

Enabling Affordable Decarbonization

Advancing Equity through engagement with Disadvantaged Communities

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Advancing Affordable Decarbonization: Project Sites



15-094: Understand Electrification, plug loads & ZNE in infill settings (Compton)



15-094: All Electric Zero Carbon new build with central HP & HPWH (Fresno)



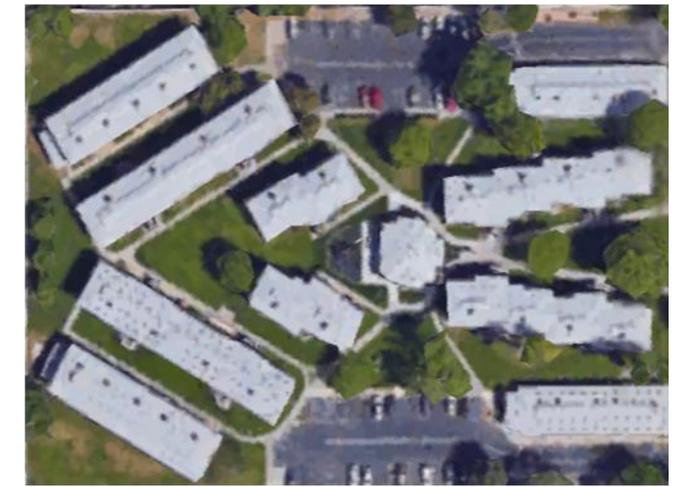
16-068: Evaluation of Solar+Storage+load control microgrids (Willowbrook)



15-053: Electrification retrofits in existing multifamily w/ TC financing (Ontario)



14-024: Mixed fuel + PV + Solar Thermal retrofits (Lancaster)



15-053: Zero Carbon retrofit in grid constrained community (Fresno)

Example: Deep Retrofits in Existing Housing



\$2.46M retrofit at Lancaster low-income apartments

by The AV Times Staff • November 21, 2014



Developers join resident children for a ceremonial tree planting in September to celebrate the start of the pilot project. The project, taking place at The Village at Beechwood in Lancaster, is backed by LINC Housing and SEED Partners with Electric Power Research Institute as the project lead, in collaboration with BiraEnergy, California Energy Commission, the U.S. Department of Housing and Urban Development, Southern California Gas Company, and Southern California Edison.



Achieved 60% gas and 25% electric use reduction
Collaboration with SCE and SCG, HUD and CHFA

Occupant Interviews by SCE: Stories for posterity

- “Very good, you turn on the air and the house gets cold in a matter of minutes.”
- “insulation kept the (conditioned) air in the apartment longer”
- Another occupant now can keep her bill around \$30 - \$35 per month, which fits in her budget now. Her energy bill could go up to \$150 per month. She smiled and commented that “It is a big change.”



Job Training Benefits from affordable housing programs



Better Buildings

@BetterBldgsDOE

 Follow

.@LINChousing's #zeroenergy housing for low income communities. #BetterBuildings Beat Blog: 1.usa.gov/1U0Z4V4

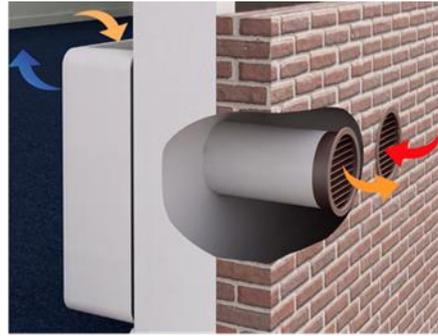


Job Training offered in weatherization and PV Installation

Achieving Zero Net electrified existing communities

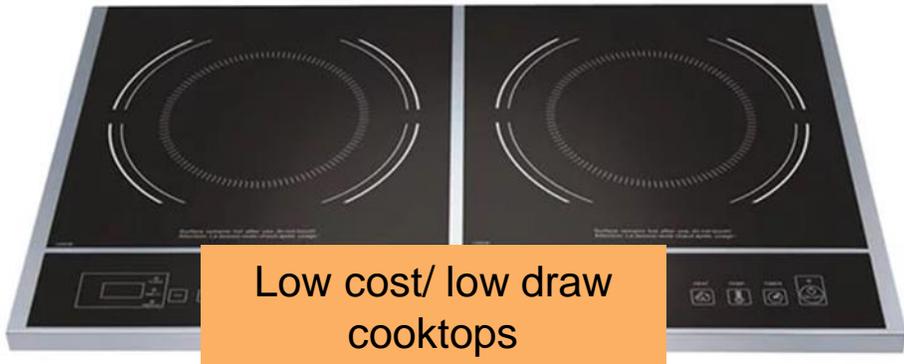


Technologies for the future: Key retrofit technologies



Wall mount HPWH with potential for 110 V retrofit

Smart Panels for retrofits



Low cost/ low draw cooktops



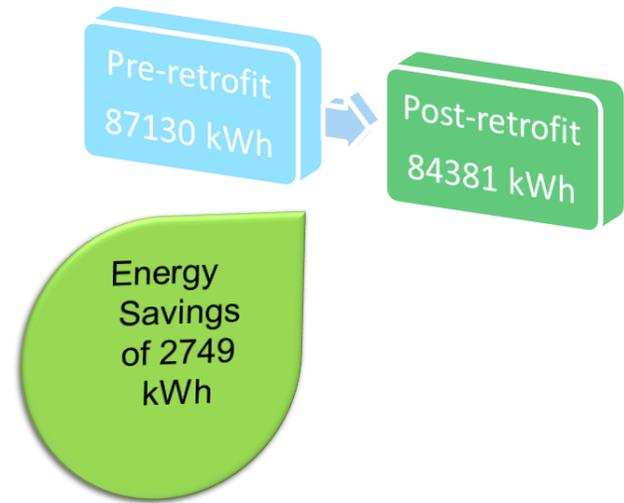
Networked water heating systems for multifamily



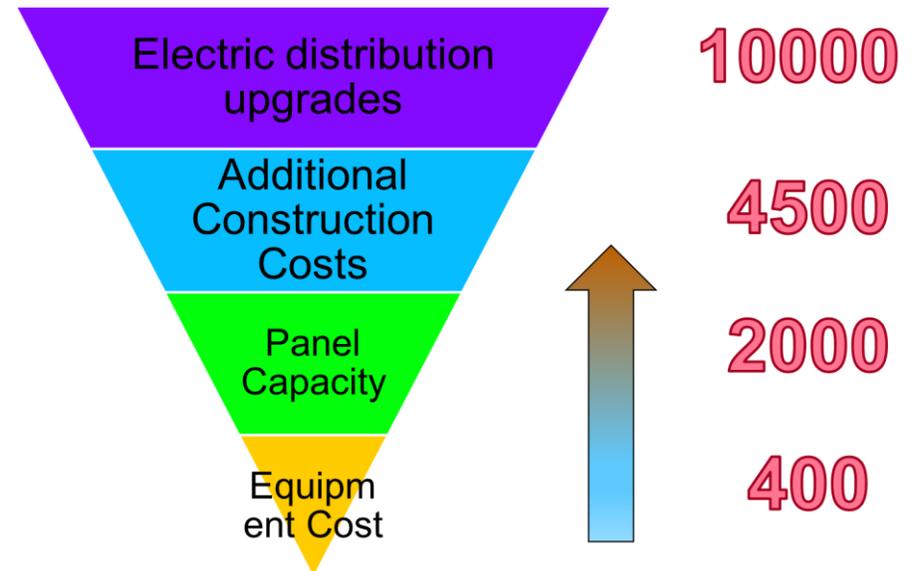
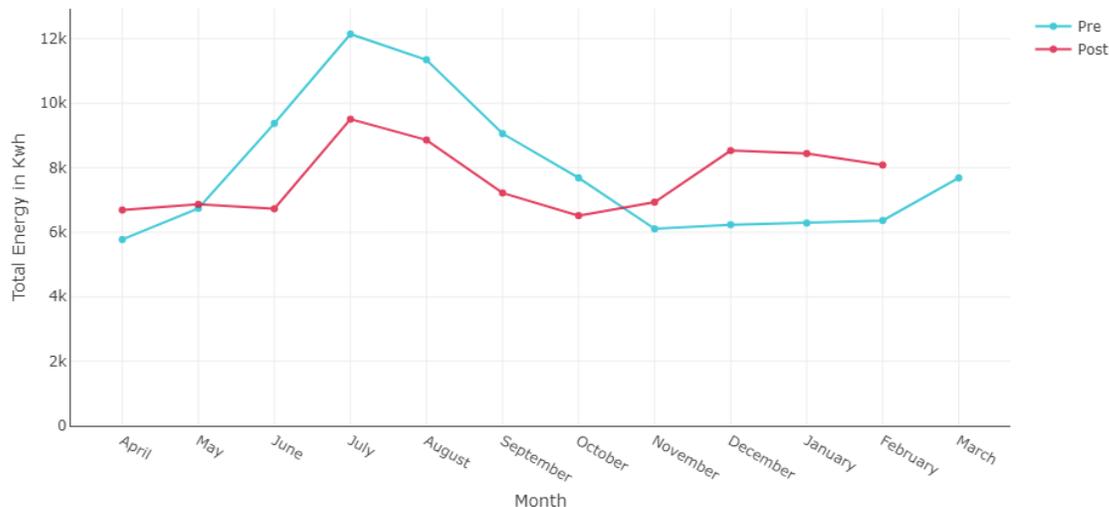
The technical results

Reduced electricity use after electrification through deep efficiency measures. Important measures:

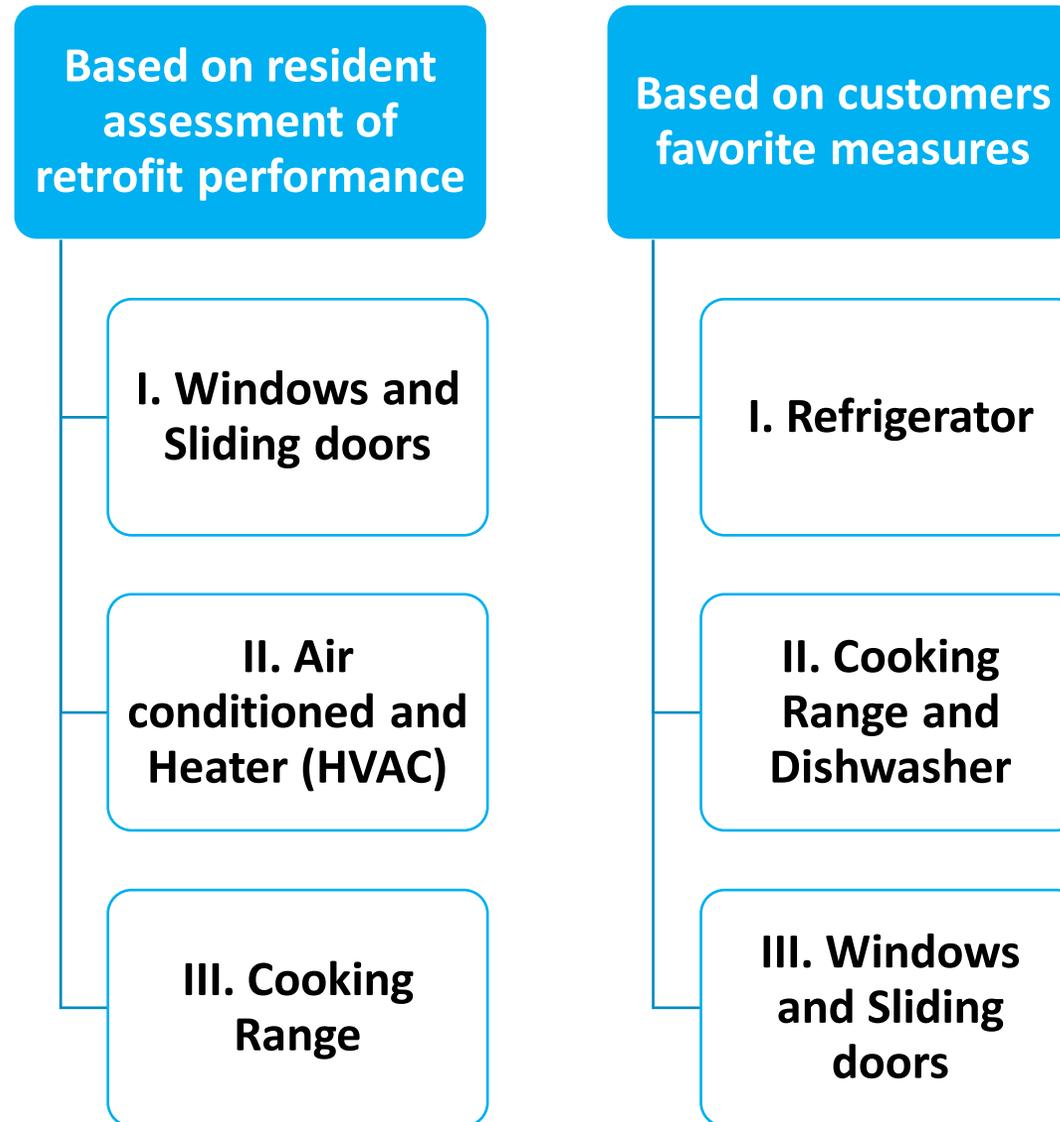
- High efficiency heat pumps
- Insulated roof



Pre VS Post Retrofit AMI Comparison



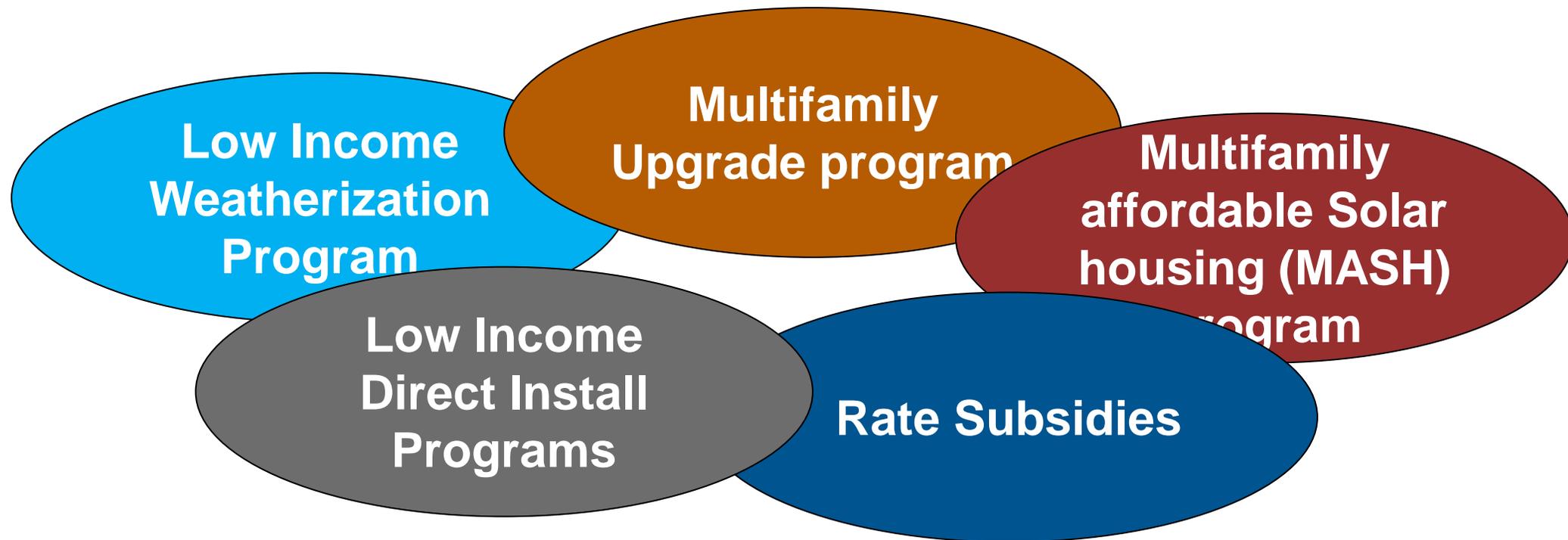
This is what the customer really wanted....



Ontario tenant survey data

- Positive customer response to Energy Efficiency upgrades.
- More than 65% respondents reported lower energy bills post retrofits.
- Tenant satisfaction has risen from 88% (pre-retrofit) to 97% (post-retrofits).
- Increase in community satisfaction seen post retrofit from 37% (pre-retrofit) to 55% (post-retrofits)
- Marked increase in tenant assessment of HVAC retrofit performance.
- Higher tenant satisfaction in cooling and heating during summer and winter between pre and post retrofit.

Streamlining programs to increase customer satisfaction



- Many well-meaning programs are started and exist concurrently
- But the complexity of threading together an alphabet soup of customer programs makes it difficult to achieve true customer satisfaction for property owners