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IEPR Commissioner Workshop on 2030 Efficiency Goals

Monday July 6, 2015

Panel: Code and Existing Buildings

Cynthia Mitchell, TURN consultant

Thank you for including me in this room full of intelligence, good intention, hard working and dedicated individuals. Last month marked 41 years as a utility consumer advocate and energy economist; with the past 15 years as TURN's efficiency expert. I am here today with GOOD NEWS!! There is plenty of ECONOMIC efficiency in CA, ready to harvest. AND, I don't think it's all that hard to do. So keep your summer vacations, eat healthy, exercise, get good sleep, and love you family and friends.

Slide 2.

CA's cost effectiveness methodologies are not the limiting factor in the scale and pace needed to reach California's climate goals.

The TRICK is to go beyond relying on consumers for voluntary efficiency uptake with their own capital.

Finance efficiency like an energy infrastructure investment akin to G,T, D; and the solar, ES, EV.

This is essentially what my November 2014 Electricity Policy Article "A New Energy Efficiency Manifesto for California" is about.

More recently, Jeanne Clinton's March 26th talk **How to Make Energy Efficiency More Like Solar or Power Purchase Agreements**, part of the CPUC Leadership Thought Forum

Slide 3.

And here's all that efficiency I spoke of, illustrated in this figure from the CPUC's Potentials Forecast. The top set of data is what is ECONOMIC; the lower is what is CA is forecasted to achieve.

The orders of magnitude difference here is shocking. Economic = +/- 35,000 GWhs; Achievable +/- 2,000 GWhs now, maybe upwards of 15,000 GWhs ten years out.

Puzzle: what is the difference here? Clue: it's not the cost effectiveness methodology. Both "Economic" and "Achieveable" are based on 20 year long run avoided cost. **Again, both are based on 20 year long run avoided cost.**

"Economic" assumes efficiency is financed like an energy infrastructure investment: large capital markets, 20+ years

"Achievable" relies on **consumers for voluntary efficiency uptake with their own capital**.

The fly in the ointment is the assumption is that consumers are willing and able to make efficiency capital investments based on 20 year paybacks.

The landmark 2009 McKinsey Group report documented that consumers have very short payback requirements – 18 months to upwards of 4 years.

What are we getting from "Achievable"?

- Largely "low hanging fruit" compact and linear florescent lamps
- One-third savings from C&S assuming high compliance rates: ie. paper savings
- At best, marginal cost-effectiveness.
- Complex and convoluted Rube Goldberg construct: 200+ programs

Back to the Good News: Economic generally matches with the carbon reductions needed from the electric sector efficiency per AB 32 and the Air Resources Board. We're in the money here folks!

Slides 4 and 5. **Let's be clear about the long term trend** in CA electricity consumption: 40 years of CA Absolute and Per Capita Consumption Data

- The long term trend is increasing absolute and per capita consumption, with brief downturns from recessions
- Recessions are not a good way to manage carbon

Slides 7 & 8: New Transaction Structures

- Finance efficiency like an energy infrastructure investment
- Meter efficiency and pay for savings as delivered; turn efficiency into a cash flow which can then be financed.
- We need to test efficiency bundled with other DERs to achieve site specific (homes and business) savings 25 - 40%. See for instance TURN and NRDC proposed pay for performance pilots CPUC efficiency and iDSM proceedings.
- Use dynamic baselines (counterfactual consumption and load algorithms) and smart meter data to create a transparent and real time accounting for savings

Slide 9: Duck Curve. Look at the need for efficiency bundled with other distributed resources via the Duck's neck, which reflects large run-ups in late afternoon evening space cooling loads.

Simply "feeding the duck's neck" via storaged solar surplus, without turning down space cooling load "grid heat" will perpetuate overbuilt distribution systems and inefficient distributed resource-asset utilization.

Know that commercial and residential 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 distribution infrastructure.

Slide. 11. Eggs in Basket

As a small time chicken farmer I leave you with this: While it works for chickens to do the same thing every day, the status quo will not get CA the efficiency at that scale required. I ask the people in power in this room today to step up and take bold decisive actions. Allow for experimentation with new transaction structures, rewarding both successes and failures; only inaction should be penalized.