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HVAC Workshop What are our next steps?

Additional submitted attachment is included below.

Subject: CEC Workshop Regarding Direction of Heating Ventilation and Air Conditioning (HVAC)

I would like to thank the CEC for holding an open HVAC workshop on Dec 21, 2017. It was very obvious that the CEC is open to taking a leadership role in the emerging hyper efficient energy markets that will be the future of California. The development and testing that the CEC has been promoting has been a valuable first step in the direction that the State must take in the efforts to reach the very ambitious goals that have been established by the State of California. It is a further testament to the CEC that there appears to be an effort to listen to the industry and actors who will be necessary to the next steps to success. The next step is quite possibly the most difficult and critical to the successful push of technology and energy efficiency strategy that can be experienced.

I was asked to record some of my experiences and submit them and I would gladly do this however it is far easier to review what happens in the course of a normal progression of trying to get hyper-efficient equipment and systems delivered to the end-use customer. This may seem new to some and will also be redundant to others but first let's define the conditions:

- The project will be within a IOU territory, will be eligible for rebates or incentives, will be in an existing building and perfect for retro-fit, and we will be retro-fitting their HVAC system with a new hyper-efficient system.
- The project will be in an inland California region where the temperatures routinely exceed 100 degrees and cooling is required for more than 1,500 cooling hours (not uncommon for inland California).
- Since this is a new and emerging technology it **must** be accomplished within the IOU Incentives program. Just as with all new and emerging technologies they do not have any Deemed Programs (LED Lighting, VFD (Variable Frequency Drives, ect).
- As with virtually all new and emerging technologies and systems, they are more expensive at first and as the market adopts them the cost comes down and thus the reason for incentives and deemed rebates.

This is how a new project often progresses.

The end use customer has seen the new system and contacts the vendor to discuss the technology and the applicability of this new and exciting energy efficient system for their application. It is February and the summer cooling season is approaching and the customer wants to see if they can install as soon as possible. The customer is aware of the additional cost and is also aware of IOU incentive programs and will only install with

the help of incentives to assist with the incremental cost. The vendor is very willing to assist the customer and the process begins.

The vendor quickly informs the end-use customer that they must first contact their IOU Rep before taking any other action. The end-use customer has no idea who their IOU Rep is and indeed, most customers do not have an IOU Rep unless they are very large customers of IOU's. The vendor then directs the customer through the process of finding an IOU Rep. After the IOU Rep has been contacted they will schedule a visit to the site to determine if a project is viable at this site. Here we have reached our first stumbling block; according to the Incentives Program, the CPUC, and the Energy Division (ED) the customer cannot do any preliminary work on the project as that would invalidate the ability of the IOU Rep to have successful influence on the development of the project. And the clock is ticking.

The customer waits the 3-6 weeks that it takes for the IOU Rep to come out to their site and do the pre-project review during which the IOU Rep may or may not allow the customer to have the vendor on site and taking notes. Immediately after this pre-project site meeting and if the vendor is participating the IOU Rep will ask for energy reductions information, these could not be accomplished until after this first visit and the Rep is normally agitated that this has not been accomplished even though it could not have been completed prior to this meeting. The clock is ticking and the customer has not yet been informed by the IOU Rep that they have a viable project and that they can begin working on the project. It is April and the clock is ticking, and it is already starting to get warm in the Valley!

It is another 3 to 6 weeks later and the IOU Rep has informed the customer that it does indeed look like there **may** be a viable project at the customer's site and that they can now begin the process of developing a project at their site. The IOU Rep also informs the customer that this is not approved at this time and that they will proceed at their own risk. At this point if the project is started in any manner, the IOU will inform the customer that the project has now become null and void as any starting work is prior to the project approval. In the case of long lead item ordering/purchases, products can not be ordered, this is devastating and will be another cause for making the project null and void.

The project now moves forward to the most difficult barrier, the Energy Division.

The Energy Division (ED) will now perform its own review of the project. This is difficult because the ED both dislikes all IOU Reps and are very distrustful of any project put forth. The relationship between the ED and the IOU is poor at best and the ED views any project as an IOU project and not a customer that pays PPP (Public Purpose Programs) charges project. This is a critical condition as the ED seems to take the

position that they are required to reject and eliminate as many projects as possible and the ED seems to have its own opinion on what technologies are effective for energy efficiency. To make project completions more unlikely the IOU Reps are actually fearful of presenting any project to the ED for fear of rejection and reprisal. This review can last from 3- 6 months and there is little to no information that is received by the customer from this part of the process.

The ED views that any parallel project activity prior to project approval disqualifies the project incentive as their position is that if the customer could go forward, they did not need the incentive. This is bad position to take as most customers have it in their DNA that the IOU's will provide some financial assistance if the project is well based and saves energy. This is due to the 35+ years of incentive good will built by the IOU's. The ED has completely discounted this history.

There is a customer oriented adage that says that good customer service tries to find a way to say yes. This does not seem to be a part of the ED's culture. They are quick to say "no".

Once all of this is completed, and hopefully approved, the customer will receive a project approval from the IOU Rep that they may proceed and that the retro-fit is awarded \$ XXX providing that they pass all specific requirements of the contract. As you can see this entire process is time consuming and exhaustive for the customer and the vendor. The additional time is a very difficult barrier to overcome and the incentive has been reduced to a fraction of what was originally forecast, if it was awarded at all.

Most of time the customer will just say forget it and install the most convenient product possible rather than wade through all the difficulties of installing the new emerging technology and who would blame them? By the way the clock continued to run and this most likely killed the project as well!

This is how a new emerging technology project often dies!!

So one of the take-aways from this is that the CEC may be counting on the IOU Incentive program to assist in the push to drive these opportunities out to the market and in actuality this may instead be a barrier to emerging markets, depending on the opinion of the ED on the particular technology and the available data to proof the system.

This brings us to the question of how much of a dynamic change the CEC will be a leader for? Just the opportunity to have the CEC post an open ear for industry and trade professionals to sit at or near a table and bring the very extensive and cutting edge technology to the for-front is an exciting change in process. The markets that are trying to answer the call for adapting and addressing the challenges of reducing the

GHG issues along with pushing new emerging technologies and reaching the aggressive goals for 2030 are clamoring for an open opportunity to progress. To date the CEC has done a fantastic job of creating and testing new and exciting technologies that can present tremendous advantages in energy efficiency. Now the question is how the CEC will move these new innovations out of the test laboratory where they only benefit a few lucky members, and create demonstration facilities that are easily accessible and can have tangible impacts on potential customers.

Perhaps a new method of deployed demonstrations and customer friendly participation programs will be able to spur the growth of a hyper efficient energy market. A focus on turnkey programs designed to bring the customer proven technologies that do not require the customer to involve such great risk with a customer friendly program instead of a program that appears to have a great deal of obstacles and difficulties to complete a small project. There was a huge investment in solar through both incentive programs and tax incentives that made the industry very attractive and now the cost of solar is becoming more achievable every year and it is approaching the ability to be cost effective for low income as well.

The CEC can develop all the greatest technology breakthroughs that can be used to reach every goal that the State of California wants to include in the 2030 goals however if there is no vehicle to drive over the bridge and actually stimulate the markets for these breakthroughs then emerging technologies will do nothing but languish in the test arenas without any champions to carry them out to adoption. It is assured that the IOU's will continue to have difficulties with pushing new and emerging technologies while the ED will have no real desire to approve projects that are able to push the boundaries of energy efficiency especially since their dislike for IOU projects already has them pushing for rejection.

So what are the next step(s)? The CEC has already taken the next step by creating workshops for industry segments to meet and have input. However, instead of having a panel of professors and industry experts, include a few of the people that are on the front lines. Mr. Hiller from the first panel hit it right on the head of the nail "You are quickly losing the professionals that are capable of passing down the knowledge of the fields". This appears to be very true but also highlights that the approach that is now being used could be expanded. Currently your panel members are all experts in their specific segments. However none of them have the pleasure of trying to reach out to a customer and convince them to install these new technologies. And none of these panel members have to draw a vision for the customer that they should abandon proven and long established technologies to use much more expensive (for now) products that will pay for themselves in a very short period of time. Go to the customer and find out the why question. This might mean using a, can I say it, salesman, along with your panel group. Include an auditor or an energy specialist, someone who is routinely

reaching across the spectrum to actually have contact with customers, and be able to bring that perspective to your discussions.

With the testing and identification of emerging technologies the CEC has taken a big first step. Now the next step of making customers aware of these new technologies must be taken along with the step of accessible demonstrations that customers can actually see and evaluate and then apply to their own facilities. It should be noted that a distributed network of facilities would be ideal as most end-use customers do not have the ability to travel long distances all the time. These suggestions are a little different because what we are asking to have happen is something that is completely different than what has been done.

We are asking that the dynamic be adjusted to accommodate the customer, as we are asking the customer to adopt and change and take risk. We are asking the end-use customer to change their way of operations and risk their future operating process in many cases, and this is the greatest risk of all as what they do may result in the loss of their livelihood. Then it will be necessary to find new financing methods to assist the owners in overcoming the risk of installing these exciting new technologies. However, without data to support the financial markets with new tools and mechanisms to assist the end-use customer none of what we are asking will have any opportunity to occur.

This could also assist the CEC in aligning the IOU's and ED with emerging technologies and systems so that they would not be a barrier but a partner to the ambitious goals that we will have to strive to meet, to all be successful as a team and leader of energy efficiency. The CEC has taken the first steps and we should all be thankful for this opportunity, and begin taking the next steps.

We thank the CEC for asking the End-Use Energy Community to participate in their discussions and look forward to a healthy relationship in the future.

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