ENERGY SOLUTIONS

October 2, 2012

California Energy Commission
Dockets Office, MS-4
Re: Docket No. 12-EPIC-01
1516 Ninth Street
Sacramento, CA 95814-5512

By email: docket@energy.ca.gov

Dear Energy Commission,

Energy Solutions appreciates this opportunity to comment on the Draft First Triennial EPIC Plan. Energy Solutions is an energy program implementation consultant headquartered, in Oakland CA, with offices in Long Beach CA. Energy Solutions' mission is to create large-scale environmental benefits for our clients by implementing market-based solutions and developing policies that contribute to these goals. Our 80 person staff provides technical and implementation support for energy efficiency, demand response, and renewable programs administered by our clients, including California IOU and municipal utilities and the California Energy Commission (CEC).

The design and implementation of early commercialization programs is one of our specialties. On behalf of the CEC, Energy Solutions recently, successfully completed a $6.7 million ARRA funded program called Energy Technology Assistance Program (ETAP), which focused on technology demonstration and deployment for advanced lighting and HVAC controls (http://energy-solution.com/etap). We also recently worked with EPRI to develop standardized approaches to help utilities across the country develop coordinated early commercialization programs for new energy efficiency technologies. Additionally, we have conducted a number of emerging technology studies and field demonstrations for utilities on the West Coast.

We support the direction that the CPUC, CEC, and the IOUs are taking in terms of including more emphasis on "technology demonstration and deployment" as evidenced in Decision 12-05-037 in Rulemaking 11-10-003 and the CEC's First Triennial Plan for EPIC. The "commercialization chasm" has been getting more attention in the last few years, but we feel still more focus is justified. Significant--but not so visible--barriers constrain the mass commercialization of worthy emerging technologies, including some of those focused on in recent PIER and IOU Emerging Technology programs. In the past, many have assumed that a definitively successful emerging technology program result would be followed shortly by successful transition into IOU program portfolios as a matter of course. As suggested by the discussion in Chapter 4 Technology Demonstration and Discussion, that is often not the case in practice. A great deal more programmatic emphasis on this transition challenge is required for some new products, even when they are past the "pre-commercialization" stage.

In these comments, we address CEC's question "7) Other Comments". Based on our experience implementing energy efficiency technology deployment programs, we have identified several considerations that we hope the CEC will keep in mind as it develops specifications and requirements for its Technology Demonstration and Deployment projects.

While demonstrating real world performance is a critical aspect of the technology deployments, addressing unique market considerations for these projects should not be undervalued. The following observations stand out from our experience:

- Due to the complexity of the product as well as the level of supply channel sophistication and information in the market place, some products require a more significant level of early commercialization support before they can transition from the traditional Emerging Technology Program support phase to the full commercialization phase where utility core programs tend to integrate the product successfully.
- Even products that are technically "on the shelf" (i.e., past the "pre-commercialization" stage already) often require significant strategic scale-up support…support that is rarely offered through mass market utility programs. The level of need for this scale-up support is very product specific; higher rebates and more targeted technical support are, however, often essential.
- The specific barriers and challenges actually faced by different emerging technologies as they approach the early commercialization phase are unique to each product type as determined by their technical characteristics.
- Manufacturers that are motivated and positioned to pursue increased market share for their new products are critical stakeholders. They may be willing to tweak products in response to feedback from program participants as part of the technology deployment project. This "real time" design modification helps ensure more successful outcomes with these very early adopters, generating more positive initial case studies that can be used to further promote the measure in the market.
- In working for EPRI on their recent *Coordinated Early Deployments of Efficient End-Use Technologies, Phase 1 Final Report* where we assessed supply chain issues for early commercialization technologies, including variable refrigerant flow (VRFs) HVAC, LED street lights, and heat pump water heaters, we found it is critical to assess the supply chain separately for each addressed technology to make sure the right intervention point in the supply chain is selected for the initiative.
- Generally, "key opinion leader" type companies and organizations make for effective Technology Deployment program participants as others are apt to follow their lead.

One of our concerns with the CEC's Draft Plan is that it isn't clear to us what point along the commercialization curve is too "late" for the CEC to be involved and when instead it will be left for the IOUs Technology Demonstration and Deployment efforts. It is clear, however, that the CEC proposes to coordinate with the IOUs around these situations. Please consider the following observations as you work out these boundary issues.

- Even if there are in fact IOU incentives and rebates available for a given emerging technology, that is not a reliable indicator for whether the current IOU portfolio is specifically supporting such technology. If the applicable incentive isn't actually specifically targeted to the commercialized emerging technology, the utility rebate may be ineffective or slow at expanding the market. Even where a targeted utility rebate exists, often individualized technical support from the CEC or utility program is required to ensure early commercialization success. For example, the existence of an efficient water heater rebate that promotes water heaters a few Energy Factor points above code, while a good thing in and of itself, is inadequate to promote heat pump water heaters,

which are "new", twice as efficient as the qualifying threshold, cost a lot more, and have other technical challenges.

- Picking the type of technology deployment program participants is a key aspect of successful technology deployment program. For example, we've found in the CEC ETAP program that local governments can be excellent target participants for certain types of emergent efficiency measures.[1] CEC's success with universities supports this, as well. Optimal target market segments will vary by product.
- There is regulatory tension for IOUs pursuing early commercialization programs because these programs often have lower benefit to cost ratios than mainstream utility programs and fall short of cost-effectiveness metrics to which the IOUs are held on a portfolio basis by the CPUC. Yet, by transitioning the product, much larger, more cost-effective savings can be achieved down the road, especially when code readiness is included in the analysis. Certainly, in many cases, the long term value of the measure justifies the initial deployment program's lower cost effectiveness. Regulatory pressures may, therefore, be a consideration in determining which entity executes a program.
- On the other hand, technology deployment programs can certainly generate significant savings; they should not be viewed as non-resource programs. For example, the above mentioned, CEC funded ETAP program's energy efficiency retrofit projects are expected to save over 23,000,000 kWh and over 800,000 therms annually in 60 California cities, counties, and public colleges and universities. Thus, technology deployments are their own class of programs that must be treated uniquely in terms of portfolio requirements.

Thank you for your consideration of these comments.

Sincerely,

Ted Pope

Ted Pope
Vice President

[1] With a directive to serve the long-term interests of the public, government agencies typically tolerate longer payback periods than businesses do, making them good fits for new technologies whose costs of production have not yet been optimized. Moreover, elected officials' interest in demonstrating leadership in both environmental stewardship and workforce development make them natural allies of innovative energy efficiency programs and technologies.

1610 Harrison Street, Oakland, California 94612 Phone:510.482.4420 Fax:510.482.4421