

# Serving More and Serving Better

Effective Policies, Regulation,  
and Programming for  
Low-Income Energy Efficiency

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Low-Income  
Forum on  
Energy 2014

# Who Are You, Elizabeth?

- Principal Consultant, VEIC
- 19 years in industry, including 10 years w / WAP
- Focus on energy and efficiency programming
  - low-income people
  - multifamily buildings
- VEIC DCSEU low-income multifamily launch
- VEIC PPESCO R&D
- Boards: HPC (ACI + NHPC), NEUAC (NFFN + NLIEC)

# Introduction to VEIC

- Mission-driven nonprofit
- 28 years of reducing economic and environmental costs of energy use
- Energy efficiency, renewable energy, and transportation
- Consulting and implementation
- 3 utility-scale implementation programs



# VEIC's Low-Income Vision

- Mission: *Reduce the economic and environmental costs of energy use*
- Articles of Association: “ service to low-income populations and the organizations that serve them”
- Corporate goal since 2007: Carbon reduction
- Low-income goal: 20% of cost savings from carbon reduction accrue to benefit of low-income people

# Quick Overview

- Framework
- Policy & Regulation
- Best Practices in Programming
- Examples of Best Practices
- Some new initiatives



# Overall Policy and Regulatory Framework

- Energy policy
- Housing policy
- Tax policy
- Economic development policy
- Connections between and among
  - Vermont Property Transfer Tax → affordable housing
  - Vermont Gross Receipts Tax → weatherization
- Where is the potential for change?

# Policy Framework

- Funding
  - Vermont Weatherization Trust Fund (1990)
  - Vermont Energy Efficiency Utility (1999)
  - DC Sustainable Energy Utility (2008)
- Mandates / requirements
  - Requirements for housing funds
  - Extra points for LIHTC, environmental approval, etc.
- Eligibility - expand definitions
  - Levels of eligibility
  - Proof of eligibility

# A Roadmap to Housing Energy Affordability

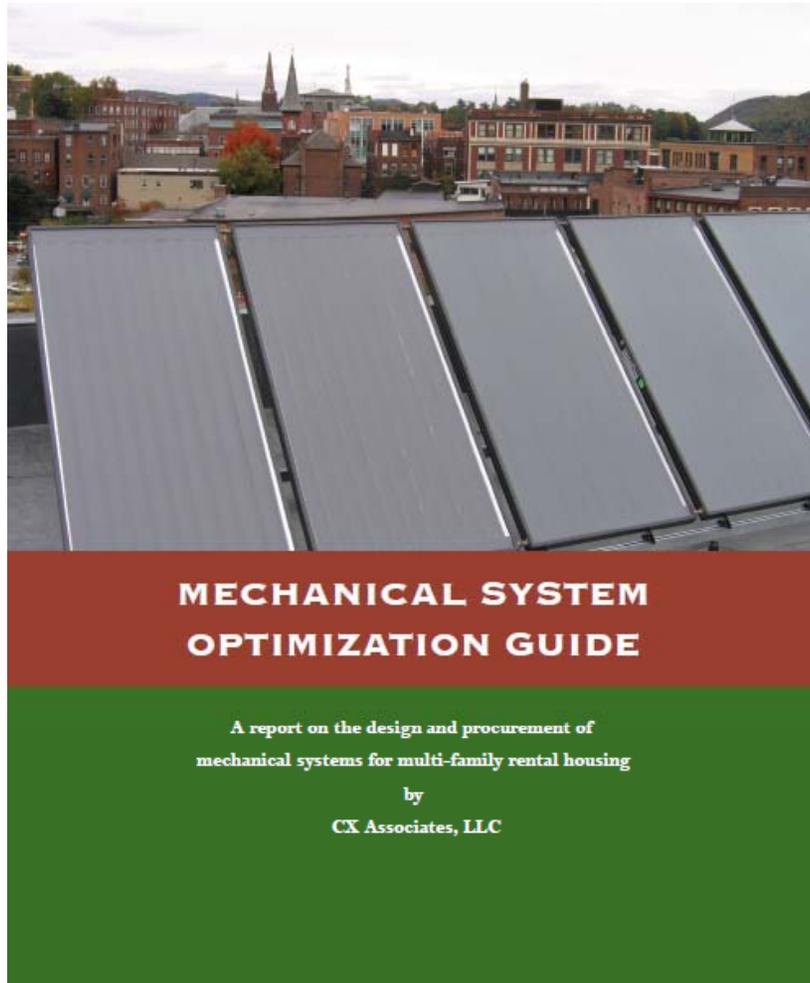
What is the appropriate level of energy investment to ensure that Vermont's affordable housing stock can meet its societal objectives?



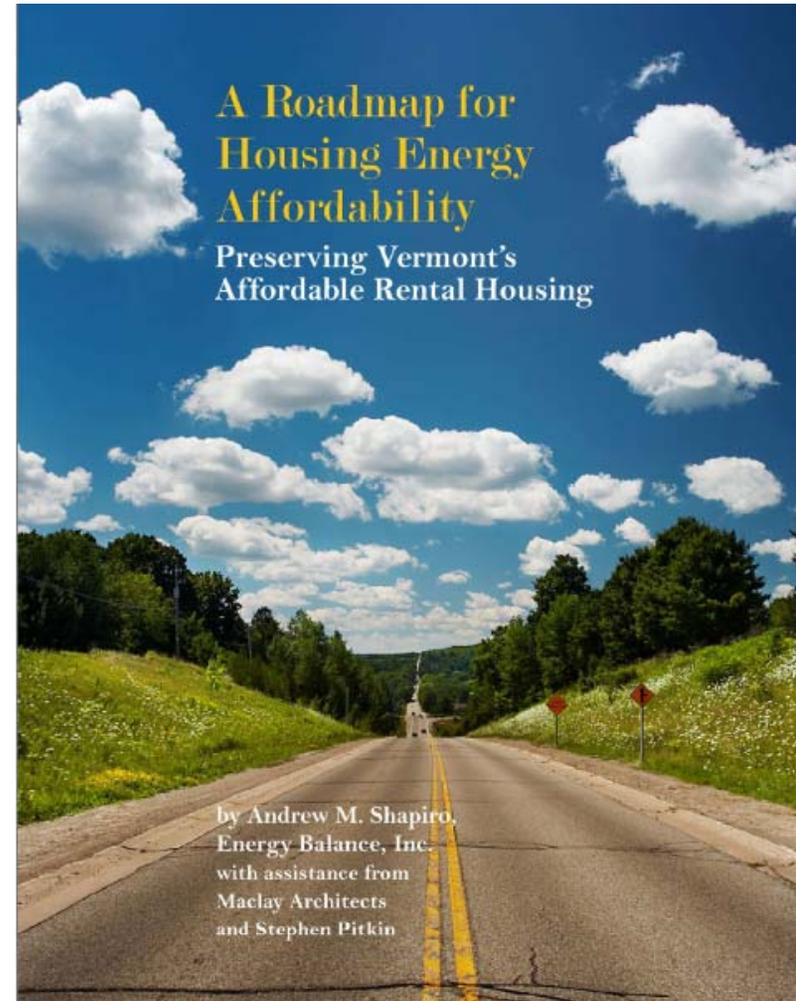
# The Roadmap Project

- Define *permanently*
- Define *future affordable energy cost*
- Determine measures to meet affordability metrics
- Specify the measures
- Determine costs

# Funded by the MacArthur Foundation



Cx Associates, LLC



Andrew Shapiro, Energy Balance, Inc.  
Maclay Architects  
& Stephen Pitkin

VFEP and VHCBS supported the 15 percent low-income adder. VHCBS asserted that, given the substantial reliance upon an unregulated fuel market for heating, operational energy costs have doubled for low-income housing operators over the last five years. VHCBS stated that, as a result, the state energy efficiency screening process is very important in supporting the operational cost and the operational viability of the affordable housing community. Therefore, VHCBS considered the low-income adder (and discount rate, risk adjustment and non-energy benefits adjustment) to be a first step toward the changes necessary to provide for the level of investment required under "A Roadmap for Housing Energy Affordability" ("Roadmap").<sup>22</sup>

VHCBS contended that implementation of the Roadmap is vitally important because: (1) it will protect a multi-hundred-million-dollar public investment in affordable housing by taxpayers made through both the state and federal governments over the last 30 years; (2) it will help

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21. VEIC December 16, 2011, Comments, citing Beyond Energy Savings: A Review of Non-Energy Benefits Estimated for Three Low-Income Programs. Nick Hall and Jeff Riggert, TecMRKT Works. 2002 ACEEE Program Measurement and Evaluation, Panel 10.

22. The Roadmap is a research project sponsored by VHCBS and the Vermont Housing Finance Agency, and conducted by Andrew M. Shapiro, Energy Balance, Inc. with assistance from Maclay Architects and Stephen Pitkin. The Roadmap is specifically designed to address the issue of operational energy cost affordability in low-income multi-family housing.

# Policy Implications

STATE OF VERMONT  
PUBLIC SERVICE BOARD

Order entered: 2/7/2012

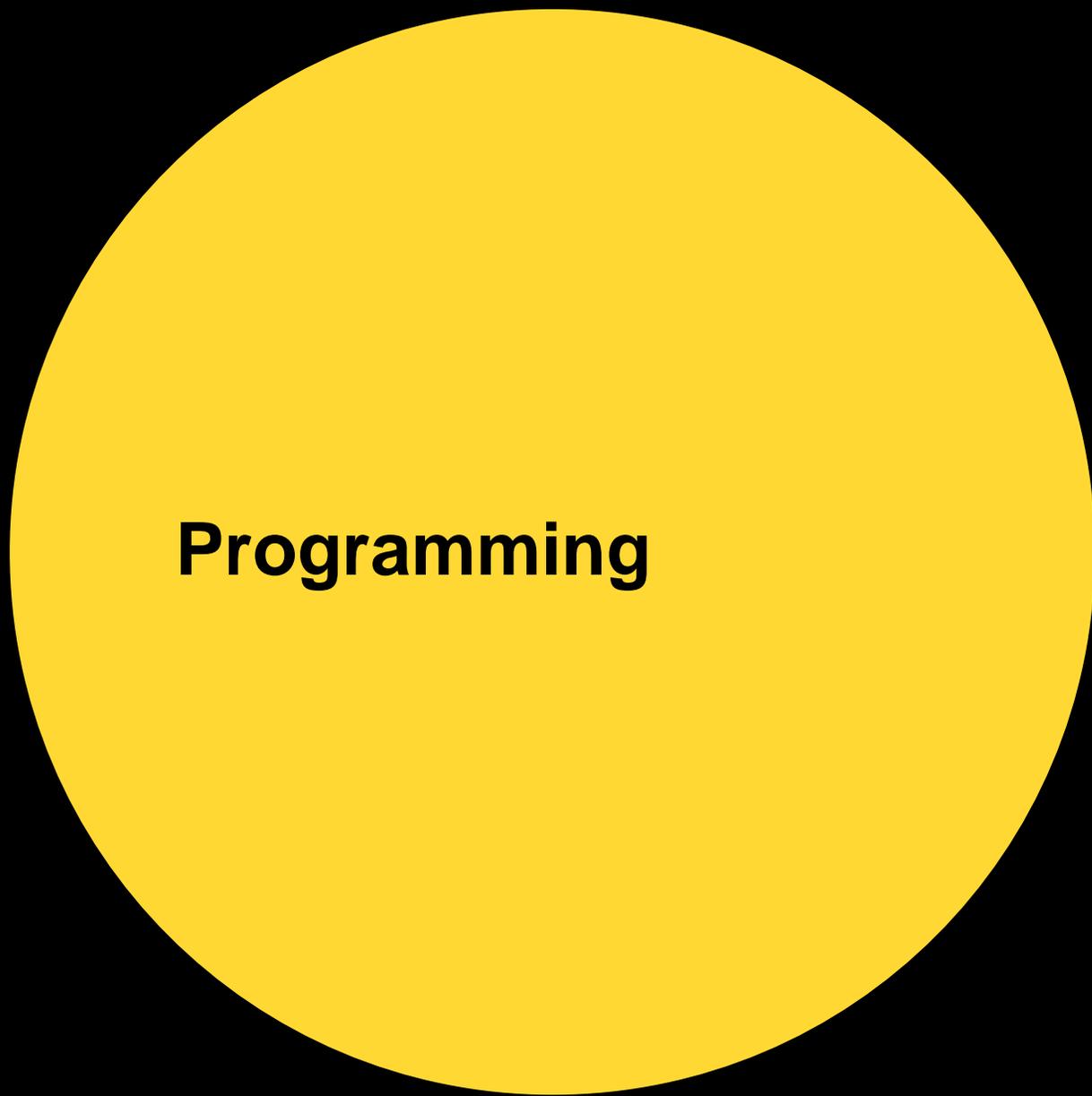
ORDER RE COST-EFFECTIVENESS SCREENING  
OF HEATING AND PROCESS-FUEL EFFICIENCY MEASURES  
AND MODIFICATIONS TO STATE COST-EFFECTIVENESS SCREENING TOOL

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A. Technical	5
(1) Avoided Costs	5
(2) Costing Periods	7
(3) Reliance on Annual Fuel Utilization Efficiency ("AFUE") Rating	8
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# Policy Implications

## Cost-effectiveness screening changes:

- Discount rate change from 5% to 3%
- 15% non-energy benefit adder
- Additional 15% low-income non-energy benefit adder



# Best Practices in Low-Income Energy Efficiency Program Design

- What is the objective?
- Who is being served?
- What measures are provided?
- How are programs structured?
- How is quality assured?

*Green Communities Canada / VEIC, 2006*

# What Is the Objective?

- Program goals are clear and minimize inconsistencies or potential conflicts that add costs, hinder effectiveness, and encourage unnecessary debate

# Who Is Served?

- Target populations are well defined and choice is consistent with program goals
- Eligibility requirements are consistent with the target populations
- Application processes, including income criteria, are simple and consistent with other low-income programs
- Program accessibility is maximized – participation barriers are identified and minimized

# Who Is Served?

- Eligibility requirements and other program elements are inclusive of all housing types, including mixed occupancy or mixed-used buildings
- Barriers to enrollment are minimized, including the application process, and comprehensiveness and quality of service delivery
- Active outreach strategies are used to recruit participants

# What Measures Are Provided?

- Measure selection guided by energy audits, not prescriptive approaches
- Cost-effectiveness determined to maximize benefits per participant and for the program
- All energy types and end uses are included
- Cost caps per participant are avoided in favor of more flexible limits.
- Results-based incentives encourage creativity and optimal program effectiveness

# What Measures Are Provided?

- Installation is integral part of delivery
- Audits involve participant engagement and training / information sharing
- Agreements for work on rental properties ensure tenant protection for defined period
- Co-payments by property owners are negotiated, including in-kind contributions
- Institutional barriers for subsidized housing are identified and addressed

# How Are Programs Structured?

- Auditing and installation capacity are optimized for high-quality program delivery
- Utilize outside resources to maximize program effectiveness
- Accounting and data tracking processes can accommodate multiple funding sources
- Community partnerships are promoted
- Costs are controlled with performance-based compensation

# How Is High-Quality Performance Assured?

- Training is routine, rather than occasional
- Well-planned QA / QC system involves
  - integration of customer feedback
  - data integrity checks
  - third-party site inspections
- Informal monitoring, as well as formal impact and process evaluations, identify program improvements and document program performance

# VEIC Implementation Recognized as Exemplary

Data-  
centric

Leverage  
existing  
resources

Strong  
partners

Responsive to  
local conditions

# Efficiency Vermont

- Created by Vermont Legislature and Vermont Public Service Board (PSB)
- Competitively bid contract to provide electric efficiency services to all classes of ratepayers
- Performance-based contract
  - PSB sets goals and budget
  - PSB establishes performance indicators
  - Allows response to changing conditions
- Now operate under PSB Order of Appointment

# Efficiency Vermont

- Low-income goal for Efficiency Vermont
  - 15% of resources for low-income programming
  - Currently exploring other metrics
- Mix of programs has changed over the years
  - Effective programs continued
  - New and innovative approaches tested
  - Ineffective programs changed or eliminated
- Definition of *low-income* has expanded

# DC Sustainable Energy Utility

- Low-income goal most aggressive in the nation
- 30% of spending to benefit of low-income residents
- Additional social equity goals of contract
  - Local economic development
  - Local resident hiring
- Performance-based contract
- Performance benchmarks on low-income goals
- Low-income eligibility for multifamily expanded

# DCSEU Quick-Start Launch in 2011

- Low-income multifamily direct installation program
- Program designed and on the street in 90 days
- 5,000+ homes within 6 months
- New to market
  - Train contractors to become outreach / qualification network
- Developed networks for later additional work in buildings

# DCSEU T12 to HPT8 Replacement

- Low-income multifamily common areas and in units
- Used intelligence gathered during “quick start” to design the program
- Used housing provider connections made during “quick start” to launch
- Contractor network carried over from a small-business “quick start” program
- Meets multiple contract goals
  - Low-income benefits
  - Spending with local contractors
  - Local job creation

# Efficiency Vermont – Weatherization

- Use low-income WAP network to deliver electric efficiency products and services
  - Effective outreach to community
  - Trusted provider network
  - Already in home
- Efficiency measures
  - Lighting
  - Appliances
  - Changes over time
- Increases the resources delivered



# Low-Income Multifamily Comprehensive

- Add-on to enhance efficiency at time of new construction / major rehab
  - Technical assistance
  - Financial incentives
- Nonprofit affordable housing partners
  - (Vermont) perpetual affordability: very long-term horizon
- No lost opportunities
- Incremental cost / incremental savings

# Food Bank Channel Distribution

- Use existing network
  - Food banks to food shelves
  - Trusted service network
  - Already in store
- Builds on highly successful efficient products program
- Efficiency measures
- Low-income qualification
- Increases the resources delivered



# DCSEU – Federal Home Loan Bank Partnership

- Partner with local FHLB member bank
- Weatherize low-income homes
  - Higher income qualification criteria than WAP
- Combine program incentives with financing resource
- 5-year 0% forgivable loan
- Use of home performance contractor network

# Low-Income Single-Family Solar PV

- No solar in low-income neighborhoods
- Partner with three local solar providers – all small, local businesses
- Reduce “direct” program cost via PPA arrangement
- Partner with WAP network for efficiency work
- Results contribute to two performance metrics:
  - low-income goal
  - renewable capacity goal

# Summary of Programming Best Practices

- Partner, partner, partner
- Collaborate in design and delivery
- “Add on” to existing community-based and government programs
- Use trusted networks and channels
- Meet people where they live
- Be opportunistic
- Question assumptions
- Advocate for change

# Efficiency Vermont

## Mobile Home Replacement

- Effects of Tropical Storm Irene on low-income people
  - Siting of mobile home parks
  - Durability of standard mobile homes
- Collaboration with affordable housing providers and manufacturer
- Net zero mobile home
- Financing strategies
- Durable & efficient



# Public-Purpose ESCO

Reduce  
carbon  
emissions

Deep  
energy  
reductions

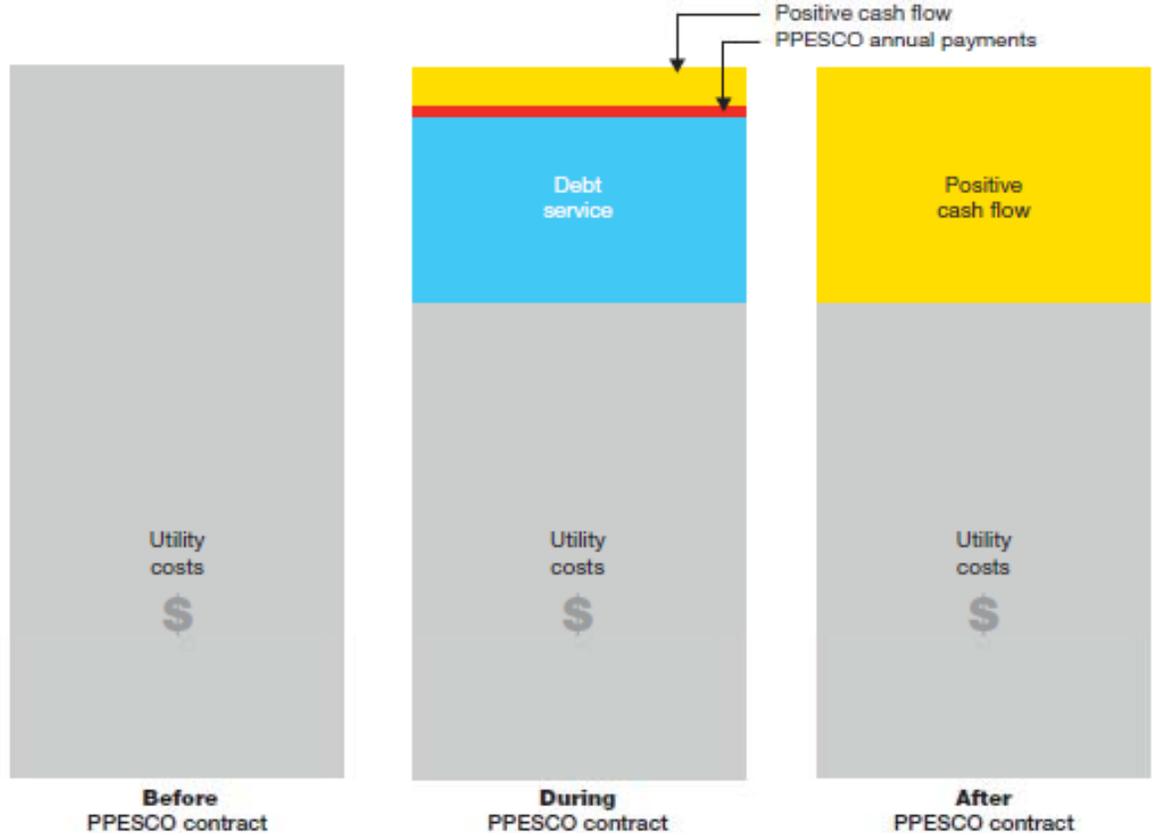
Serve  
underserved  
markets



# PPESCO Model

- Energy improvements financed by energy savings
- Long-term patient capital from mission-aligned sources
- Terms out to 15 years
- Rates lower than commercially available
- Positive cash flow goal

## Positive Cash Flow for Client

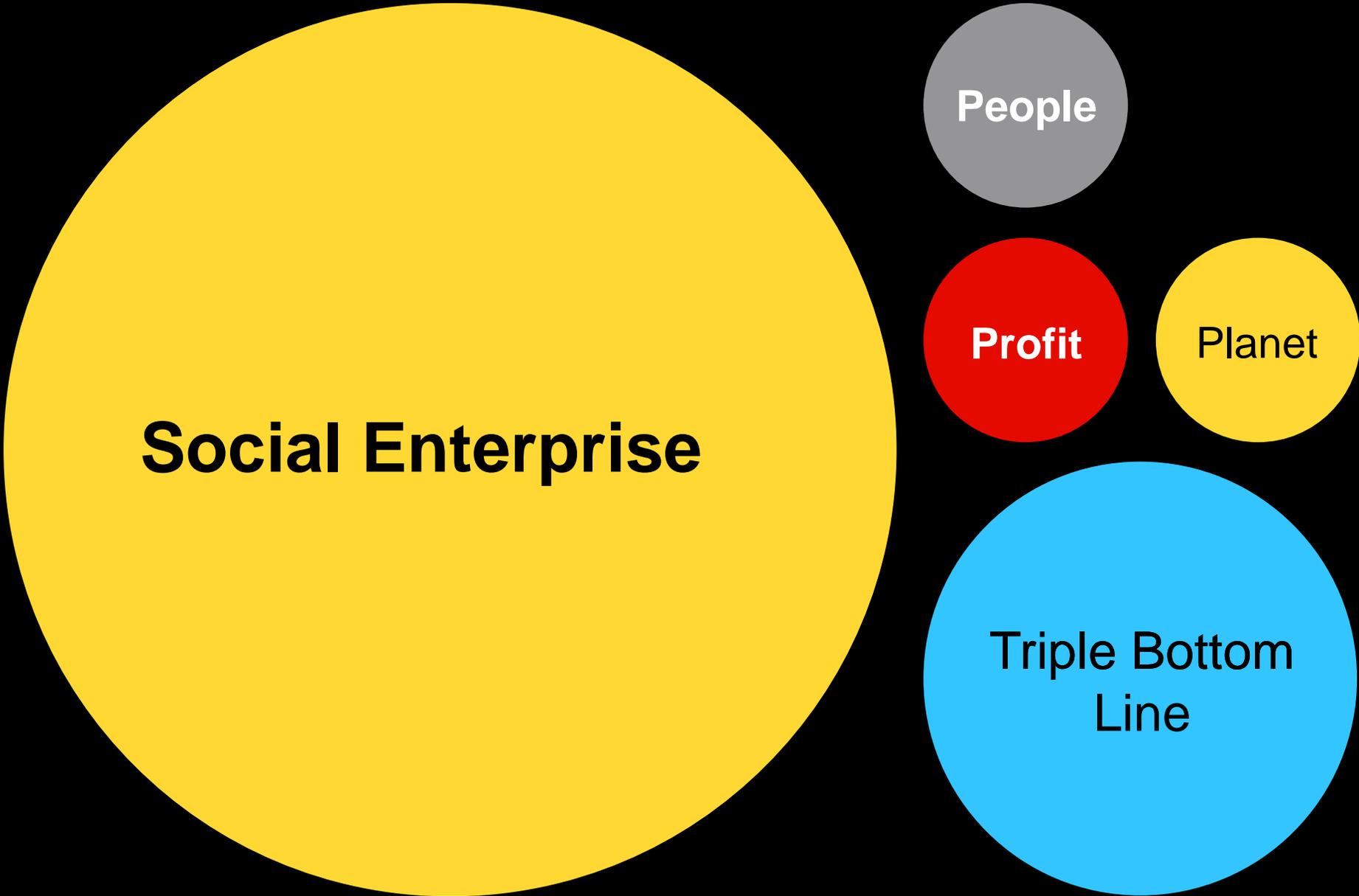


# PPESCO Markets

- “Deep energy savings for the buildings we all use”
- Unserved buildings in underserved markets
- Small and medium-sized projects
- Project scopes for deeper savings

## Public-Purpose Markets





The diagram features a large yellow circle on the left containing the text 'Social Enterprise'. To its right is a blue circle containing the text 'Triple Bottom Line'. Above the blue circle are three smaller circles: a grey one labeled 'People', a red one labeled 'Profit', and a yellow one labeled 'Planet'.

# Social Enterprise

People

Profit

Planet

Triple Bottom  
Line

To recap, in haiku:

*To serve more people:  
reduce barriers, research,  
partner, advocate.*

*It always seems  
impossible,  
until it is done.*

Nelson Mandela

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**Thank you!**