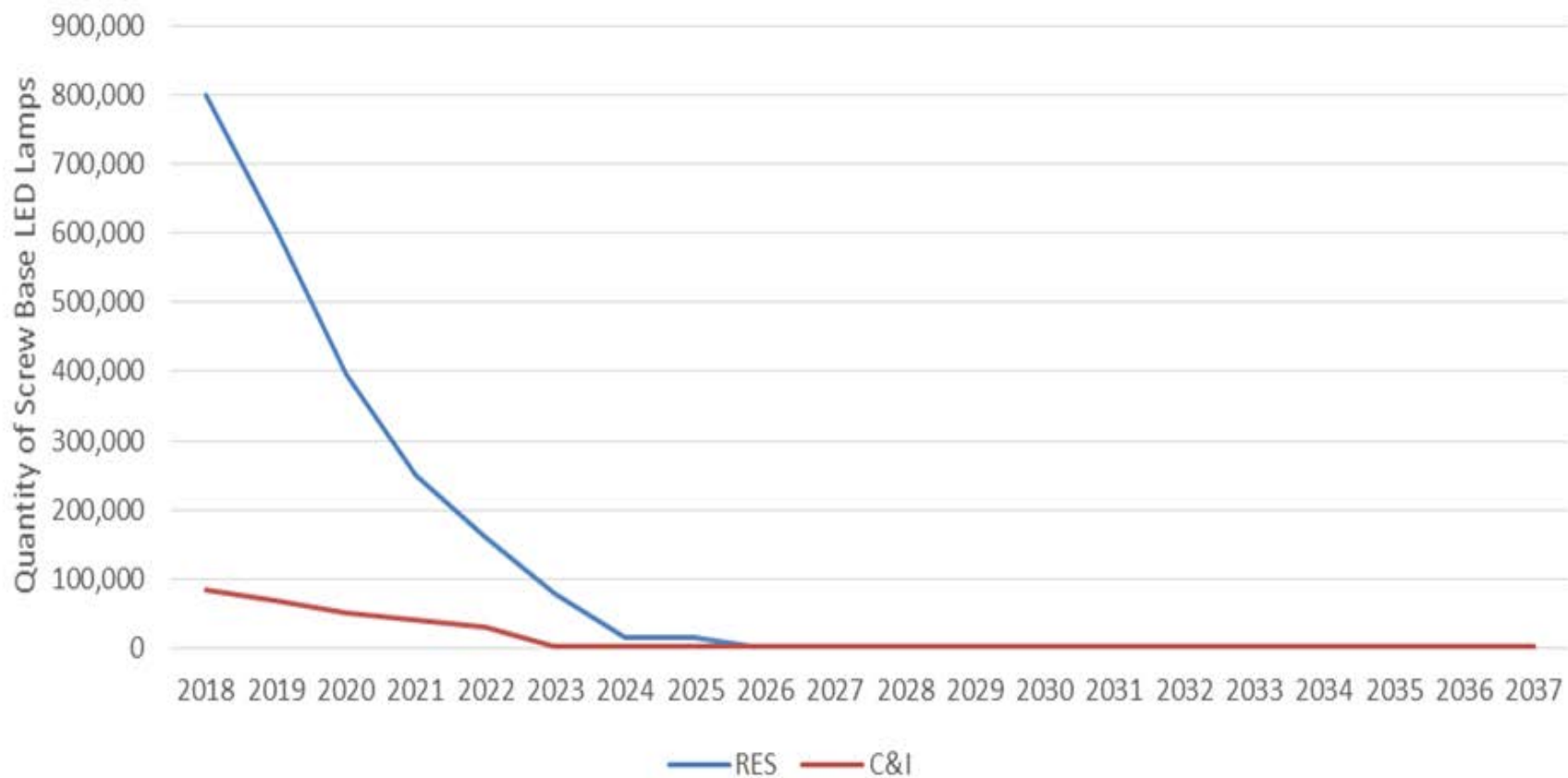
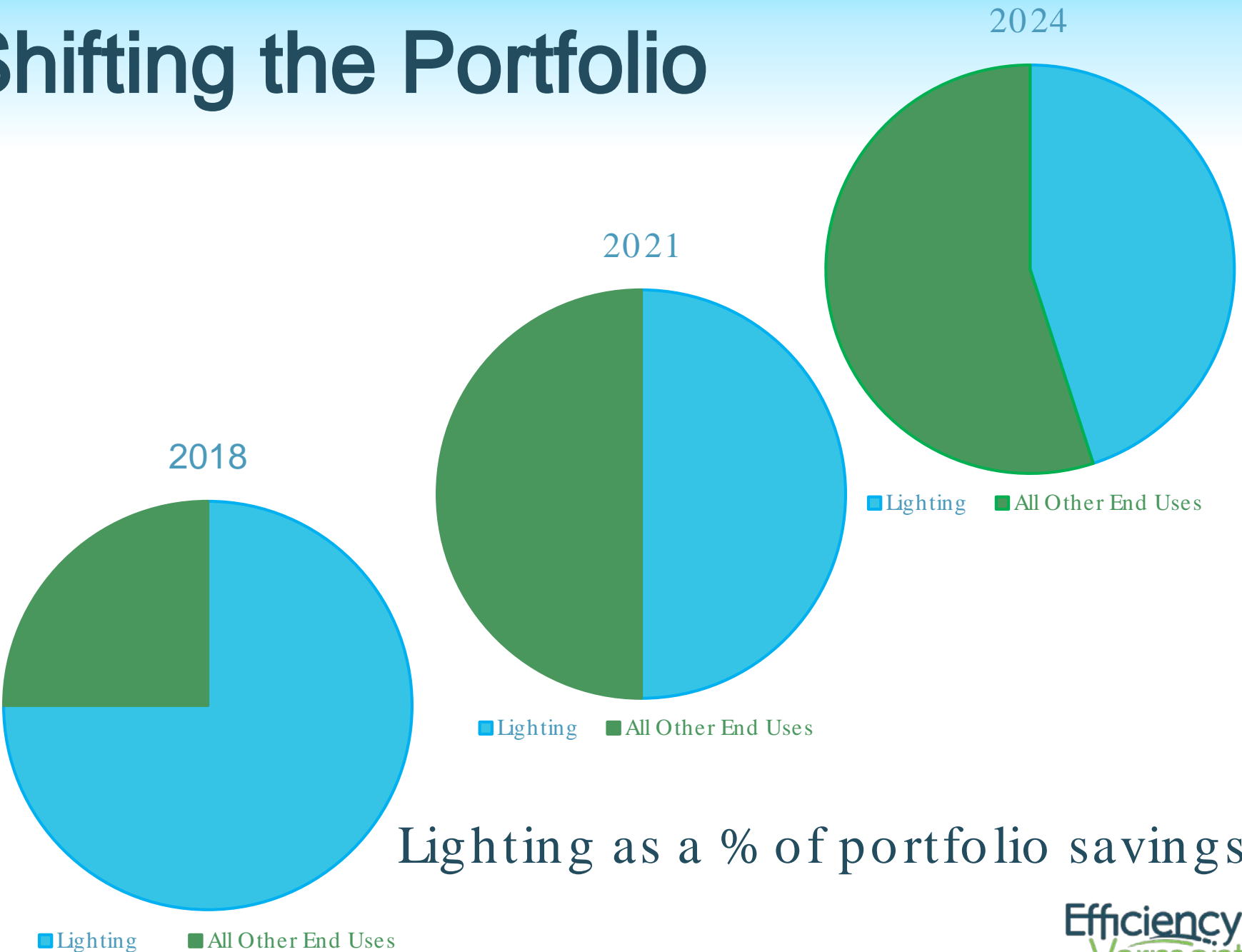


Figure 10. Modeled trends in program-incentivized LED screw-base lamp sales in the marketplace, by market sector.

Shifting the Portfolio

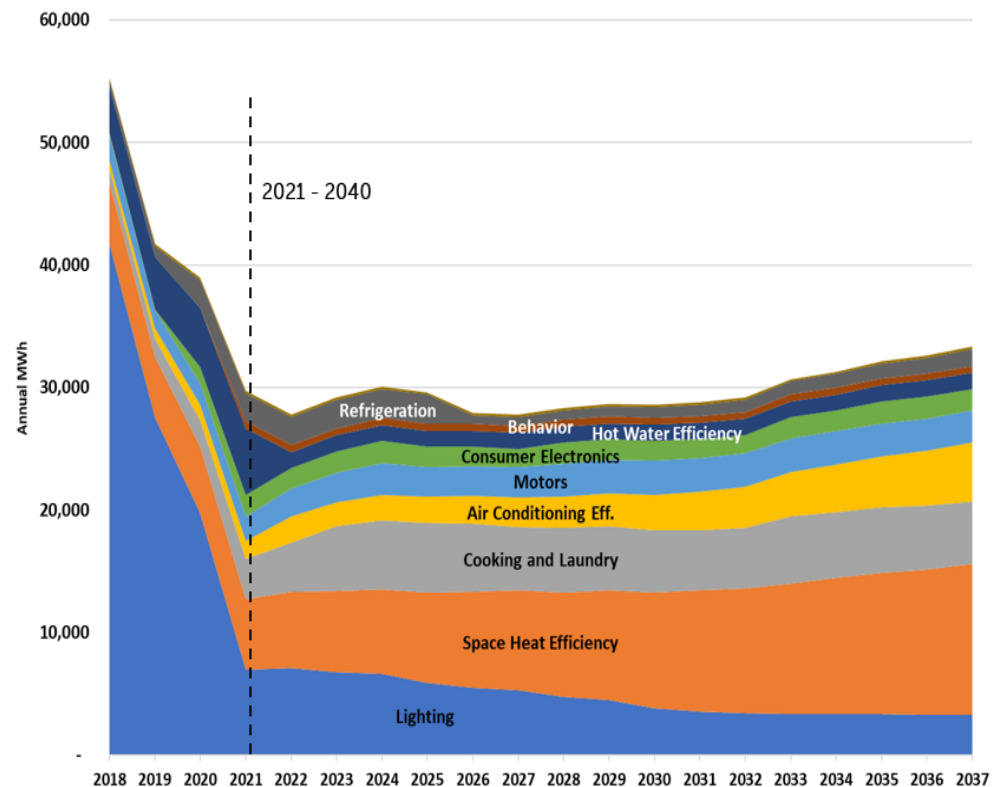


Lighting as a % of portfolio savings

Residential Shift Key Trends

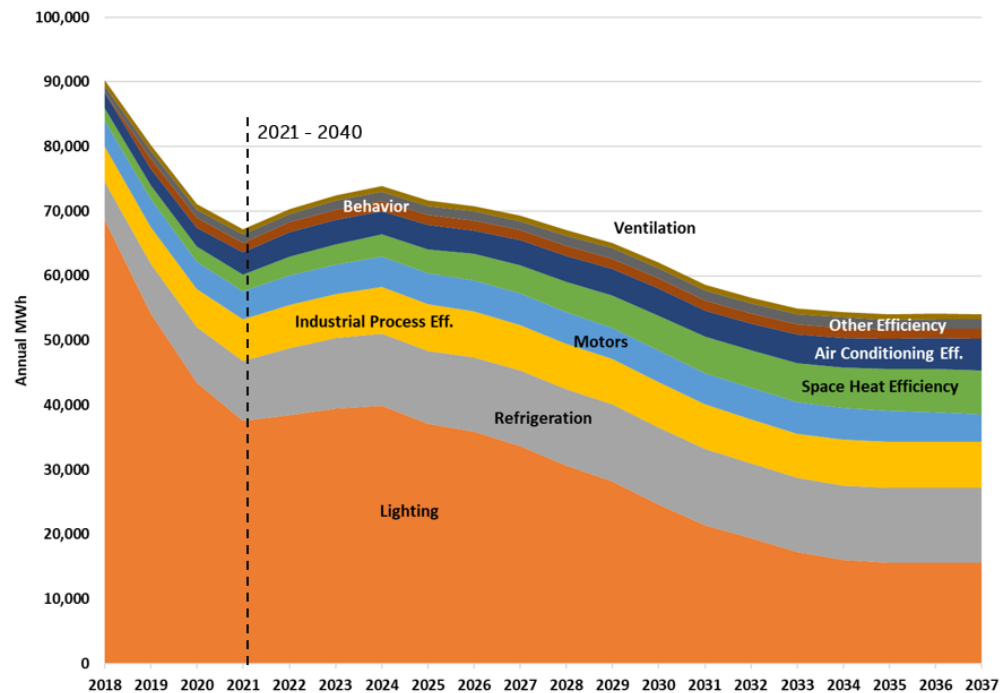
No one measure to replace LED bulbs @ 40,000 MWh

- Range of backfill measures
- Increased cold-climate heat pump adoption
- Increased need for efficient cooling
- Smart home tech in development
- Lighting fixtures remain in portfolio



C&I Shift Key Trends

- Continued growth expected in refrigeration and industrial process measures
- Continuous Energy Improvement program supports growing behavioral C&I measures
- LED fixtures and controls remain important measures



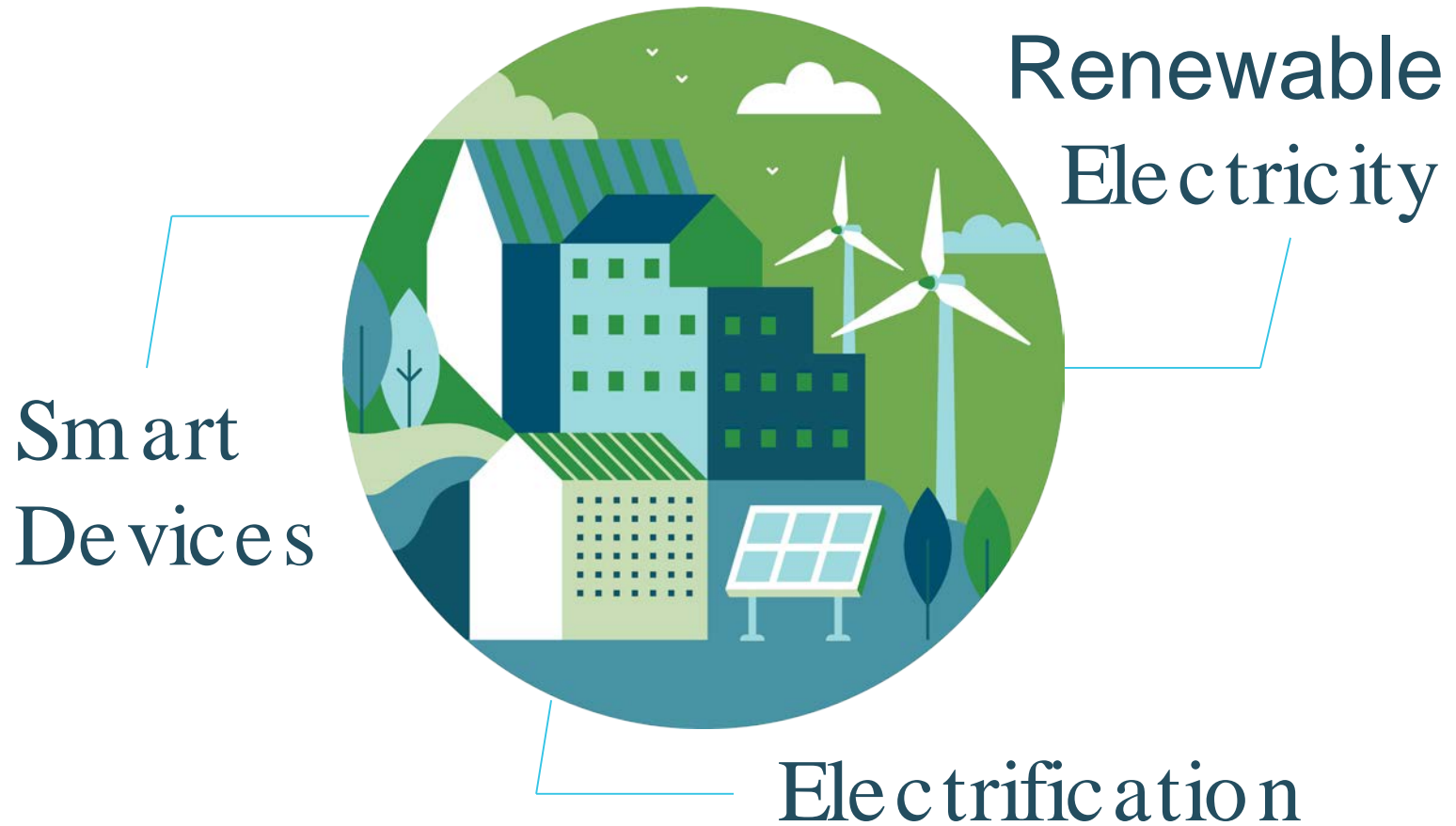
Strategies for Shifting

- Find and implement beneficial backfill measures
 - Research and integrate new technologies
 - Implement new program models
- Utilize resources to transform new / support existing markets
 - Market transformation approach to support new and existing tech
 - Increasingly use data to identify new savings opportunities
- Engage customers in new ways
 - Customer insights to drive new program development
 - Integrated technologies (smart/connected) require more awareness and a better digital experience
 - Community engagement
 - Services to increase program accessibility

Evolving Efficiency Vermont



Times are Changing



Recent Regulatory Activity

- Act 62 signed into law in June, which directed PUC to study how regulated and state-run energy programs could best be used to meet state's GHG goals
 - Will cover existing programs, gap analysis, recommendations for changes to statute
- Study underway now
 - Reports to Legislature are due in Jan 2020 & Jan 2021

Proposed Efficiency Vermont Purpose

Leverage the skills, systems, and resources built over the past 20 years:

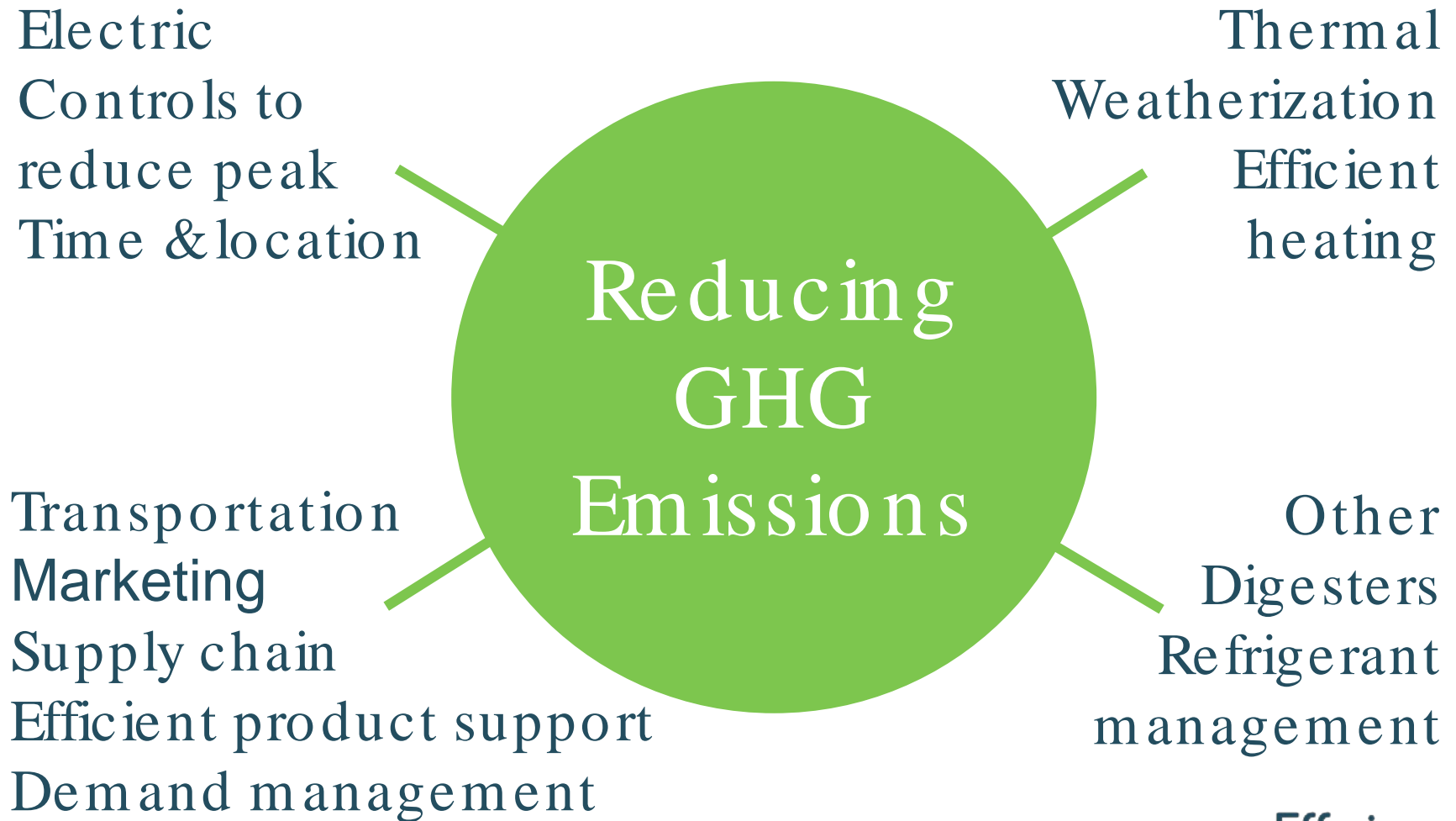
- Working in partnership with other market actors to rapidly decrease Vermonters' energy costs and GHG emissions in the energy sector
- Aggressively reduce Vermonters' energy burden by removing barriers to entry and providing resources that increase opportunities for under-served groups to participate and receive full benefits of the EEU's work

Proposed Efficiency Vermont Role

- Technical assistance
 - Bring expertise in DSM to support Vermont's 90x50 goal
 - In partnership with others, provide customers with tech support, tools, and incentives
- Statewide infrastructure
 - Support other utilities in delivering services to shared customers
 - Develop education and marketing resources
 - Create and maintain statewide implementation infrastructure
- Focus on low income
 - Provide greater accessibility and support to under-served groups



Redefined Efficiency



Develop Next Generation Targets

- Look beyond kWh, kW
- Use pilots and proven methods as foundation
- Align program targets with policy goals:
 - Grid resilience and load management
 - Carbon reduction
 - Market transformation
 - Affordability and reduced energy burden
 - Green jobs & economic development

Thank you!

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