**ZNE Design Breakout Session Scenario #1**

New construction, tract of 4 phases of 8 homes each

CZ 15, Palm Desert, CA

4 bedroom, 2.5 bath, 2400 sqft 2-story

Goals:

1) Lowest initial cost
2) 2019 California ZNE code compliant

Baseline Features:

1) Walls 2x6 R-19
2) Roof R-30 attic with asphalt shingles
3) Slab on grade foundation
4) Windows builder grade vinyl U=0.32/SHGC=0.23, 18% glazing:sq ft ratio
5) South facing sliding glass doors Aluminum U=0.56/ SHGC=0.31 (shaded)
6) Gas tank water heater 64% efficient
7) Skylights in each bathroom 4’x4’ U=0.48, SHGC=0.27
8) HVAC standard split system 14 SEER, 80 AFUE
9) Ducts in attic R-8, sealed and tested
10) No HERS inspections (QII/Refrigerant charge verification)

With Baseline Design, Cooling is 86 TDV for the standard house, 111 TDV our design (main issue).

Target Efficiency EDR is 49, but Baseline Design is at 61.

Features to Choose From:

1) Walls 2x6 R-19 + R-4 HPWs
2) Roof R-38 + R-19 HPA
3) Cool roof shingles
4) Air sealing to 2 ACH50
5) Triple pane windows U=0.20/SHGC=0.22
6) Shade all West facing windows
7) Battery in garage $8,000 for 12 kWh storage system
8) Thermal mass stone fireplace in front of high skylights facing West
9) Quality Insulation Installation HERS inspection
10) Refrigerant charge HERS inspection
11) HRV for mechanical ventilation $1,500
**ZNE Design Breakout Session Scenario #2**

New construction, single custom home

CZ 6, Newport Beach, CA

5 bedroom, 4 bath, 4000 sqft one-story

Goals:

1) All electric
2) Multigenerational family with allergies and asthma
3) Site ZNE
4) 2019 Title 24 energy code compliant

Baseline Features:

1) Walls 2x6 R-19
2) Roof R-30 attic with asphalt shingles
3) Slab on grade foundation
4) Aluminum standard windows U=0.56/SHGC=0.52 (29% glazing:sqft ratio)
5) South facing sliding glass doors Aluminum U=0.56/ SHGC=0.52 (shaded)
6) Electric tank water heater
7) Skylights in Great room 4’x4’ (6 each)
8) HVAC air conditioner 14 SEER plus electric resistance floor heating
9) Ducts in attic R-8, sealed and tested
10) No HERS inspections (QII/Refrigerant charge verification)

With Baseline Design, Standard house has 22 TDV and Proposed house has 40 TDV. Cooling is 13 TDV of deficit, Heating is 4 TDV, Water Heating is 1 TDV

Target Efficiency EDR is 52, but Baseline Design is at 81.

Features to Choose From:

1) Walls 2x6 R-19 + R-4 HPWs
2) Roof R-38 + R-19 HPA
3) Cool roof concrete tile
4) Air sealing to 2 ACH50
5) Dual pane fiberglass windows U=0.34/SHGC=0.25
6) Triple pane windows U=0.20/SHGC=0.22
7) Shade all West facing windows
8) Ductless minisplit heat pump heating and cooling 9.5 HSPF, 19 SEER
9) Ducts in conditioned space
10) Heat pump water heater 2.4 COP, 80 gallon tank
11) Battery in garage $8,000 for 12 kWh storage system
12) Quality Insulation Installation HERS inspection
13) Refrigerant charge HERS inspection
14) HRV for mechanical ventilation w/ MERV 13 filter $1,500
15) Cut skylights to 2 and add 2 solar tubes @ 14” diameter