

California Energy Commission

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PG&E Comments IEPR Workshop

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PG&E Comments on TDV

PG&E is pleased to have the opportunity to comment on TDV as code metric and is excited about Zero Net Energy; simply put, it fits our longstanding commitment to energy efficiency, renewables and the building codes which support it

PG&E agrees that a clear, singular definition for ZNE under the building code is essential

PG&E supports the use of TDV as the metric to establish energy utilization requirements in code, and, therefore, requirements around ZNE

At the same time, PG&E notes that TDV is an imperfect metric: the CEC should maintain efforts to improve and refine TDV going forward,

- **Especially with respect to power exports to the grid**
- **Especially as code moves closer and closer to ZNE**

ZNE Will Soon be *Technically Feasible*

PG&E believes ZNE will be technically feasible for much of the new construction market by 2020

Under its ZNE Pilot Program in 2010-2012, PG&E commissioned and managed a study entitled “The Technical Feasibility of Zero Net Energy Buildings in California”

- Central finding: yes, ZNE will be technically feasible for much of the newly constructed market
- Although there are technical issues and performance improvements needed in building systems, the most important barriers appear to be non-technical
- http://www.energydataweb.com/cpucFiles/pdaDocs/904/California_ZNE_Technical_Feasibility_Report_Final.pdf

Together with the other IOUs and other stakeholders, PG&E is deeply engaged with the CEC on a measure-based tactical plan to advance the building standards in support of the state’s ZNE goals

ZNE, TDV and Public Understanding

ZNE means different things to different people

PG&E has noted the term “ZNE” is energizing and engaging to many leaders in the building design industry

However, PG&E has observed that TDV is not clearly understood by the lay public

It may be unrealistic to expect such understanding given the arcane technical details embedded within the term

It may be useful and necessary to find simpler and more straightforward ways to communicate the policy objective of ZNE

ZNE, “Zero Bill,” and Cost Shift Issues

PG&E believes that residential buildings with PV systems, including ZNE buildings, impose costs on the utility infrastructure,

- Such costs are not fully captured under current retail rate structures,
- Such costs do not appear to be fully captured under the TDV system

Under current rates, such costs are therefore borne by other customers in the residential class creating a “cost shift” to those customers which do not have PVs (or other renewables)

PG&E cautions strongly against messaging that ZNE be associated with “zero energy bill;” PG&E believes “zero bill” for grid use and access for all newly constructed buildings to be unrealistic and impractical for any utility, public or private

Resolution of these issues will be important for ZNE to succeed “at scale”

Specific Issues with TDV

PG&E reiterates support for TDV under the 2016 code update cycle as the metric for cost effectiveness evaluation, while noting:

- While useful for evaluating efficiency options consistent for power taken from the grid, TDV does not necessarily provide a robust analysis of the costs associated with power delivered to the grid
- As such, TDV remains robust for “ZNE Ready” or “ZNE Capable” evaluations (“no regrets”)
- TDV is less robust for full ZNE buildings which rely on significant export of electricity to the grid: more study in this area is needed

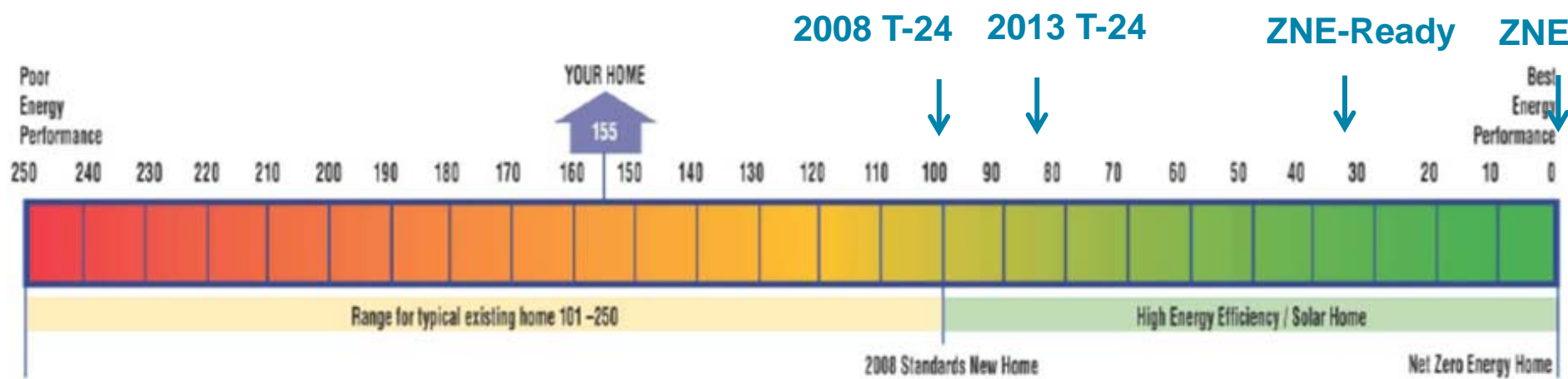
ZNE and ZNE “Capable” Definitions

Zero Net Energy (ZNE)-Capable

- Optimizes Energy Efficiency (EE) and Demand Response (DR) to minimize Distributed Generation (DG) size (however, it excludes installation of DG)
- Equates to design rating of approximately 30-40

ZNE

- Includes photovoltaics to offset remaining loads after energy efficiency
- Does not “zero out” annual bill, so customers will continue to pay for electricity and gas usage and service
- Equates to HERS Rating of 0



Specific Issues with TDV, cont'd

PG&E reiterates support for TDV under the 2016 code update cycle as the metric for cost effectiveness evaluation, while noting:

- TDV is inherently a “moving target:” if substantial peak demand savings are in fact realized through high penetration rates of peak-related efficiency measures as well as PV output, the time-dependency values will necessarily change and shift, complicating communication to the building industry
- The “moving target” issue raises the possibility of stranding assets, as mentioned by a CEC staffer during the May 29, 2013 workshop covering E3’s report on the *Cost Effectiveness Evaluation of Rooftop Solar*

Going forward, it will be important to refine TDV to address these issues

Building-by-Building Scope of the Standards

The current scope of the building standards requires that cost-effectiveness be considered at the individual building level

PG&E believes that significant economic and operational benefits from “district” level solutions for both efficiency and renewables measures are potentially bypassed by this approach, for example:

- District (or neighborhood) ground source heat pumps
- District (or neighborhood) PV systems

.As appropriate, PG&E recommends exploring methods of incorporating the potential benefits of district systems into the building standard process

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THANK YOU!

