



Building Bridges to Net Zero



Net Zero Investment Plan: Paving a Path to Net Zero for Existing Buildings

Nick Young, Association for Energy Affordability

Traditional Energy & Water Analysis in EBs

Motivations

- Mandatory audit requirements
- Owner interest
- Utility funding
- Tax credit/other funding



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What upgrades could be done now to improve efficiency and reduce resource consumption?



How can we bring Net Zero to existing buildings?

Net Zero Investment Plan

- Comprehensive “kitchen sink” scope of work
- Phasing plan customized to client needs & funding sources
- Rebate program to motivate owners to go all the way



BAY AREA MULTIFAMILY BUILDING ENHANCEMENT PROGRAM

ZERO NET ENERGY INVESTMENT PLAN

Evergreen Apartments
321 Zero Street, Oakland



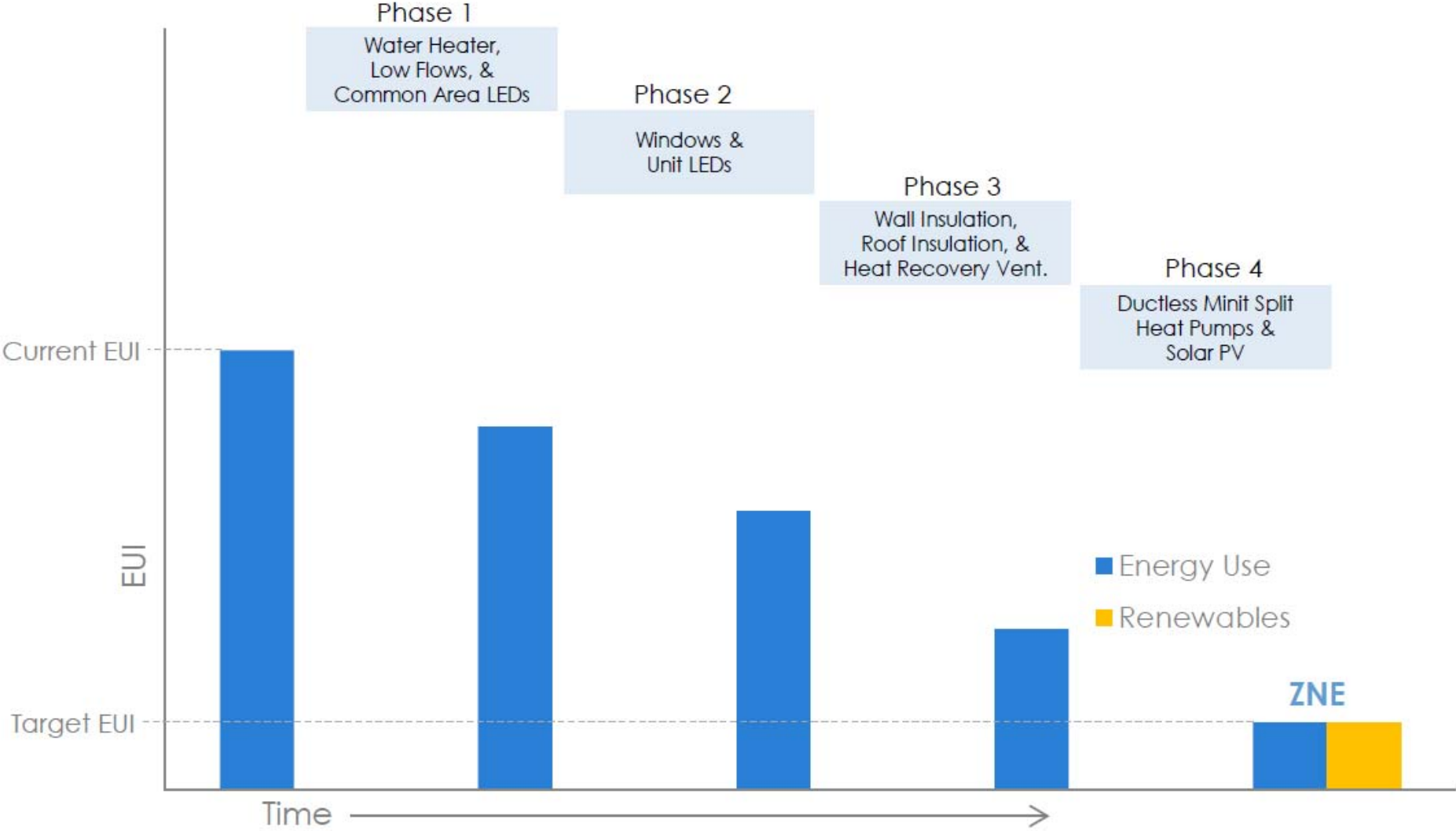
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BAY AREA Regional Energy Network

ENERGY UPGRADE MULTIFAMILY

AEA ASSOCIATION FOR ENERGY AFFORDABILITY

Project Phasing



Building A

Location	Southwest (Hot & Dry)
Description	7- building, 100 Unit 2-story garden-style affordable MF complex, built in 1980s
Envelope	Slab on grade, 2x6 stick framed stucco-clad walls w/ batts, ~R-19 attics, single-pane windows
Heating	Natural gas forced-air furnaces
Cooling	Through-the-wall A/Cs & window units
Water Heating	Central atmospheric tank-type water heaters (1 per building)
Ventilation	Bath fans & ducted kitchen range hoods
Water	1.6 gpf toilets, 1.5 gpm bath faucets, 2.2 gpm kitchen faucets, 2.5 gpm showerheads
Appliances	Gas oven/range,
Metering	Tenants individually metered for gas & electricity; master meter for water, DHW gas



Building B

Location	Northeast
Description	75 unit 5-story affordable MF building, built in 1920s
Envelope	Uninsulated basement, uninsulated brick walls w/ lath & plaster, ~R-30 attic, single-pane windows
Heating	One pipe steam
Cooling	Some window A/C units
Water Heating	Central atmospheric DHW boiler large storage tank
Ventilation	Natural ventilation (windows)
Water	3.5 gpf toilets, 2.2 gpm bath faucets, 2.2 gpm kitchen faucets, 2.5 gpm showerheads
Appliances	Gas oven/range
Metering	Tenants individually metered for electricity; master meter for water & gas



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Cooling	Through-the-wall A/Cs & window units
Water Heating	Central atmospheric tank-type water heaters (1 per building)
Ventilation	Bath fans & ducted kitchen range hoods
Water	1.6 gpf toilets, 1.5 gpm bath faucets, 2.2 gpm kitchen faucets, 2.5 gpm showerheads
Appliances	Gas oven/range, standard refrigerators
Metering	Tenants individually metered for gas & electricity; master meter for water, DHW gas

Building B

Location	Northeast
Description	75 unit 5-story market-rate MF building, built in 1920s
Envelope	Uninsulated basement, uninsulated brick walls w/ lath & plaster, ~R-30 attic, single-pane windows
Heating	One pipe steam
Cooling	Some window A/C units
Water Heating	Central atmospheric DHW boiler large storage tank
Ventilation	Natural ventilation (windows)
Water	3.5 gpf toilets, 2.2 gpm bath faucets, 2.2 gpm kitchen faucets, 2.5 gpm showerheads
Appliances	Gas oven/range, ESTAR Refrigerators
Metering	Tenants individually metered for electricity; master meter for water & gas



Building A Scope

Building B Scope

- Continuous exterior rigid insulation



Questions?

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