

**Comments of the National Energy Center
for Sustainable Communities¹
on the Preliminary Energy Efficiency Strategic Plan**

On behalf of our partners at San Diego State University, the University of San Diego and the Gas Technology Institute, we are pleased to submit comments to the California Public Utilities Commission on the California Energy Efficiency Strategic Plan. We applaud California's four investor-owned utilities for composing an excellent draft strategy, and the Commission for structuring a participatory planning process to ensure the broadest possible exchange of ideas and analysis among stakeholders. Our comments are intended to build upon the three strategic pillars of the plan - innovation, integration and collaboration, and to add plan elements for market transformation that will lead to community-scale energy efficiency and reductions in greenhouse gas emissions.

Background:

Since 2003, we have conducted research with the CEC, City of Chula Vista, developers and recently SDG&E, to determine how to cost-effectively integrate energy-efficient and renewable energy technologies into the design of large-scale development projects. This includes use of urban design elements that enable the economical operation of combined cooling, heat and power systems and district energy systems, and mechanisms that reduce transportation energy consumption, storm water runoff and the urban heat island effect. Engineering performance modeling of the design alternatives produced through this collaboration indicate that they can deliver substantial reductions in energy consumption, emissions and peak demand. In fact, use of these alternatives in a large-scale, mixed-use development site could reduce aggregate building energy consumption and emissions by as much as 40% and peak demand by 45% or more. Efficiencies well above what would be expected if the same site were built to meet Title-24'05 building efficiency standards.

While the research suggests that these alternatives offer an enormous opportunity to reduce energy consumption, emissions and peak demand in communities across the State, significant economic, policy and market barriers prevent their widespread use. However, with the leadership of the four IOUs, the CPUC and the CEC; and through continued research, performance verification, demonstration and educational initiatives designed with the development industry and local government agencies; these barriers can be removed. The following comments / suggestions are offered to

¹ The National Energy Center for Sustainable Communities (NECSC) is dedicated to advancing the development of economically and environmentally healthy communities that are both energy and resource-efficient. The NECSC executes this mission through collaborative initiatives among Federal, State, regional, and local government agencies, companies, utilities, and other organizations in California and across the country. These initiatives are intended to accelerate the use of energy efficiency, demand response, renewable resources, and distributed energy systems through research, training, and demonstration projects. To learn more please visit: www.necsc.us

aid the IOUs and State agencies in taking this leadership role to advance “Energy-Efficient Community Development” (EECD) in California.

Key Definition:

Energy-Efficient Community Development is the development of residential, commercial, institutional and mixed-use complexes and supporting infrastructure that integrate renewable and advanced energy-efficient technologies, and performance-enhancing urban design, to substantially reduce energy consumption and greenhouse gas emissions.

Comments / Suggestions:

1. **Executive Summary – Pg. x:** Given the substantial efficiency and ghg emission reduction gains that can be achieved through an integrated, collaborative, community-scale approach to energy efficiency, and given its truly cross-cutting nature, consider adding Energy-Efficient Community Development (EECD) to the list of cross-cutting sectors.
2. **Executive Summary – Pg. xi:** Consider further defining and expanding the scale of the first strategy for the “Next Generation of Energy Efficiency”. We suggest you consider a revised strategy that might read:
“Promote adoption of integrated technology solutions and transformational market mechanisms among development industry stakeholders, resulting in zero net energy new buildings, low-energy existing buildings (residential and commercial) and low-carbon community development projects”.
3. **Summary of Strategies – Pg. xii:** Residential ZNE Milestone and Roadmap. Consider replacing “vs” with “&” in the 2009-2011 box referring to buildings vs. sites vs. communities. The IOUs and their partners should develop strategies and mechanisms for energy efficiency at all three scales.
4. **Summary of Strategies – Pg. xiii:** Commercial ZNE BBEES: Milestones & Roadmap. Here again, we suggest expanding the plan’s focus beyond single commercial buildings to multiple commercial building complexes and large-scale commercial development districts serving communities.
5. **Summary of Strategies – Pg. xviii** Roles of Local Government. Here, we suggest the modification of one of the existing strategies and the addition of others. Each of these modified/added strategies could then be further detailed in the Local Government section beginning on page 102. Specifically, we suggest modifying the third bullet to read:
Maximize energy efficiency in new and existing construction through Local Government policy and planning for integrated design of building and infrastructure development, continuously striving for more effective utilization of energy and water resources, GHG emissions reduction, more effective waste disposal and improved air quality.”

We suggest the addition of a new bullet to read:

“Develop incentives, both financial and fiscal, and market-based mechanisms to attract investment in energy efficient buildings, infrastructure, products and services.”

We suggest the addition of a new bullet similar to the strategy that appears in the Plan’s industry section. This bullet would read:

“Facilitate the direct involvement of local governments in coordinated interagency planning for the energy efficiency portions of AB32 implementation.”

Finally, we suggest the addition of a new bullet to this section that reads: *”Support Local Governments in activities that generate integrated design alternatives, demonstration projects and practitioner training programs for energy-efficient community-scale development projects.”*

We encourage the CPUC to consider activities related to these strategies as desirable elements for inclusion the IOUs energy efficiency portfolio programs, and as soon as possible.

6. **Residential Sector – Pg. 10:** We strongly endorse the stated intent to address the buildings/transportation nexus in future strategic planning cycles, particularly given the plan’s intent to: “Create “energy efficiency as a way of life” among Californians by 2020. In order to do so, there must be a detailed examination of the relationship between transportation, land use and development patterns and alternative energy technology and design options capable of reducing petroleum consumption and transportation related greenhouse gas emissions.
7. **Big Bold Strategies/Strategy 1 – Pg. 10:** We applaud the Commission’s bold goal of advancing residential new construction whole-house solutions to zero net energy by 2020, and the IOU’s schedule of proposed actions to reach the goal. And we agree with the *plan’s* assessment that significant economic, regulatory and consumer market barriers need to be overcome to realize this goal. However, neither the following Success Factors nor the Key 2009-2011 Actions listed for this strategy specifically addresses the most significant business and economic barriers. Rather there is an emphasis on evolving the cost-effectiveness of the technologies themselves. Certainly that is important, but so also are actions necessary to resolve the fundamental business and economic issues that prevent use of renewable and advanced energy-efficient technologies that are available today.

The CEC’s recent report to the Governor’s Green Action Team entitled “AB 2160 Green Building Report” (January 2008), provides an excellent list of the major obstacles. From our perspective, the most important of those cited in the report, and echoed in recent workshops we have held with the development community, include:

1. The generally held perception that building green won’t produce a return on the capital investment for the developer/builder. This barrier entails corollary concerns relating to:

- a. The uncertainty of the additional/first costs to design an energy-efficient product, to purchase and install the energy-saving equipment and materials and the related construction process, permitting and inspection costs;
 - b. The perception that there is an insufficient demand for such a product among property buyers and tenants. Specifically, the perception that buyers and tenants aren't willing to pay more to own or rent energy-efficient properties;
 - c. The fear that these first costs will further reduce already narrowing profit margins, particularly in the current market, and further narrow the size of the market able to afford the more expensive, energy-efficient product;
 - d. The investment time horizons that most developers operate on are shorter than the payback periods for most energy-efficient features and thus not worth the investment.
2. The dilemma of *split incentives* where developers don't build energy-efficient features into homes because their benefits accrue to homebuyers over time and most of those homebuyers are unwilling to pay the necessary premiums to the developer/builder for the added value. An analogous situation exists with leased commercial space where building owners have little incentive to include energy-efficient features because the benefits accrue to the tenants and most of them aren't willing to pay premium rents to the owner for that additional value.
 3. The lack of a compelling business case or value proposition to motivate builders and investors to increase energy efficiency or to build green
 4. Access to capital - investor skepticism about, and perceived risks associated with investment in green development projects.
 5. Additional construction process impacts associated with some green building and equipment features that lengthen the development time cycle, and particularly when local trades and government officials are not familiar with the features.

We suggest that additions be made to the Key 2009-2011 Actions that support economic/finance and real estate market research to address these obstacles and others listed in the barriers assessment for this strategy. Specifically, this research should examine alternative financing mechanisms to both reduce/"buy down" the first costs to the developer/builder and to recover their investment in the remaining costs at the point-of-sale and through lease arrangements over time. A variety of third-party financing mechanisms should be examined. Additionally, the research should investigate partnership structures and mechanisms that can increase the flow of capital to energy-efficient community development projects (e.g., through the reallocation and/or mitigation of risk, and increased incentives).

8. **Residential Sector/Additional Strategies – Pg. 14:** Strategy 6: Coordinate Emerging "Green" or Sustainability Standards. We applaud the IOUs for their strategy to coordinate cities as testing grounds for "beyond code" construction and pilot projects and to build upon their experience to develop and establish a

statewide standard. We also agree with the statement that, at present, there are no agree-upon ways to measure and count savings from projects larger than individual buildings, and that this creates a barrier to funding these “beyond code” developments. However, before agreement can be reached on a standard practice in this regard, there must be an exploration of alternative approaches to measurement.

The CEC is currently funding one such exploratory initiative known as the Chula Vista Research Project (CVRP) that does entail rigorous measurement of energy consumption, peak demand and emissions reductions of design alternative for large scale development projects. Additional projects like this are needed to provide the basis for selecting the most appropriate modeling and measurement protocols to support of this strategy. Toward this end, we strongly endorse the IOUs proposal that in 2009-2011, the CPUC authorize them to pursue pilot projects with local governments and private development companies to advance our understanding of how to optimize the efficiency and emission reductions of community-scale development projects.

Further, we suggest that an action be added to the 2009-2011 cycle that identifies opportunities to align and leverage IOU and CEC support of the research agenda contained in the CEC publication entitled "Sustainable Urban Energy Planning: a Roadmap for Research Funding". This agenda compliments the intent of this particular strategy and provides a prioritization of specific research initiatives that could be considered as eligible pilot projects.

9. **Residential Sector/Additional Strategies – Pg. 16:** Strategy 8: Advance Energy Efficiency Through Local Ordinances. We strongly endorse the IOUs proposed actions to encourage local governments to add energy to their general plans and to revise local planning and zoning ordinances to require DSM integration into multi-family/high-density housing and specifically to allow the use of district heating and cooling systems.
10. **Commercial Sector/Strategies – Pg. 26:** Strategy 2: Align Commercial Building Labels, Benchmarking and Operations & Maintenance Practices to Address Energy Efficiency. We endorse the suggested change of building codes to require and otherwise encourage sub-metering for tenants of commercial buildings. We believe that this will be one means of beginning to addressing the split incentive dilemma outlined earlier in our comments and listed as action 6 in the plan. Given its importance, we propose that it be considered as a near term, rather than a medium term action.
11. **Commercial Sector/Strategies – Pg. 27:** Strategy 3: Target Financing and Incentives to Meet the Objectives of the Strategic Plan. From our standpoint, this is perhaps one of the most important strategies proposed in the entire plan. In fact, we believe that it is as important as any other cross-cutting sector functional area contained in the plan and ought to be reclassified within that category. The proposed Zero/Low-Energy Financing Task Force is precisely what is needed to address the business, economic and market barriers that presently impede progress in achieving building-scale, site-scale and certainly community-scale

energy efficiency. We applaud the IOUs for this proposed strategy and would be pleased to assist them in identifying appropriate candidates for this task force.

In regard to the two municipal finance-related incentives for high-efficiency commercial buildings listed under this strategy, we suggest that they be considered for multiple building complexes and large-scale development sites as well. We also suggest that other municipal incentives be listed under this strategy including:

- a. *Creation of a municipal preferred tax treatment districts for developers and buyers of properties in new development/redevelopment districts designed and built to maximize energy, water and resource efficiency.*
- b. *Development of standardized methodologies for measuring and verifying energy savings, so that these savings can be monetized to generate monetary benefit for developers and builders producing lowcarbon communities and construction projects or to generate credits that they can trade in any state or national cap and trading system that is developed.*
- c. *Utility rate structures that encourage, rather than discourage interconnection of distributed energy technologies into the existing electric utility grid.*
- d. *An expedited planning process, plan check and approval and reduction of related fees for energy-efficient development projects (slight expansion on the first of the incentives listed for this strategy in the plan).*

Local governments can play an important role in aggregating demand and creating value through the bundling of projects to be financed. These potential capabilities to create mechanisms to aggregate and bundle can support local government financing of energy efficiency projects through the issuance of revenue bonds, creation of credits for trading or offset purposes.

12. **Commercial Sector/Strategies – Pg. 28:** Strategy 4: Promote Integrated Design for New Zero Net Energy Commercial Buildings and Renovations of Existing Buildings. We also strongly believe that the importance of this strategy warrants its elevation to, and inclusion in the cross-cutting sector for Workforce Education and Training as it should apply to all of the vertical market sectors listed in the plan.
13. **Roles of Government/Vision – Pg. 102:** We suggest reworking the overriding vision statement to reflect the important role Local Governments can play in influencing constituent energy use and in undertaking resource-efficient community planning, design and development. Similarly, we also suggest adding a fifth support element to the Vision statement that captures the necessary collaboration between local government officials, their utility partners and private developers and builders to co-design energy efficiency and emissions reductions into new large-scale development projects. Consider an elements such as:

Energy-Efficient Community Development. Cities, their utility partners and local development companies collaborate to integrate energy-efficient

and ghg gas reducing technologies and performance-enhancing urban design into all large-scale development and redevelopment projects

Resources guides to aid collaboration of this nature are being produced now by the National Energy Center for Sustainable Communities and San Diego Gas and Electric and will be made available to all 478 incorporated cities and 58 counties in the state by late Fall of 2008.

14. **Roles of Government/Strategies – Pg. 103:** Introductory paragraph. We suggest revising the last sentence in the first paragraph to capture the importance of expanding the energy-efficiency discussion beyond single buildings and to multiple building complexes and large-scale development projects. This is particularly important given the substantially increased energy efficiencies offered by co-locating uses (residential, commercial, institutional, etc.) in mixed-use complexes where combined cooling, heat and power technologies become more cost-effective, and where in larger development projects, district energy systems become economically feasible. Toward this end, that sentence might conclude as: *“...public recognition and procurement of exemplary buildings, multiple building complexes and large-scale development projects, continuously striving for more integrated energy systems design and development.”*

15. **Roles of Government/Strategies – Pg. 103:** Strategy 1: Simplify and Standardize State Policies and Codes Guiding Local Building, Community Design and Zoning Codes. We endorse this strategy and suggest that, like the proposed Zero/Low-Energy Financing Task Force, an Energy-Efficient Community Development (EECD) Task Force be established to pursue the suggested actions under this strategy and for that matter, the others proposed in this section. In addition to the proposed participants listed under this strategy, we'd suggest the proposed EECD Task Force also include The League of California Cities. Ideally, the Task Force would adopt a multiscale perspective to energy-efficiency and emissions reductions where the building, site, district and community-scales are considered in their deliberations.

We also suggest the addition of a fifth implementing action for this strategy that would read:

“Facilitate the direct involvement of local governments in coordinated interagency planning for the energy efficiency portions of AB32 implementation, and establishment of a Climate Action Team for Local Governments”

16. **Roles of Government/Strategies – Pg. 104:** Strategy 2: Build Capacity for Local Governments to Lead by Example. Here, we'd suggest the addition of two cornerstone or important actions. There are:

“Integrate energy in community land-use development and urban design to maximize energy efficiency in the development or redevelopment of public facilities and infrastructure and to promote energy efficiency in private development.”

And...

“Develop incentives, both fiscal and financial, and market-based mechanisms for attracting investment in energy efficient buildings, infrastructure, products and services, in consultation and coordination with state agencies.”

17. **Roles of Government/Strategies – Pg. 104** Strategy 3: Maximize Energy Efficiency in New and Existing Construction through Local Government Policy Here, we suggest adding the phrase “...and *Planning*” to “...*Local Government Policy*” at the end of the title for this strategy. The two are related but distinct functions. Under this strategy there is also a reference to a discussion of whether public goods charge funding might be used to support development or updating of general plan energy elements. We strongly encourage such a discussion and an examination of whether these funds can be used for a variety of other local planning activities that could substantially reduce aggregate community energy consumption and energy-related greenhouse gas emissions.

These might include: collaborative, energy-efficient community design projects among cities, their utility partners and developers; development project performance measurement and energy-savings verification initiatives; generation and refinement of planning and design guidelines for public and private planning practitioners; and a variety of community-scale development and infrastructure technology optimization studies and demonstrations. We believe all are necessary to advance the state-of-the-art and to provide the foundation for the credible evolution of local government policies and strategies considered in this section.

We also strongly endorse the proposed implementation actions and timeframes for this strategy and specifically the establishment of community design, land use and zoning policies promoting smart growth, and the negotiation of energy efficiency into developer agreements on all major projects.

With regard to implementing actions for this strategy, we suggest the modification of action #3 such that it would read as:

“Institute community design, land use and zoning policies and planning to promote energy efficiency, smart growth, and the adoption of sustainable urban energy systems for more effective utilization of energy and water resources, GHG emissions reduction, more effective waste disposal and improved air quality.”

With regard to implementing actions for this strategy, we suggest the modification of action #4, such that it would read as:

“Explore mechanisms that local governments can employ to aggregate energy savings and GHG credits generated by small scale dispersed projects and activities and to bundle financing for projects that have different investment profiles and risks.”

For more information on these comments and suggestions, please contact:

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