An All-electric ZNE Townhome Community

From Design to Reality

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All-electric, ZNE Townhome Development
Southern California’s first all-electric zero net energy townhome community located in the heart of the Irvine Business Complex.
Community Details

• Forty-four townhomes in six buildings
• The homes are all 4-bedroom, 3 ½ -bath, and vary in size from 1,868 sq. feet to 2,171 sq. feet.
• Each unit features a two car garage.
• The community includes an exterior common space equipped with barbecues and fire pits.
• First units available for sale now; construction expected to be completed November 2019.
Project Objectives

• Demonstrate the technical and economic feasibility of the advanced measures for all-electric ZNE homes within the MF housing sector.

• Study how all-electric ZNE MF homes can better integrate with the electric grid via load management.
Project Partners

- Southern California Edison
- Meritage Homes
- Electric Power Research Institute (EPRI)
Interior Features

- 100% LED Overhead Lighting
- Smart Wi-Fi Light Switches
- Induction Cooktops
- Efficient Kitchen Appliances
- Hybrid Heat Pump Water Heater
- Efficient Space Conditioning Heat Pump rated at 16 SEER/EER 13.5
- Smart Wi-Fi Connected Thermostats
- EV Ready Garages
Exterior Features

- R-13 Open Cell Spray Foam Wall Insulation
- R-4 Styrofoam Continuous Insulation
- Efficient Windows: Low-E, Air-filled, Double Glazing
- Rooftop Solar Systems
- Raised Heel Truss Roof with R-50 Spray Foam
Anticipated Performance - Energy

Simulated Monthly Net Energy

<table>
<thead>
<tr>
<th>Month</th>
<th>Energy (kWh)</th>
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<tbody>
<tr>
<td>Jan</td>
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<tr>
<td>Feb</td>
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<td>Nov</td>
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<tr>
<td>Dec</td>
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Anticipated Performance - Emissions

Simulated Monthly Net Emissions

- Mixed Fuel
- All-electric
SCE Support

• SCE has committed $500K to this project through the Statewide Emerging Technologies (ET) Program and the Emerging Markets & Technology (EM&T) Program. SCE is also providing technical, engineering, and planning support.

• SCE funding will go towards the incremental cost of the advanced home features
Future Community Assessment

• Conduct comprehensive power monitoring all end-uses
• Explore the benefits of wireless DR controls thermostats and distributed energy resources
• Identify the incremental measure costs and cost-effectiveness for advanced home features
Anticipated Project Outcomes

- Access to detailed real-world information on the interaction of building technologies with residents.
- Energy and cost savings for owners.
- Assistance in educating occupants on how to live in a high-performance building to take advantage of dynamic energy features.
- Increased understanding of all-electric ZNE installation costs and barriers.
- Improved planning future multi-family developments.
This project was funded by the California Emerging Technologies Program.

For more information, contact Ryan McFadyen at ryan.mcfadyen@sce.com.
Community Website:
https://www.meritagehomes.com/state/ca/southern-ca/citysquare?gclid=EAIaIQobChMIzPeym6rY5AlVrx6tBh3buwYTEAAYASAAEgLpgvD_BwE

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