



# NZE Buildings: Cost & Finance Getting to Zero National Forum

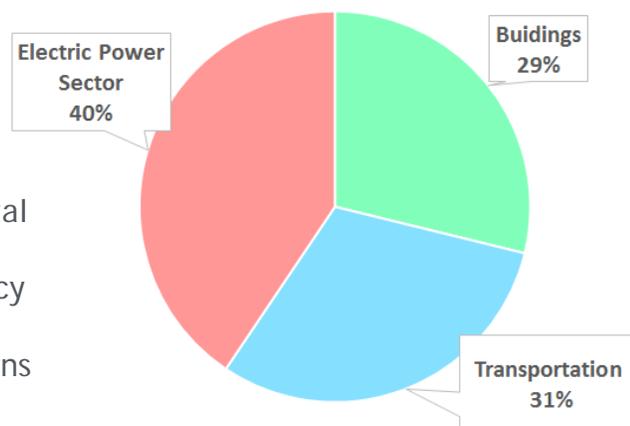
Paul Scharfenberger



## Colorado's climate goals rely on meaningful change in the buildings sector

- Reduce GHG emissions by >26% by 2025, as compared to 2005 levels
- Reduce CO<sub>2</sub> emissions from the electricity sector by 25% by 2025, as compared to 2012 levels
- Achieve electricity savings of 2% of total electricity sales per year by 2020 through cost-effective energy efficiency
- Continue to assess potential correlations between vector borne diseases and climate factors

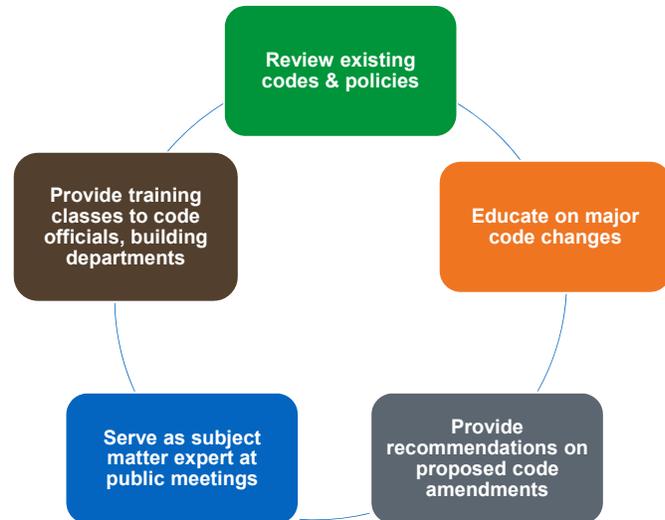
CO<sub>2</sub> Emissions from Fossil Fuel Consumption



Source: EIA

## A patchwork of barriers are keeping us from getting where we need to be

- Insufficient building codes
- Large up-front capital costs for both the builder and the buyer
- Building valuations do not always reflect NZE performance (especially residential)
- Financial recapture at resale is uncertain in many cases



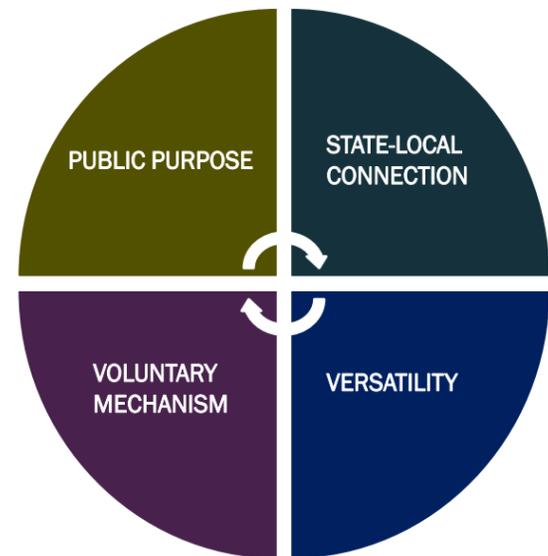
## Property Assessed Clean Energy (PACE) is capable of addressing many of these barriers

PACE is **tax-assessment** financing for energy efficiency, renewable energy, water conservation, and certain resiliency projects for buildings.



## Which is why PACE is such an important tool for Policymakers

1. State legislation enables use of property-based tax assessments (public purpose)
2. Municipalities decide whether or not to establish or join a PACE program (voluntary)
3. Funding for PACE projects provided by non-recourse municipal bonds or private capital (scalable)
4. PACE is extremely versatile and can be used in a variety of manners to achieve public policy goals (versatile)



Source: NASEO



## PACE as a pathway towards NZE buildings

Overcomes cost barriers by:

- Offering 100% financing
- Spreading payments over life of the product
- Offsetting assessment payments with lower utility bills

Overcomes investment barriers by:

- Allowing for transferability
- Increasing the value of improved properties
- Creating more certainty of financial recapture at resale

Overcomes disincentive barriers by:

- Addressing multi-party split incentives
- Allowing for creative program design (new construction)
- Encouraging deeper retrofits and integrated design

### PROJECT APPROVAL AND FINANCING PROCESS

A program administrator (public or 3rd party) approves the project

Tax assessment placed on property and financier provides project capital

A contractor completes the PACE-eligible building improvement

Property owner pays for completed work via a property tax assessment

Repayments are remitted back to the lender



Source: DOE & Berkeley Lab

## Notable differences between R-PACE & C-PACE

### R-PACE OVERVIEW

**\$4,890**      **203,000**

Millions

Home upgrades

### C-PACE OVERVIEW

**\$583**      **1230**

Millions

Commercial projects

### Critical Components of R-PACE

- Mortgage holder consent (not required)
- Consumer protection standards
- Ability to repay underwriting criteria
- Contractor oversight and management
- Financing model (bonds)

### Critical Components of C-PACE

- Mortgage holder consent (required)
- Savings to investment ratio requirements
- Project eligibility criteria (new construction)
- Financing model (open vs closed)

Source: PACENation

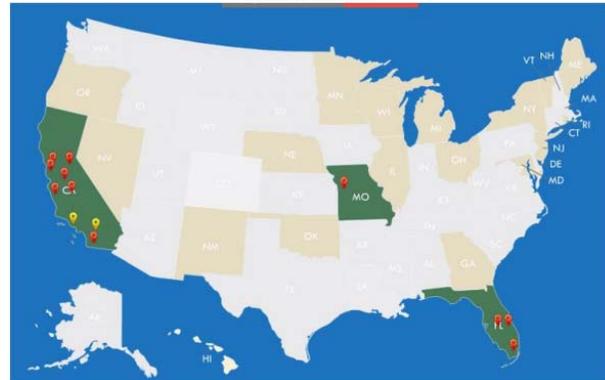


## Availability of C-PACE & R-PACE

### Commercial



### Residential



Active program with funded projects



Launched PACE program



Program in development



PACE-enabled

Source: PACENation's PACE Market Data, <http://pacenation.us/pace-market-data/>.





**COLORADO**  
Energy Office