

**KSEngineers's Post-Workshop Comments on the California Energy Commission's  
Proposed Load Management Standards and Chairman Pfannenstiel's Proposed**

**Revisions**

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I have sent in comments before the workshop and I have made comments by telephone. Those comments were still with Thermal Energy Storage (TES) in mind, but the comments below the TES section are actually addressing a larger problem.

**TES**

As an engineer I have thus far only been on the *receiving end* of electric rates. My professional responsibility sometimes is to advise clients on available options to reduce the cost of their utility bills and to assist in trying to save energy, sometimes leading to actual energy conservation projects or demand reduction measures. I never questioned the rates, I just worked with them. I have developed and helped develop computer programs to use as a tool to assist with calculating these often very complex rate structures. I wondered at times why are there so many different rates and why does every utility have their own variations.

For the last 15 years since the rates developed in the direction against the promotion of TES, I have tried to be a voice for TES. In 2006 I managed to get the Energy Commission via the PIER building group to sponsor a study to precisely do what is needed now. The scope of work was to develop rates that would make TES economically feasible. My idea was to work together with the utilities and act as the TES expert to achieve a mutually beneficial rate structure. My proposal was accepted and funds made available and agreed on. Mary-Ann Piette (Berkeley Lab) was to sign up the contract via her channels, and Martha Brook (CEC) was the project manager. But then nothing

happened, silence. Still today, I have not been officially notified what stopped this contract in the last minute. Somehow I heard that Martha Brook used the funds for something else. Here is the proposed scope of work as proposed in 2006:

1. Prepare documentation to show that TES is one of the most effective demand shifting technologies available. This is necessary if the CPUC still needs convincing. According to Mary Ann the CPUC instructed the utilities not to pursue TES. If that is correct then of course we will have to change that attitude at the CPUC.
2. Determine the interest of most utilities in TES, determine the players that deal with TES and get them interested to work together for the common goal.
3. The common goal is to establish a rate structure that makes TES economically feasible in all parts of the state. TES does not even need incentives or rebates if the rate structure guarantees the momentary savings. Incentives may become a deep pocket for lawsuits, so it is better to leave it out. Work together with the utilities to establish the basic rate structure that will make TES economically feasible. This would entail a reduction in demand charges based on KW shift and a difference in on-peak and off-peak costs per KWH.

Instead of each utility creating their own rate structure, we will provide the basic structure once and for all. With this the utilities can then use the basics and adapt to their local conditions. We will have to work closely together with the utilities to ensure that the basic rate structure allows them to make the profit to which they are entitled to.

In other words, let's do the basic spade work for all utilities instead of each utility going in their own direction first. It is easier to let the utilities have the basic rate structure and let them adjust it to their particular territories.

This part of course entails to do some typical TES cases to establish certain parameters, like sizing, climatic differences etc.

4. Get the interest and eventual cooperation of the CPUC that they will statewide enforce the basic rate structure and guarantee it for at least 10 years so that investors are not getting short changed again. The difference in KWH cost and reward for KW shift needs to be a reliable item for investors to do their thing. If energy costs will go up, the actual costs can go up but the difference should stay the same. That is where the CPUC must come in.
5. We should become the spokes person for the TES interest but work closely with the utilities to ensure the proper climate for TES to develop.
6. CEC also to provide the necessary design tool for the utilities and for the engineers to develop TES projects. COOLAID was created by EPRI for the purpose of allowing the utilities to develop rate schedules, TES programs and assist in promoting TES in their territories. This tool is needed again and needs to be upgraded from DOS to WINDOWS.

At the same time we could improve certain features and make it a tool for the utilities but also for design engineers.

7. Finally, eventually be source of information to help educate utilities, developers and designers to implement TES projects.
8. Perhaps commissioning assistance and follow up services to ensure the shift occurs.

This is still in my opinion what needs to be done for TES. But it also shows my involvement with this subject. I know Commissioner Rosenfeld replied to me that it is

not the CEC job to design rates that is for the CPUC to do. But it is the CEC that advises the CPUC and the public.

## **Rate Design**

Delving into the subject a bit deeper I am starting to realize that the actual cost of electricity charged to users could be subject to a fictional book disclaimer: *Any similarity between the actual rate and the cost of producing electricity is purely coincidental.*

It appears that the public is forced to live with greatly varying rates that are decided by corporate politics and slightly influenced by special interest groups represented that occasionally have a say at some rate case negotiations.

When the public buys gas at the pump station it is more or less one price, which represents the cost of the commodity delivered at the time, regardless of the size of the vehicle's gas tank. It may vary a little according to location or from one refiner to another. But we, the consumer know what it costs to fill our tanks. Recently, when the cost of a gallon suddenly rose to above \$4.50, the consumers reacted accordingly and simply bought less gas. What happened as a result? Demand for gas declined drastically forcing the price to drop accordingly, resulting in the current price of less than \$2.00 per gallon. So, if we could we could now buy gas at this cheap rate and save it for when the price goes up to above \$4.00. I am sure the federal government is doing that right now.

Over recent years the TOU (Time of Use) charges have flattened out. The utilities accepted a slight loss of revenue for the on peak rates which is then recouped by increasing the off-peak rate. Interwoven with this policy, demand charges have also reduced.

Here is the CEC's latest statement as to the underlying purpose of rate design as per Proposed Load Management Standards.

**Purpose:** To promote rate designs that support the state's objectives of providing cost-based price signals to all consumers to reduce peak electricity consumption, improve system load factor, manage load during supply shortfalls, efficiently allocate costs among consumers, encourage energy efficiency, and reduce costs.

I agree with all these objectives, except for:

*Efficiently allocate costs among consumers.*

It costs a certain amount to produce electricity, the utility is entitled to a certain profit and that should determine the cost of electricity. Why is there a difference in consumers? Who or what decides "Efficient allocation of costs". Efficient for whom or what?

**Sounds like consumer discrimination.**

It has been pointed out to me that there are different costs for primary and secondary delivery and all those variations. Correct, but so is the gas price at the pump. The gas price is common for all consumers but varies according to some differences. But the differences do not differentiate between consumers.

Getting back to the cost of the gas tank: Could the Hummer Automobile lobby go to the oil company and demand a special gas price that promotes their gas-guzzlers, especially when the price is high?

### **What has happened to our democratic values and the American sense of fairness?**

Every rate structure, except for the original ones that charged a flat rate per kWh and are being phased out, have components in it that encourage the user to reduce consumption at peak times. They are even called TOU rates. Twenty years ago, the difference between on-peak and off peak costs were markedly larger than what they are today. Why has the trend turned to flatten out the difference? Surely a flat rate stifles any incentive for energy conservation.

Why is it that the trend over the last decade has been exactly the opposite as to what would be the logical conclusion and directly at odds with long-standing California policy? Why should a consumer try to reduce load during peak times when the relative costs are so low?

This is what I see happening:

1. Every utility has their own team of rate designers that have only created rates inside their corporate interest box. If we step back and take a look from outside, these rate structures are absurd. We used to have a cost per kWh. Then in order to reduce peak demand new rates got developed that are supposed to discourage use during peak periods. Each utility was allowed to go on their own scouting expedition and the result is that we have a multitude of rates that resemble the tax laws. If you really want to know how to reduce your bill, you need experts. Those who can't afford them just bites the bullet and pays.
2. Utilities have developed rate structures only with their own challenges and seem not to have any idea how the bills pan out upfront. Changes are only retroactively made, usually, in the direction for increase in revenue.
3. The CPUC is supposed to be the watch dog and keep utilities in check that they do not take advantage of their monopoly status. The utilities therefore do not consider it their duty to check what these rates are going to do to the market. If the rates get passed, great. But does the CPUC have the means of checking those dozens if not hundreds of different rate schedules of all the utilities in the state?

4. Why should large consumers get a break in electric rates and the smaller accounts have to make up the difference because the utility company is guaranteed a certain bottom line?

5. Utilities are not interested in load management, only in demand response. What is the difference? Demand Response is demand reduction during the periods when the electric grid is in trouble. Demand Management is the same as Demand Response but on a permanent basis.

6. Utilities have been promoting Demand Response programs in order to reduce load during troubling peak periods. Aggregators are trying very hard to sign up consumers. But it appears that the results are not good. As a result the utilities are now trying to force the issue with critical peak pricing (CPP) rates.

This is a dangerous development. SDG&E appears to be the trial balloon in California. According to testimony by SDG&E's representatives at the workshop at the Energy Commission last Wednesday (12/10/08), there is still much to be learned. Nothing has happened yet in the SDG&E market because during the first year of implementation, the users cannot be charge more than under the previous rate schedule. Therefore, hardly any user has really studied any implications the CPP rates may have on their utility bill..

It appears that these new rates are being created to address the peak load challenges only during the times when it becomes a problem to the utilities. The terminology is appropriately named Critical Peak (period) Pricing. The user gets punished at will by the utility companies, or alternatively, rewarded if the consumer reduces load during the critical days. But on all other days, we are encouraged to use as much as we wish, since it is good for the bottom line.

This is like taking a pill for a headache instead of doing load management on a permanent basis and avoid getting a headache.

I have assisted an aggregator in trying to sign up potential customers on the Demand Response programs. I went to industrial plants and could find very little to propose for the DR program. However, if I was allowed some time to spend in their facility I could develop opportunities to shave quite a bit of load and save up to 30% in energy costs by doing it on a permanent basis. Alas not without spending a bit of capital to achieve those savings. There is plenty of opportunity to do permanent load shift. But it needs a bit of engineering and some costs to achieve them. CR is just too cumbersome on a few days a year and the reward is meager.

These rates are complex and it takes much experience in this field to predict what could happen if implemented. Users are not geared to spend the time to investigate and predict energy costs. It is only the larger users that can afford and by necessity are forced to spend time and money on specialists who can develop forecasts.

All I am doing is sharing my experience with dealing with these electric rates and as a result I see the need for extensive sample calculations to be done so that these CPP rates are not coming to bite us, all of us, the utility and the consumers. This can only be done by a body like the CEC. Isn't that part of the reason why the CEC was created? It does not mean that the CEC does rate design, but it does mean that the CEC advises and researches the effect of rates on the consumer. The results can then be transmitted to the CPUC to take the necessary steps to remedy and simplify this maze of rates.

The CEC must advise the CPUC to get pricing of electricity down to a more realistic cost basis so that we the consumer get charged what it really costs. We need simple rate structures that reflect the actual cost of electricity. We have used 15 minutes impulse meters for a long time. If it is going to be some real form of real time pricing, then do it. Maybe it needs to be simplified in certain cases, like for smaller accounts.

Personally, I feel that the electric rates we have been subjected to are indeed an offense to the American sense of fairness or even normal business practice and are in direct conflict with California's energy policy. The exception is the statement that must be eliminated:

*Efficiently allocate costs among consumers.*

Which ever way you look at this, it boils down to some form of consumer discrimination.

Summary:

We need simple straightforward rate structures preferably on a state wide basis that have been subjected to some serious testing before they are applied to the public. These rates must reflect like all other energy commodities the actual cost of what it takes to produce electricity. Only then can the market adjust and the load profile will even out. With real costs, projects to shift demand will then become economically feasible.

These principles are vital and form an important part and must be clarified in the

## **LOAD MANAGEMENT STANDARDS**

Thanks you for your attention.

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