Municipal Policy Templates

Accelerating ZNE Buildings Community-wide

November 16, 2016
Developing template language and policy

Initial Step:

• Compile relevant ZNE policy and ordinance examples

Gap Analysis and Opportunities:

• Recommend ZNE resources for Bay Area cities

Template Language and Policies:

• Develop ZNE policy resources
Targeted ZNE policy resources for new commercial/institutional buildings

RFP Template Language

- Energy Use Intensity (EUI) targets
- Lifetime cost (not just upfront capital)
- Bay Area region climate zones

ZNE Incentive Programs

- New city climate fee
- Refunds for ZNE or ZNE-ready buildings
- Based on the EUI targets

ZNE Incentive Programs

- Expedited permitting
- Expedited inspections
- Based on the EUI targets

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16 November 2016
### Non-residential EUI benchmarking

<table>
<thead>
<tr>
<th>Type</th>
<th>US National Median kBtu/sqft (Site)</th>
<th>2006 CEUS PG&amp;E Electric Service Area kBtu/sqft</th>
<th>2009 ASHRAE Standard Benchmark - CZ3C (San Fran) kBtu/sqft</th>
<th>Proposed EUI Target Range</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>Government</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small Office (&lt;30,000 sf)</td>
<td>-</td>
<td>64</td>
<td>35</td>
<td>26 18</td>
</tr>
<tr>
<td>Large office (&gt;30,000 sf)</td>
<td>-</td>
<td>81</td>
<td>37</td>
<td>27 18</td>
</tr>
<tr>
<td>Office building</td>
<td>67</td>
<td>73</td>
<td>36</td>
<td>27 18</td>
</tr>
<tr>
<td>Hospital</td>
<td>197</td>
<td>155</td>
<td>142</td>
<td>107 71</td>
</tr>
<tr>
<td>Schools (K-12)</td>
<td>58</td>
<td>45</td>
<td>51</td>
<td>38 26</td>
</tr>
<tr>
<td><strong>Commercial</strong></td>
<td></td>
<td></td>
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<tr>
<td>Hotel</td>
<td>73</td>
<td>72</td>
<td>89</td>
<td>66 44</td>
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<tr>
<td>Restaurant</td>
<td>224</td>
<td>297</td>
<td>415</td>
<td>311 208</td>
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<tr>
<td>Retail</td>
<td>47</td>
<td>49</td>
<td>50</td>
<td>38 25</td>
</tr>
<tr>
<td>Warehouse (non-refrig)</td>
<td>29</td>
<td>21</td>
<td>15</td>
<td>11 8</td>
</tr>
<tr>
<td>Office building</td>
<td>67</td>
<td>73</td>
<td>36</td>
<td>27 18</td>
</tr>
<tr>
<td>Supermarket</td>
<td>186</td>
<td>173</td>
<td>166</td>
<td>125 83</td>
</tr>
</tbody>
</table>
## PG&E Zero Net Energy case studies


<table>
<thead>
<tr>
<th></th>
<th>Schools</th>
<th>Municipal</th>
<th>Office</th>
<th>Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Modeled EUI</strong></td>
<td>18 – 37</td>
<td>18 - 46</td>
<td>19 – 26</td>
<td>119</td>
</tr>
<tr>
<td><strong>Measured EUI</strong></td>
<td>16 – 44</td>
<td>23 - 42</td>
<td>14 – 22</td>
<td>207</td>
</tr>
</tbody>
</table>
Insert in Project Description:

Project shall be designed and constructed to maximize sustainable attributes including, but not limited to, state-of-the-art building design, mechanical design, and material selection, and building integrated renewable energy generation systems to perform, once occupied, at an energy use intensity of no more than 33kBtu/sf.

Insert in Experience:

Submit a maximum of five (5) project profiles representative of the AOR’s ability to design projects of similar size, scope, character and complexity to this Project.

- At least one (1) project must be designed to perform at Zero Net Energy, documented via EUI performance post-construction.

Project Profiles Summary/References: For each project, complete the Project Profile Template attached.

- Include a narrative addressing the salient features for each project ..., specifically stating the overall goal of achieving “carbon neutrality” or Zero Net Energy. Indicate the degree of involvement by key construction personnel being proposed for this Project.
Sustainability and Energy Efficiency

As part of an overall commitment to sustainability and a goal of achieving “carbon neutrality” [the county] builds its facilities to last and promotes environmental quality and resource conservation through sustainable design and construction.

Sustainability and energy efficiency goals for this project include:

• Operate the facility at a maximum of 33 kBtu/sf
• Include segregated collection and recycling of construction waste
• Incorporate strategies, measures, and systems to conserve energy, such as heat/enthalpy wheels, energy recovery units, “setback” modes, etc.
• Utilize Building Automation System and other controls to efficiently maintain and track performance of key building systems, particularly HVAC and lighting.
• Optimize air conditioning systems for maximum building efficiency
• Use low-VOC, regionally-available, and high recycled content materials.
• Establish project team (owner, architect, engineers, energy manager, contractor, operations team, etc.) involvement throughout entirety of the project: initiation, design, construction, and conclusion.
Zero Net Energy incentive program

Modeled after City of Watsonville Carbon Fund Program

**Climate Impact Fee**

- Code New Buildings
- Zero Net Energy New Buildings (EUI target)

- Climate Impact Fee pays into Carbon Fund
- Climate Impact Fee rebated to owner

**Implementation of Climate Action Plan Projects**

**Incentive for Clean Energy Buildings**

REDUCTIONS IN GREENHOUSE GAS EMISSIONS
Zero Net Energy incentive program

Key question:
What is the appropriate climate impact fee level?

Considerations:
• What are the current permit fees?
• Higher climate impact fee = higher ZNE incentives
• Political feasibility and appetite

Research into Bay Area jurisdiction fee levels
Wide range of fees associated with new construction (building permit fee, plan check fee, inspection fee, design review, affordable housing impact fees)

City of Watsonville = 50% of building permit fee
Looking ahead

- Finalize EUI recommendations
- Complete RFP/OPR Template Language
- Continue to vet Climate Impact Fee approach
- Promulgate ZNE resources for cities