GeoPraxis
www.GeoPraxis.com

IDEAS *with* ENERGY

393 W. NAPA STREET • P.O. BOX 5 • SONOMA CALIFORNIA 95476 • USA

DOCKET
11-IEP-1N
DATE May 20 2011
RECD. May 20 2011

May 20, 2011

California Energy Commission
Dockets Office
Re: Docket No. 07-SB-1
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512

RE: Docket 11-IEP-1N: Comments on PIER Program Benefits Assessment

Dear Esteemed Energy Commission Staff,

Thank you for organizing yesterday's impressive and most stimulating session on how to improve our assessment of the PIER program's benefits. I have a few further thoughts I'd like to explore here in writing. I would welcome a follow-up conversation as well if you think that might be useful.

Please don't misunderstand my comments as carrying with them any tone of criticism. Like so many of us that have dedicated our careers to working in this area, I get passionate about the challenges we have in front of us. I'm afraid that sometimes, in my eagerness to speak plainly, I may come across sounding harsh. I assure you that is certainly never my intent.

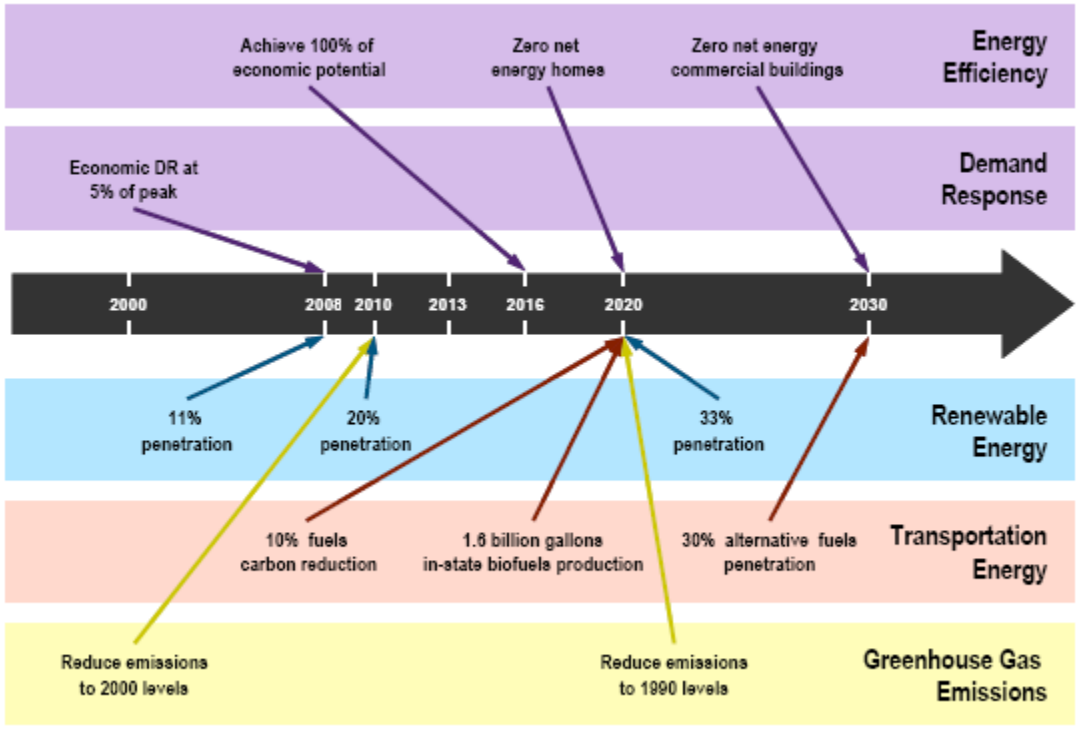
CEC's proposed approach (20_Proposed_PIER_Benefits_Approach.pdf) seems to remain focused primarily at the contract-level. Though it is obviously important to track contract performance relative to pre-determined key performance indicators (KPIs), to make this CEC's sole or even primary approach is akin to placing our interest for the trees ahead of the forest. For a mission-critical statewide RD&D program with national -- indeed international -- impacts, I think we owe ourselves a somewhat more comprehensive evaluation program. We need to do a better job of tracking the broad trends in emerging technologies and evolving behavioral practices in general, so we can better measure our performance toward achieving the ambitious policy goals we have in front of us.

I believe that right now the CEC has an opportunity to enhance its portfolio-level strategic planning process and should begin to take steps to contextualize all of PIER's RD&D benefits assessment activities within a multi-year evaluation system that is integrated with the PIER planning and IEPR processes. Such a plan would comprise all PIER program areas, programs, projects, and contracts.

Toward this end, I would recommend something along the following lines:

- Establish a manageable -- and thus limited -- number of priority market transformation policy goals, organized within a small set of broad thematic categories (e.g., the five "policy goal" bands depicted along the timeline in Figure 4 of the PIER 2010 Annual Report).

Figure 4: California Energy Policy Goals



Source: California Energy Commission

I would recommend subsuming evaluation of CEC's existing "Program Areas" within these new thematic categories, because certain more general/basic research projects (e.g., some "Energy-Related Environmental Research") may be capable of producing impacts across more than one thematic area.

- Review CEC and other relevant strategic planning documents (e.g., CPUC's Long Term Strategic Plan and evaluations, utility Program Performance Metric filings, R&D evaluation plans from DOE, NYSERDA, NEEA and others)

- Develop high-level R&D roadmaps or logic models that identify all major existing market barriers and map out logical strategies for achieving each major policy goal (thus justifying targetted RD&D investment in each thematic area). You probably already have this in some form or another, but it would need to be formally integrated into some kind of "portfolio impact assessment plan".

- Next, attempt to identify the most relevant market-level or system-level KPI's in each thematic area and forecast the total quantitative benefits (technical/economic/achievable) that would result from achieving each of these high level goals.
    - This would set a theoretical maximum on each of these KPI's, enabling future claims of technology-specific or project-specific impacts to be framed within this broader market-level context)

- Finally, revisit the portfolio plan periodically (every 3 - 5 years?) to verify and/or adjust the forecasts, and to add new goals.

2. Once you've established such a broad contextualizing benefit planning process, each RD&D contract would be required to propose and negotiate its own program-level or project-level KPI's with the CEC.

- CEC would require each contractor to reference these policy-level KPI's, and thus justify their ex ante benefit claims within this pre-established context.

- Contractors would be welcome to argue with the pre-set KPI's and suggest alternate KPI metrics or even whole new frameworks, which subsequently could be taken into account (during the next portfolio KPI planning cycle).

3. To illustrate how this might work in practice, let's hypothesize one possible scenario:

- Within the "Demand Response" thematic area, PIER analysts review the potential studies and set a policy goal to invest in Demand Response R&D. They base this decision on an estimate that the maximum technical peak demand reduction potential in the C/I sector in California is, let's assume, 500MW. We also assume that the transaction cost barriers associated with the current means of implementing DR are significant, and that new hardware and software will need to be invented -- and adopted -- before the full technical potential can be realized. We therefore assume that only 50% of this total potential is achievable by the end of 2011 (250MW).

- Subsequently, Contractor A proposes to develop a proprietary non-automatic DR solution and estimates it will reduce demand by 6% when installed at an appropriate facility. Their contract sets a KPI goal of 200 installations at this average rate of savings by the end of 2011, and thus 20 MW.

- Contractor B proposes to use another third-party's proprietary automated DR (ADR) hardware, and to develop an open source interoperability schema, "OpenADR". They estimate their packaged solution will reduce demand by 24% when installed. Their contract sets a KPI goal of 200 installations by the end of 2011, and thus 80 MW.

- PIER realizes that because both of these contracts target the same portfolio goal, they can be evaluated together (for its inherent cost efficiency AND to yield a superior understanding of the full range of market impacts). CEC hires an evaluation contractor and this market-level evaluation begins by using secondary sources (e.g., IOU Demand Response program filings) to determine that the total DR impact claimed by the utilities by the end of 2011 is 200MW.

- Subsequent primary evaluation data collection (or just data mining if the original projects were sufficiently well documented) determines that Contractor A's per site estimate was accurate, but that they met only 50% of their installation goal. Therefore this PIER-funded technology delivered 10MW of their original estimate and thus was a contributing factor in only 5% of the 200MW statewide total).

- Contractor B installed their ADR solution at 400 sites (exceeding their installation goal by 200%), but their average per site estimate was only 12%, resulting in a total impact equal to their original 80MW estimate (but still contributing directly to only 40% of the statewide total).

- Finally the evaluation discovers that the remaining 110MW of DR savings claimed by the utilities was due to a third market player that was not funded directly by PIER, but which used the openADR protocol in their own proprietary solution. Thus the PIER-funded technology was directly responsible for only 90MW but was found to be an enabling factor in 100% of the total savings.

- Although this example is grossly oversimplified, it illustrates that by tracking the most important high-level market indicators, and then analyzing more granular project-level (or product-level) penetration and/or performance data we could begin to explain and justify some of the PIER program's broader impacts. As I hope this case illustrates, it could be very useful to begin to contextualize actual site-specific ex post estimates (e.g., claims contained in the utility DR program evaluations) within CEC-validated technical potential studies (e.g., estimates for DR technology impacts in general).

I hope this input is helpful and not too naïve of the systems you already have in place. And please forgive me if I have overlooked anything important... it has been quite some time since I participated in a PIER-funded project or conducted a formal impact/process evaluation. Again, I would be happy to discuss this further at your convenience.

Sincerely,

GeoPraxis, Inc., a California corporation

By:  Digitally signed by Thomas P. Conlon
Date: 2011.05.20 17:27:23 -07'00'

Thomas P. Conlon, President