

DOCKETED

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Fresno Context: Environmentally disadvantaged (92% of properties in DACs), relatively low-income (average supported household earns about \$12,000), and hot

Fresno Housing Authority

LIHTC properties

...built since 2008
(24 properties)...



CUAC

HUD properties

..owned since 1950s
(28 properties)...



Rental Assistance
Demonstration
(modeling option)

Energy
Performance
Contract

USDA/other

...owned since 1970s
(13 properties)...



No clear
mechanism

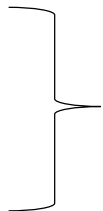
Section 8

... administrative support to
~13,000 privately-owned units



No way for
private owners
to capture value

Utility
allowances:
Value capture
for energy
upgrades



Typical retrofit project. Duplexes built in 1950s/60s, located in small towns, small contractors, limited specialized maintenance

CSD/AEA Low-Income Weatherization Program

- LED replacements
- Windows
- Refrigerators
- Low-flow fixtures
- Heat pump DHW
 - Closet size limitations
 - Barely enough electrical capacity
- Shared DHW tanks
 - Utility allowance impacts
 - No USDA mechanism
- Gas tankless
- Tenant solar
- Mini-splits
 - Maintenance concerns
 - Not enough LIWP incentive



Changes which are harder to fund

- Evaporative Cooler replacement
- Better ventilation
- Increased electrical capacity
- Shell upgrades

Typical pipeline project: Mixed uses, complicated ownership, seven plus sources of development funding, uncertain timeline

1. CALeVIP funded EV stations

2. NSHP solar reservation

3. CEC funded ZNE pilot

4. Energize Fresno Advanced Energy candidate (application pending)



Retrofit of commercial building
(includes commercial, and residential)

New Construction (45 units of low-income housing)

Ownership:
LIHTC Investor, Housing Authority, Commercial partner

CEC/EPRI ZNE discussion

- ✓ High performance attic
- ✓ Regionalized HP DHW
- ✓ High performance attic
 - Uncertainty about cost differences
- ? Centralized HVAC
 - Need for electrical redundancy
 - Uncertainty about abuse
- ? Thermostat controls
- ? Convection stoves
 - Management concerns
- ? Data harvesting
 - Always privacy concerns

Typical low-rent private property (with Section 8 support). Built in the 1960s-80s, low rents (\$700/2bd), energy inefficient.

Characteristics

Residents are largely motivated by cheap rent

Most residents are low income, some are Section 8

Property is revenue positive but not cash flush

Vandalisms and damage occur



Solutions discussion

Blanket income certification for programs such as ESA

Incentives integrated with inspection programs

Emphasis on improved manageability (for example replacement lighting plus new lighting)