Successful Strategies for Working With Savings By Design

Presented by
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Savings By Design Defined

Savings By Design is a statewide energy efficiency program available to new construction, additions, and major renovations.

The Program encourages high performance, sustainable, design and construction of non-residential buildings through:
- Design Assistance
- Owner Incentives
- Design Team Incentives
- Energy Design Resources

Santa Monica Pico Branch Library
Core Incentive

Projects will receive $150 per peak kW saved. Subject to all applicable caps.

Up to $150,000 per project.

(Limited to 100% of incremental costs for energy efficiency measures.)

Owner Incentives range from $0.10 to $0.40 per annualized kWh savings, and $1.00 per annualized therm savings as the design becomes more efficient.
What are potential examples of project influence?

**Inclusion of SBD in project requirements**
- RFP, OPR, contract language

**Early project dialogue**
- Participation of utility representative in meetings or discussions during Schematic or Design Development

**Project Analysis**
- “Simple box” modeling studies
- Comparison of different options, along with estimates of energy savings and likely incentives

**Plan evolution in sequence with recommendations**
- Later sets of plans show inclusion of EE measures not present in earlier iterations

**Incentives a factor in Value Engineering**
- Incentives can be demonstratively shown to have saved EE measures from the chopping block
Early Collaboration

Maximize your savings by having the Savings By Design team involved as soon as possible in the design of your project.
Integrative Design

Pursue low- or no-cost energy saving strategies first

Source: NREL
Early phase analysis

Analyze climatic data

Climate Consultant Software - http://www.energy-design-tools.aud.ucla.edu/
Perform “Simple Box” Energy Modeling
SAVINGS BY DESIGN Incentive and energy savings analysis

<table>
<thead>
<tr>
<th>Energy Efficiency Measures</th>
<th>Description</th>
<th>Estimated Savings kWh/yr</th>
<th>Estimated Savings Peak kW</th>
<th>Avoided Cost/year @ $0.15/kWh</th>
<th>Estimated Incentive</th>
<th>Estimated Incremental Cost</th>
<th>Estimated Simple payback (Yrs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Envelope Improvements</td>
<td>Glazing U-Value to 0.29, Walls to U=0.053, Roof to U=0.033</td>
<td>15,000.0</td>
<td>5.00</td>
<td>$2,750</td>
<td>$3,667</td>
<td>$50,000</td>
<td>16.8</td>
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<tr>
<td>HVAC efficiencies</td>
<td>Improve HVAC packaged unit EER by 10%</td>
<td>10,000.0</td>
<td>4.00</td>
<td>$1,900</td>
<td>$2,533</td>
<td>$25,000</td>
<td>11.8</td>
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<tr>
<td>Lighting Efficiencies</td>
<td>Reduce Lighting Power Density by 35%</td>
<td>40,000.0</td>
<td>25.00</td>
<td>$8,500</td>
<td>$11,333</td>
<td>$32,500</td>
<td>2.5</td>
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<tr>
<td>Exterior Shading Elements</td>
<td>Horizontal and vertical shading elements per elevations</td>
<td>20,000.0</td>
<td>8.00</td>
<td>$3,800</td>
<td>$5,067</td>
<td>$65,000</td>
<td>15.8</td>
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<tr>
<td>Ventilation strategies</td>
<td>Natural Ventilation, Night-flush cooling</td>
<td>25,000.0</td>
<td>0.00</td>
<td>$3,750</td>
<td>$5,000</td>
<td>$40,000</td>
<td>9.3</td>
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<tr>
<td><strong>Totals</strong></td>
<td></td>
<td><strong>110,000.0</strong></td>
<td><strong>42.00</strong></td>
<td><strong>$20,700</strong></td>
<td><strong>$27,600</strong></td>
<td><strong>$162,500</strong></td>
<td><strong>6.5</strong></td>
</tr>
</tbody>
</table>

Square Footage: **43,300**
Parametric Analysis
HVAC Opportunities

• Integrated design
  – Where is your equipment located?
  – How much of your distribution is in unconditioned space?
  – Do your space layouts complicate the mechanical zones?
Lighting Opportunities

• Integrated design
  – How can the windows, skylights, and building geometries promote daylight harvesting?
California’s Long Term Energy Efficiency Strategic Plan
Statewide ZNE targets for building code:

- **2020**: All new Residential to be Zero Net Energy, by code
- **2030**: All new Commercial to be Zero Net Energy, by code
ZNE Myths

- ZNE means Zero Energy Bills
- ZNE means Zero Energy (forgetting the “Net”)
- ZNE buildings are not connected to the electric grid
- ZNE buildings have no impact on the electric grid
- ZNE buildings are all built and look the same
- With a ZNE buildings, I can use all the energy I want and still have the same energy bill
- ZNE can be achieved with energy efficiency alone
ZNE Facts

• ZNE buildings will generally have lower energy bills but be generally more expensive to build
• A ZNE building’s **impact on the electric grid can vary**
• Energy efficiency is still important for ZNE buildings
• There are many ways to design a ZNE building
• Current TDV values do not directly correlate to GHG emissions
• 2016 Title 24 is already very efficient and close to being “ZNE ready” for residential and for some commercial buildings
A Tale of 2 Buildings

Which is the easier, less costly building to serve for a utility?

- Infrastructure build-out
- Purchased or generated power

For the customer: which building would have the lower bill?
California Grid Sunny Spring Day
"On 14 days during March, Arizona utilities got a gift from California: free solar power. Well, actually better than free. California produced so much solar power on those days that it paid Arizona to take excess electricity its residents weren't using to avoid overloading its own power lines." reported the Los Angeles Times.
Classes & Seminars

**SCE’s Energy Education Center (EEC)**
Offers free seminars, classes and tours, with locations in Irwindale and Tulare.

AIA Learning Units are available for selected classes. Visit us at: [www.sce.com/workshops](http://www.sce.com/workshops)
Savings By Design Information

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