TURN Comments to the
Assembly Utilities and Commerce Committee
Hearing "Energy Efficiency – Measuring for Success:
Coordination, Collaboration, and Transparency"
March 6, 2013

I. Introduction

TURN appreciates this opportunity to discuss how California can achieve greater levels of energy efficiency to ensure that the state's energy efficiency goals will be met.

As the state's first loading order resource, energy efficiency is important to: (1) achieving AB 32 GHG emission reduction targets, (2) relieving transmission and distribution constrained regions, (3) reducing peak demand, and (4) lowering costs for utility ratepayers by avoiding the need for more expensive investments in electricity generation and distribution and transmission infrastructure.

TURN's testimony discusses progress towards these goals, and how California can build on its current accomplishments to achieve the necessary and possible greater levels of energy efficiency.

II. Energy Efficiency Goal 1: Achieving AB 32 GHG Emission Reduction Targets

For 40 years, California has sought to reduce energy consumption and conserve energy resources by influencing how utility consumers use energy. In 1974, the Legislature enacted the Warren-Alquist Act to reduce "wasteful, uneconomical, and unnecessary use of energy." More recently in 2006, the Legislature upped the ante in AB 32, issuing an environmental imperative to reduce the state's GHG emissions by 2020 to 1990 levels, in part through absolute reductions in electricity consumption.

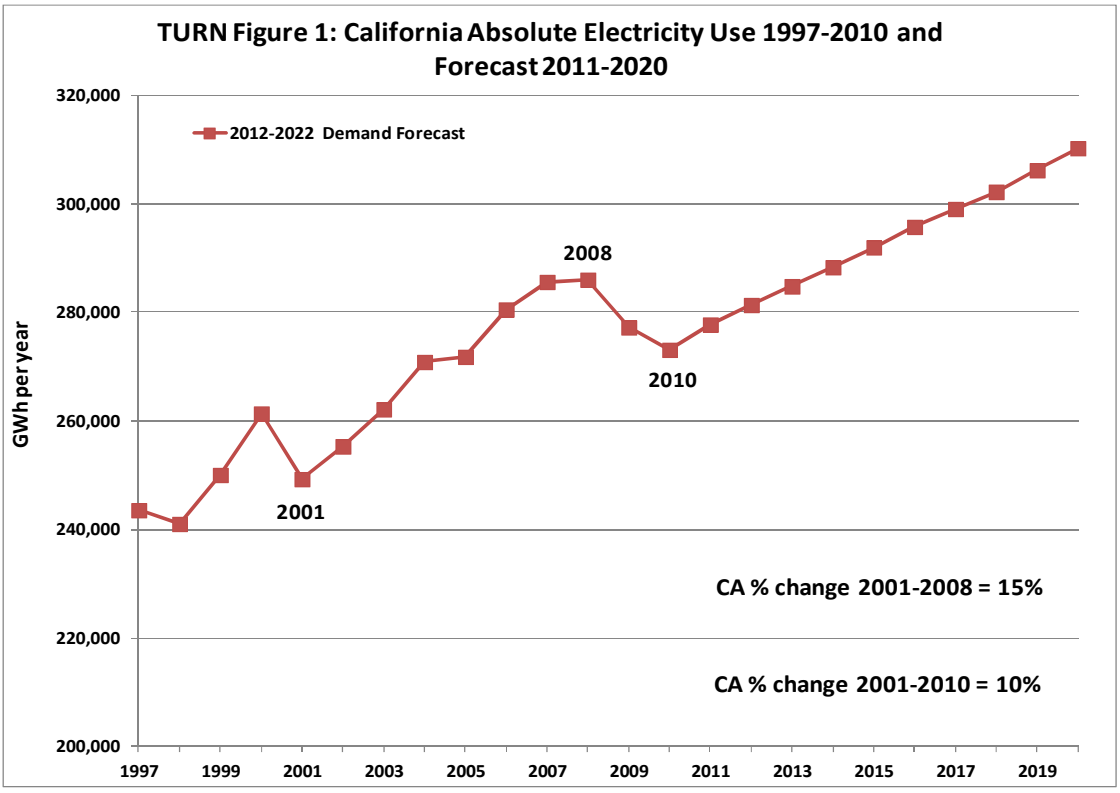
The 2008 Update to the Energy Action Plan adopted by the California Energy Commission and the California Public Utilities Commission found that: p. 6, "The most important tool for addressing greenhouse gas emissions in the energy sector is energy efficiency." … "Meeting our AB 32 goals will require, under any scenario, unprecedented levels of energy efficiency investment." … (p. 8) "It will simply not be enough to be more efficient with energy use. We actually need to reduce overall energy use."

The California Air Resources Board's AB 32 2008 Scoping Document assigned about 10% of the total GHG reduction target to the electric utility energy efficiency, and did so by converting the energy efficiency GHG reduction targets to gigawatthour energy reduction targets for a ten year period, 2010-2020, for a total target of 32,000 GWh or 3,200 GWh annually.[1]

A key measure of success in meeting the state's AB 32 electric energy efficiency goal is California's electricity consumption – recent historic and forecasted.

TURN Figures 1 & 2 show California's absolute and per capita electricity consumption from 1997 through 2010. Per Figure 1, the state's absolute electricity use increased by 10% from 2001-2010. Up to the 2008 recession, absolute total electricity use increased 15% from 2001-2008. Per Figure 2, per capita electricity use increased by 3% from 2002-2010, and up to the recession had increased 9% from 2001-2010.

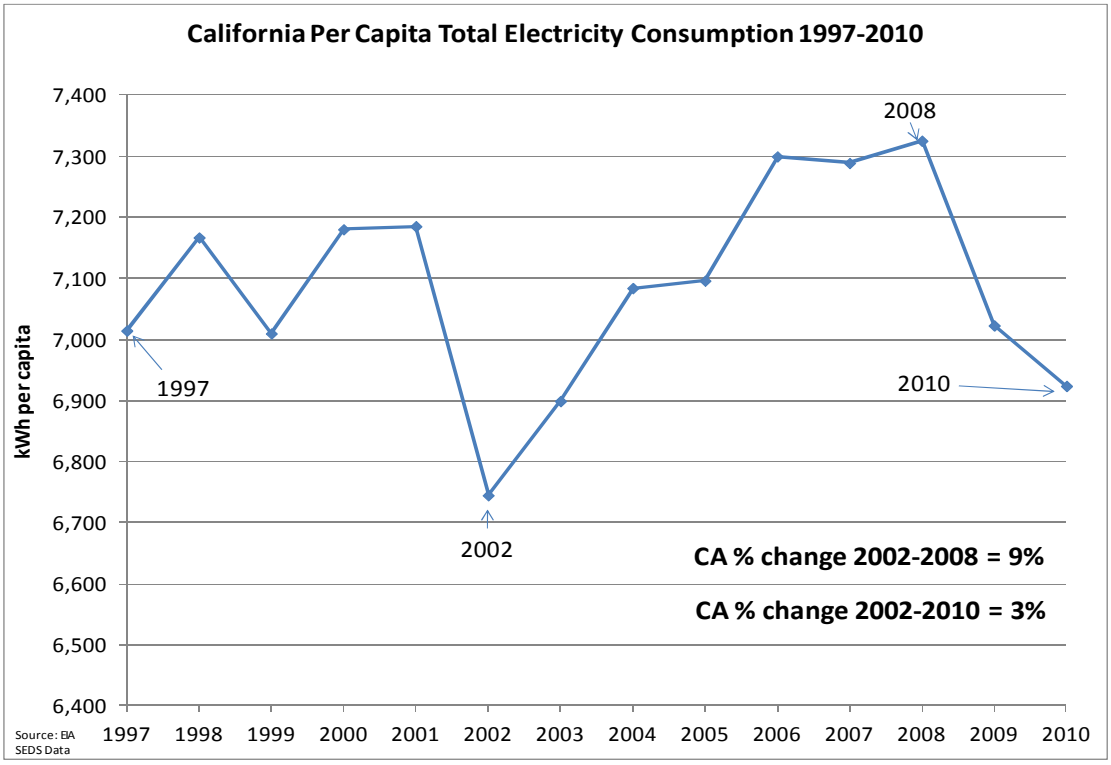
TURN Figure 1 also shows the Energy Commission's 2011 forecast of state electricity energy requirements from 2010 – 2020.[2] What is interesting here is the steady upward trend in energy use, with brief declines associated with the 2001 energy crisis and the 2008 recession.



[1] Climate Change Scoping Plan: a framework for change, CARB, December 2008, table 7, page 44: http://www.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf

[2] Note that the forecasted data through 2020 also includes utility energy efficiency savings prior to 2010 that carry forward for a number of years depending on "the life" of the energy efficiency "measure". Utility energy efficiency program savings 2010- 2020 are not included in the forecast projection.

TURN Figure 2: Per Capita Total Electricity Use in California: 1997-2010



Bottom Line: Are we certain that California is achieving the energy efficiency results needed to meet the state's climate goals?

No – We have a solid foundation in place, but we need to ramp up energy efficiency to achieve the results needed to meet California's climate goals. We have to move beyond reducing incremental load growth and bring the load curve down.

Precisely analyzing savings from utility energy efficiency programs relative to the AB 32 reduction targets is a complicated matter deserving thoughtful and detailed analysis of existing data in a comprehensive way. Yet TURN's preliminary analysis suggests that 2010-2014 energy efficiency savings are likely short of AB 32's electricity energy efficiency target. We anticipate that savings from 2010-2014 will provide somewhere between 50% and 75% of necessary energy savings. Thus, if California is to meet its AB 32 electricity energy efficiency target by 2020, the state will need to (1) play some catch-up for 2010-2014, and (2) set and achieve more expansive goals for 2015-2020.

<u>And, importantly, because the AB 32 GHG reductions are "forever", our energy efficiency savings must translate into consumption reductions that last decade(s) into the future</u>.

II. Energy Efficiency Goals 2 & 3: Relieving Transmission and Distribution Constrained Regions, and Reducing Peak Demand.

TURN appreciates that the Senate and Assembly Committees are investigating how the state can more readily use energy efficiency to relieve transmission- and distribution-constrained local areas. Energy efficiency must be deployed strategically (in addition to statewide) to avoid the need for new generation and/or distribution & transmission infrastructure in particular locations where such development might otherwise be needed. We commend the CPUC, CEC, and CAISO's February 25th responsive letter to the Senate Committee in which the three entities discuss a number of critical actions and activities underway and planned to address these matters.

TURN highlights the importance of reducing peak demand as one of the cornerstones of this effort. The Energy Commission's most recent demand forecast indicates that system-wide megawatt demand will continue to increase at a rate greater than overall gigwatthour energy requirements. Generally speaking, this contributes to the need for more power plants, stresses the transmission and distribution systems, and contributes to local constrained areas.

One of the Big/Bold Strategies adopted by the Public Utilities Commission in its 2007 Long Term Energy Efficiency Strategic Plan is to "reshape residential and small commercial air conditioning to ensure optimal equipment performance." This initiative targets a 50 percent improvement in efficiency in the air conditioning sector by 2020, and a 75 % improvement by 2030. As the CPUC explained:

> "The rapid growth in air conditioning in California's commercial buildings and homes has made it one of the state's largest energy consuming end uses and the single largest contributor to peak demand—and a leading opportunity to improve energy efficiency and reduce peak power demand.
>
> In 1976, 25 percent of new California homes had central air conditioning. Today, it is 95 percent: new home size has increased by more than 50 percent and new homes are concentrated in hot inland communities. These increases have resulted in a greater than seven-fold increase in the electricity capacity to meet this load.
>
> By 2006, peak demand for residential air conditioning units was 14,316 MW. When small commercial air conditioning is added to the residential share, air conditioning loads cause over 30 percent of California's total peak power demand in the summer—with an enormous and costly impact on the need for generation, transmission, and distribution resources and a concurrent lowering of utility load factors."

<u>A key measure of success in relieving transmission- and distribution- constrained regions and reducing peak demand, is the trend in residential and commercial air conditioning savings.</u>

TURN's analysis reflects that from 2006-2014, residential and commercial air conditioning savings were (or are projected to be) less than 500 MW total, with the annual savings decreasing over time. This works out to saving less than 4% of the estimated 30% peak demand attributable to residential and commercial air conditioning.[3]

Bottom Line: Are we certain that California is achieving the energy efficiency results needed to relieve transmission- and distribution- constrained local areas and reduce peak demand?

Not currently. Without significant reductions in air conditioning load, we are missing a critical cornerstone of this effort.

III. Recommendations on how California can Achieve the Necessary and Possible Greater Levels of Energy Efficiency

1. Adopt more expansive energy efficiency goals that are directly correlated to AB 32 electric and natural gas consumption reduction targets.

    - Because AB 32 GHG reductions are "forever", our energy efficiency savings must translate into consumption reductions that last for decade(s) into the future.

2. The CPUC's guidance for the next Energy Efficiency portfolio cycle (2015-) should explicitly take into account capacity constrained regions and better comport with projected location-specific future resource needs.

    - This includes regional targeting of "whole house / whole building" energy efficiency retrofits with attention to reducing air conditioning load. For starters, California could significantly increase the cycling of air conditioning units.[4] The most cost-effective strategy for addressing residential air conditioning load may well involve an approach that integrates demand response ("AC cycling") and energy efficiency (improved efficiency of equipment and its operation).

3. Support energy efficiency competitive procurement with new and promising ways of financing.

    - As noted in the CPUC-CEC-CAISO letter to the Senate Committee, the CPUC is taking steps toward requiring the utilities to procure energy efficiency resources as part of all-source procurement. In order to get much deeper, comprehensive,

[3] 30% of the 60,000 MW statewide peak demand 2011 is 18,000 MW, with about 12,000 MW or 65% attributed to the electric investor-owned utilities.

[4] Refers to radio-dispatch technology that cycles air conditioning units off for a few minutes every hour for a few hours during peak demand.

and longer-lived energy efficiency savings out of homes and businesses, California needs a "new tool in the tool box". We need to explore a transaction structure similar to supply side procurement purchased power agreements (PPAs) -- in effect "Energy Efficiency PPAs" -- where deeper, more comprehensive energy efficiency savings could be more creatively financed over longer periods of time.

4. Establish a public information system on energy efficiency expenditures and results that is timely and location-specific.

    - This would assist with supply side planning AND add transparency to the regional distribution of energy efficiency ratepayer benefits. The location and timing of energy efficiency should be tracked on an as acquired and forecasted basis, to the extent practicable. Having more granular and sophisticated data about energy efficiency will help to make efficiency fit better in the supply side resource and infrastructure planning frameworks.

5. Last but not least, the answer is not to just spend more money. We must have quality assurance mechanisms in place to protect ratepayers and ensure that the intended results are delivered.