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**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking to Examine the
Commission's Post-2008 Energy Efficiency
Policies, Programs, Evaluation, Measurement,
and Verification, and Related Issues.

Rulemaking 09-11-014
(Filed November 20, 2009)

**WOMEN'S ENERGY MATTERS
REPLY COMMENT RE GOALS, ETC.
AMENDMENT**

January 19, 2012

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**WOMEN'S ENERGY MATTERS
REPLY COMMENT RE GOALS, ETC.
AMENDMENT**

Women's Energy Matters (WEM) appreciates this opportunity to reply to parties' comments filed January 12, 2012 on Goals, Potential, and related matters, pursuant to the ALJ Ruling of December 28, 2011.

Prologue

Perhaps PG&E's opening comments inspired the following dream: PG&E stated:

Energy Division's proposal for the 2013-2014 EE goals is reasonable and appropriate, provided sufficient funding is available. PG&E appreciates Energy Division's response to stakeholder comments and direction to Navigant to take a more comprehensive view of energy efficiency potential by attributing codes and standards advocacy energy savings to the investor owned utility (IOU) programs. PG&E, p. 1.

You own a piece of property where you used to have a house – but it was burned to the ground in the fire caused by PG&E's pipeline explosion. Your mother and her cat lost their lives, and all your possessions were lost. In December 2013, you decide it's finally time to rebuild. You always wanted to design your own house, and you think it might cheer you up to do it now, using your settlement money from the company.

You visit the county offices to get up-to-date information about the building codes and the county's programs to help people with energy efficiency that you heard about a couple years ago.

The young person at the counter apologizes — she's only an intern, and can't help you. She explains that they had to lay off most of the staff due to budget shortfalls. (You recall Jerry Brown's ballot measures for temporary tax increases failed due to the billions poured into the campaign by the Koch brothers and other energy corporations opposing any tax increase as "socialism" and a way for politicians and government bureaucrats to get rich off the hard-working public...)

The young woman says there's only one employee left who understands the codes — the building inspector — and he's out in the field. There's no program she knows of that helps people with energy efficiency — that all went away when the federal stimulus ran out.

But she says you should visit PG&E's codes and standards organization in that big new building next door — they have lots of information there. She adds that most of the people who used to work for the county's "Partnership" with PG&E have jobs there now. They could probably tell you about the programs that were discontinued — and they might know if there's anything left. "Good luck!" she chirps. The phone rings and she excuses herself.

Stunned, you think there must be some mistake. How could the county let PG&E have anything to do with codes and standards? Their pipeline exploded because they

violated all sorts of codes and standards! Somebody should be in jail for that — but for some reason the trial still hasn't begun. You'll have to have a talk with your Supervisor. You stumble out into the corridor, your heart pounding.

As it happens, the Board of Supervisors is in session down the hall. As you walk in, PG&E is beginning a presentation to the Board about new codes they're proposing. The speaker introduces three people sitting at the table and six consultants in the front row who can answer questions, and asks people in the audience to stand up who work for environmental groups who support PG&E's efforts to strengthen codes & standards. Ten people stand up.

Three of the Supervisors smile and make brief comments about PG&E's extraordinary commitment to the environment and the wellbeing of the community. Your own representative looks pained — he nods at you and rolls his eyes. You instantly understand — he's in the minority now that these three won seats in the last election. There were rumors that they won thanks to secret contributions from PG&E to SuperPACs supporting their slate.

PG&E's rep gently reprimands the county for the former Board's reluctance to pass codes to PG&E's specifications. The Board President jokes that PG&E's documents are always the longest ones in the Board packet and full of jargon, but "there's no staff to review things anyway and we know we can trust you." She pledges to pass whatever PG&E gives them — as long as nobody expects the county to actually enforce the codes, since they only have one overworked inspector who's just a couple years from retirement and refuses to learn energy efficiency codes on top of everything else he has to do.

PG&E's rep sternly reminds her that the county should be working harder to stop climate change — like PG&E is doing — but he'd be glad to visit her office later that day to explain how the county might make use of "flexible compliance" to avoid sanctions that the state might otherwise impose.

You wonder why you're still sitting there and reach down to get your bag. A discarded newspaper catches your eye — "PG&E Wins \$100 Million Award for Efficiency / Success with Codes & Standards replaced outmoded customer assistance."

You don't remember anything after that. You woke up in the hospital ...

Proposed goals would refocus EE efforts on utility lobbying

TURN agrees that the role of C&S is unreasonable and too large.

For example, instead of expanding the scope of the potentials study to consider the effects of more expansive market strategies such as financing and deep retrofits, ED proposes to set the IOUs' C&S savings beyond that portion directly attributable to the IOUs, thus perpetuating the dominant role of C&S in the IOUs' portfolios. TURN, p. 2.

We note, however, that this is the first time that C&S has taken a "dominant" role. The current 2010-12 budget for PG&E's C&S program is \$19m out of \$1,511m. Savings

targets are 41 MW out 779 MW and 224 GWh out of 4,137 GWh. While we believe these are already too much (because any bogus “savings” claims are too much), they are just a tiny fraction of current programs.

It became clear in the 12-28-11 Ruling and ED proposal that the Commission is considering a massive revision to goals that would refocus programs primarily on the utilities’ Codes & Standards (“C&S) program, by greatly increasing C&S from current levels and slashing programs that provide energy-savings assistance to customers by 40%. There was just a hint of this in the 12-7-11 Ruling and ED proposal on Program Guidance. Like WEM, other parties expressed concern about this — though most parties probably still aren’t even aware of the scale or substance of the changes underway.

The C&S program relies largely on utility lobbying at the local, state and federal level, as WEM’s Opening Comments explained, quoting the C&S PIP for 2010-12 and the evaluation for 2006-08 C&S.

Any utility lobbying activities, including (or especially) in Energy Efficiency, presents the possibility that they will use those contacts to market for or against whatever they see as benefitting the corporation. ED seems to think that ratepayers must pay (with program funds *and* bonuses) for utilities to lobby for the good stuff — because otherwise they would be lobbying on the other side:

Additionally (and alarmingly), the primary stated justification for the utility role in C&S efforts, which have been funded and supported with ratepayer money up to this point, is that without such a financial incentive the utilities would likely oppose these C&S improvements. LGSEC, p. 4.

It is naïve to think that utilities will not find ways to work both for and against energy efficiency — as TURN described it in the early 1990s: driving with one foot on the brakes and one foot on the gas. *WEM’s opening comments described ways that the utilities (with help from regulators) have prevented energy efficiency from having much impact on procurement.* The way to ensure best results from EE programs, as well as Codes & Standards, is to take EE funds away from utilities and put them in the hands of those whose interests are genuinely aligned with EE — such as local governments.

Another problem with utility lobbying under the guise of energy efficiency is that we have several years of incontrovertible evidence that PG&E has promised EE funds as part of its efforts to undermine Community Choice, here in Marin County and elsewhere.. The evidence consists of PG&E’s letters, testimony by city and county officials, news reports, citizen complaints to CPUC, and videotapes of PG&E personnel making EE offers in the context of governments consideration of Community Choice and municipalization.

Pursuant to the revised goals, the C&S programs could and likely would support a massive increase in such efforts, both in Marin and the many other cities and counties that are considering self-determination.

Restrictions against utilities' use of EE in marketing

The Commission has restricted utilities' marketing and lobbying in several orders and resolutions. Utilities' C&S program would likely fall afoul of one or all of them:

D0909047, OP 39; and text as follows: “[W]e will require utilities not to use energy efficiency funds in any way which would discourage or interfere with a local government’s efforts to consider to become a Community Choice Aggregator,” D0909047, p. 262.

Resolution E-4250. This resolution named PG&E’s EE offers to Novato as the type of activities that it was prohibiting. Res. E-4250, April 8, 2010, pp. 14-15.

D1105018 (GRC settlement — discussed in our Opening Comments).

SB790. Further restricts marketing against CCAs.

PG&E provided false information in response to WEM data request

To assist the Commission in understanding how increased C&S funds for lobbying would increase the scale of PG&E’s potential misuse of EE funds to lobby *against* CCAs and municipalization (and *for* nuclear power and cap and trade), WEM requested information about what personnel accounts and EE budget categories are currently involved in promoting PG&E’s EE programs.¹

The meager information PG&E provided appears to be false in significant respects. The Response claimed that PG&E had 166 Account Representatives at the end of 2011, 179 in 2010, and 181 in 2009.² However, according to the company’s sworn testimony in the General Rate Case, it had 277 people doing this work in 2008. We find it unlikely that it dropped so precipitously:

20 a. Account Services

21 The account services function is performed by PG&E’s Service and
22 Sales Department, which is primarily responsible for meeting the
23 wide-ranging needs of PG&E’s business customers. At the end of 2008,

¹ PG&E delayed responding, claiming that its representative was out of town when the request arrived Dec. 30th — although WEM received no “out-of-office” message from him. PG&E’s Response lists “date sent” as Jan. 9th when Mr. Klotz supposedly returned. Barbara George of WEM had a lengthy conversation that day with Mary Gandesbery, who said she was assigned to answer the request, although she admitted, “I don’t know much about this.” It was not clear if she was referring to the roles of Account Managers or EE programs. WEM explained why they should answer the questions and why they were in-scope. PG&E’s response claimed, “WEM did not provide any response to PG&E’s request for an explanation for a need for the data.” PG&E finally responded after 5 pm Wed., Jan. 18th — one day before the deadline for these reply comments, but ducked most of the questions. We will request Commission assistance to compel more complete responses and allow us additional time to discuss them in comments.

² PG&E Response to WEM DR, p. 2, Answer 1.

24 the total number of employees in this department was 277. These
25 employees were assigned to various PG&E offices throughout the
26 Company's service territory. One director, six managers and
27 61 employees are located in the San Francisco headquarters.
28 Two directors, eight managers and another 216 employees operate from
29 26 field offices. PG&E 2011 General Rate Case (A0912020), Testimony Vol. 4
(*Customer Care*), p. 3-3

WEM asked what portion of the Account Managers' work was EE-related. PG&E stated, "the account managers spend approximately 70% of their time on energy efficiency, demand response, solar and self generation activities." Response, p. 4, Answer 3. (When Ms. Gandesbery indicated in the phone call that they were rolling EE in with other activities, we specified that we wanted EE only, and she agreed to provide disaggregated data but this was not forthcoming.) Nevertheless, the response indicates a greater emphasis on these programs than the GRC testimony conveyed:

30 These employees are engaged in a variety of activities appropriately
31 charged to several MWCs...[Major Work Categories]
3 As noted in PG&E's 2007 GRC, account services personnel
4 generally perform customer contact activities and support personnel
5 perform direct- and indirect-support activities. Collectively, these
6 activities include: administering rates, rules and contracts; providing
7 customer contact activities related to tariff compliance; addressing
8 billing, credit and collection issues; determining/facilitating distribution
9 service needs; promoting energy efficiency, Demand Response (DR),
10 and reliability programs; responding to customer-related needs of
11 energy service providers; providing electric and gas reliability and
12 outage information; coordinating planned outages; providing retail
13 interconnection information; and providing information to customers on
14 conservation and various utility industry issues. Ibid, pp. 3-3 - 3-4.

What is the business of the IOUs v. Local Governments?

In Energy Division's proposal, as in the program guidance proposal, the people and activities of the state, local and federal governments virtually disappear — and the utilities take credit for all of that.

The primary flaw is the presumption that all positive impacts from C&S changes are the result of actions and advocacy by the utilities... LGSEC, p. 4.

Public sector funding is certainly under attack (some folks have been dreaming for a while about shrinking government down small enough to drown it in the bathtub). However, even in the current environment, it would be mistaken premature to assume that utilities could or should take over the activities of governments.

Most importantly for the EE Goals, the 2006-08 C&S evaluation *fails to justify* utilities claiming credit for *all* the work that governments have done and are doing. Even less since this would potentially make utilities eligible for hundreds of millions of dollars

of bonuses on that work under a Risk Reward regime, which ED seems to think the Commission will continue.

The Commission should take a very different tack with C&S:

The CPUC should provide direct support to the California Energy Commission, to regional energy networks, and to individual local governments to provide statewide and local leadership in advancing C&S, rather than to utilities which possess neither the core competency, corporate motivation, nor relevant experience related to enhanced energy efficiency codes and local building code policies and practices. LGSEC, p. 5.

Uncertain rate and timing of C&S compliance

There are serious questions about the rate and timing of compliance with Codes & Standards, which would undermine the relevance of the goals for procurement.

Even in a robust economy, the rate at which residential and commercial structures are replaced is very slow, and it therefore takes a long time for a new code or standard to be fully adopted. LGSEC p. 8.

“Total Market Gross” (TMG) Goals unworkable if applied to utilities

WEM believes the concept of Total Market Gross goals is misguided and unworkable as applied to utilities. Similarly to utilities claiming credit for the work of governments on Codes & Standards, TMG goals invite utilities to take credit for *all* energy savings in the market, whether or not utility-administered EE programs had anything to do with the those savings. As discussed in our opening comments, the Energy Commission has long asserted that Codes and Standards and “Naturally Occurring” savings were far larger than utility programs.

D0807047 supposedly added BBEES and ARB’s scoping plan, to come up with an incredibly small “total market” in California, but it provided a much broader definition than that:

TMG goals are defined as the cumulative EE potential “able to be achieved through all reasonably measurable delivery channels including improvements in state and federal codes and standards, state legislative mandates, naturally occurring efficiency, and IOU voluntary programs (both resource acquisition and market transformation).” D0807047, quoted in Attachment A, p. 5.

ED noted:

While the IOU-specific goals are a subset of the TMG goals, it is important to note that (with the exception of SDG&E) the current IOU-specific goals are approximately 20% higher than the adopted TMG goals adopted in D.08-07-047. 12-28-11 Ruling, Attachment A, p. 5.

ED seems content to let the supposed TMG goals be the same as IOU-specific goals. It states that “gross” goals is current policy established in D0909047. Att. A, p. 10. In fact, D0909047 deferred the question of IOU-specific goals. It hasn’t been tested as to how

TMG applies to a RRIM mechanism but if it were, utilities would become eligible for undeserved bonuses beyond anything we've already seen. TMG may have relevance for the Strategic Plan (if Local Governments and Third parties were in charge) but because of the RRIM, TMG is unworkable as applied to utilities, if all the savings that are really occurring were ever identified.

Vastly under-estimated potential

The Goals proposal rests on the false premise that the potential for actual savings impacts from EE programs has greatly diminished. EnerNOC pointed out:

However, EnerNOC is concerned that some of the study's weaknesses (e.g., using dated *ex-post* evaluation results to drive future savings estimates, relying on limited data sources to estimate potentials for specific market segments, etc.) may ultimately lead to an underestimation of the true EE potential, which in turn would result in utility program savings goals that may not be reflective of the market demand for EE. ENERNOC, p. 3.

ENERNOC is right to be concerned about what was left out, in view of the poor quality of data in the original study that all the later ones merely "updated."

What was left out of the Xenergy/Secret Surplus study

The Xenergy potential study that was used in the Hewlett-Packard *Secret Surplus* was the basis of the goals in D0409060. Parties in the R0108028 proceeding filed pre-workshop comments on the Xenergy study on October 1, 2008, including long lists of well-known measures that were excluded:³

San Diego Regional Energy Office (SDREO)

Comment 2:

SDREO recognizes the Xenergy studies were confined to currently available technologies that had enough useable data to determine saturation and potential. However, some of the omissions surprised us considering their cost effectiveness is well known, documented and even included in statewide or third party program proposals.

For example, the list did not include:

Indoor lighting

1. Daylighting / skylights with photocell controls
2. Pulse start metal halide lamps
3. Ceramic metal halide lamps
4. Electronic ballast for HID lamps
5. Dimmable HID lamps using electronic ballast
6. Induction lamps

³ WEM noted that the Commission gave parties only 2-1/2 days to prepare these comments, which was later extended to 5 days.

7. LED lamps
8. LED exit signs
9. LED channel signs
10. Lighting controls
 - a. Scheduling
 - b. Multi-level switching
 - c. Demand limiting
 - d. Adaptive compensation

Outdoor lighting

1. LED street lamps
2. LED channel signs
3. LED lamps
4. LED signal lights
5. T-5 lamps
6. Induction lamps
7. Pulse start metal halide lamps
8. Ceramic metal halide lamps
9. Electronic ballast for HID lamps
10. CFLs

Water Heating

1. VFD on heating hot water pumps
2. Boiler economizers
3. Recover boiler blow down waste heat
4. Steam trap maintenance/replacement
5. Condensate return or recovery
6. Cogeneration system

Space cooling and ventilation

1. VFDs on condenser pumps
2. VFDs on cooling tower fans
3. VFD on chiller (centrifugal and screw)
4. VFDs on primary chilled water pumps
5. Replace primary / secondary chilled water systems with primary only with VFDs
6. Underfloor HVAC system (displacement ventilation)
7. Design chilled water system with high delta T (18 to 20°F)

8. Radiant ceiling cooling system
9. Radiant heating system
10. Small centrifugal chillers (70-tons and up)
11. Scroll chillers
12. Enthalpy / Energy recovery heat exchangers
13. Dedicated outdoor air systems
14. Liquid desiccant air conditioners (natural gas and cogeneration fired systems)
15. Desiccant wheels (natural gas and cogeneration fired systems)
16. Thermal Energy Storage (TES)
17. Trigeneration (power, heating and cooling)
18. Direct Digital Controls (DDC)
19. Economizers
20. Commissioning
21. Retro-commissioning
22. Building automation systems (Energy Management Systems - EMS)
23. Demand controlled ventilation
24. Convert multi-zone and dual duct systems to VAV
25. Install VFDs on CAV air-handlers
26. Laboratory energy reduction through use of VFDs
27. Plate and Frame heat exchangers for providing free chilled water in climates like San Francisco

Refrigeration

1. VFDs on air-cooled condenser fans

Office Equipment

1. Vending Miser for soda machines

Residential Pools

1. Off peak pool pump operation
2. Reduce pool filter pump operation hours to minimum necessary
3. Two speed pool pump / spa motor
4. Solar water heating

Residential Lighting

1. CFL flood lighting
2. Photocells for outdoor lighting

3. LED Christmas lighting

LOCAL GOVERNMENT ENERGY PROFESSIONALS NETWORK:

Although the Xenergy list is extensive, we propose to include other technologies that we are using. Due to the short turn-around time in developing responses to the Pre-Workshop Statement, we have been not been able to research the data to quantify cost, savings and peak load reductions. However, each item on the following list is a technology that has been assessed or implemented by at least one of our communities. We recommend the following technologies for consideration:

Vending machine controls;
Power strips to shut off residential phantom loads;
Electronic ballasts for street lighting;
LED applications for traffic signals, exit signs, decorative lighting;
Monitoring equipment; and
Daylighting technologies;
Solar clothes dryers (clothes lines).

RMA Pre-Workshop Statement Regarding Potential for EE (FINAL)

Response 2

We did not have sufficient time to develop a comprehensive list of measures that were not included in the studies.³ The following partial list of cost effective measures are provided as examples that are particularly well-suited to reducing peak demand on a sustained basis.

1. Evaporative pre-coolers for roof-top air conditioning units (RTUs).

Xenergy assumed this measure was non-cost effective.⁴ RMA performed a detailed EM&V study of this measure including short-term 15-minute power measurements on five RTUs and calibrated eQuest simulations.⁵ Short-term measurements were made during the months of August, September, and October using poly-phase data loggers. The TRC is 2.5 based on energy savings of 0.141 kW/ton, 1,068 kWh/yr-ton, IMC of \$292/ton., and 15 year EUL. Potential savings are 413 MW and 362 GWh/yr based on 10% peak savings and 18% energy savings and commercial DX cooling usage and 50% applicability to DX systems with a baseline of 7,464 GWh and 4,618 MW.

2. Energy Star Programmable Thermostats.

Xenergy assumed this measure had high existing saturations and small remaining potential.⁶ Conventional programmable thermostats are not comparable to Energy Star programmable thermostats. Conventional t-stats are complicated to program and do not contain the Energy Star schedule in ROM. The Energy Star programmable thermostat does not have high saturation since it has only been available for short period of time. Xenergy also misunderstood this measure when they performed the 2001 DEER Update Study where they modeled the measure with an 85°F setup from 9AM to 4 PM weekdays resulting in negative peak demand savings (that occurs from 4PM to 6PM when Xenergy assumed the AC would turn back on).⁷ The Energy Star programmable thermostat cooling schedule embedded in ROM is 85°F from 8AM to 6PM weekdays and automatically resets to this schedule a short time after being manually reset or if it losses power. Since the peak period is from Noon to 6PM or 2PM

to 6PM (depending on utility or ISO), the Energy Star programmable thermostat cannot have negative peak demand savings during normal operation. The TRC is 8.7 for small commercial based on 10% peak demand savings and 20% energy savings (i.e., 0.5 kW, 1,975 kWh/yr, and 91 therms/yr) \$160 IMC, and 10 year EUL. Potential small commercial savings are 187 MW, 231 GWh/yr, 130 Mth based on 10% peak savings and 20% energy savings and commercial DX cooling usage and 25% applicability to DX systems with a baseline of 7,464 MW, 4,618 GWh, and 651 Mth (didn't have time to estimate savings for residential).

3. **Window Film.** Xenergy assumed this measure had high existing saturations and small remaining potential.⁸ Many small commercial businesses have clear plate glass in their store fronts that face West and South. We have visited a number of small businesses during the past year while performing EM&V studies for small commercial local programs and have measured uncomfortably hot indoor temperatures from solar gains where the AC units were unable to maintain the desired setpoint. Second generation low-e window film has very low penetration in tenant occupied small commercial space. Landlords have expressed concerns with conventional window film due to not wanting dark windows on their store fronts. The low-e window film solves this problem and provides energy and peak demand savings during peak cooling periods. This measure will not succeed in conventional rebate programs due to the landlord-tenant split incentive market barrier. However, it is a cost-effective measure for non-utility direct install local programs and it should be promoted by the CPUC for this purpose since solar gain is the largest cooling load in commercial buildings (i.e., 27% compared to 23% for lighting). This cost-effective measure should be included in all small commercial hard-to-reach local programs. The TRC is 1.4 based on conservative cooling savings of 14% and cooling EUI of 3.95 kWh/ft², \$2/ft² IMC, and 10 year EUL. Potential savings are 261 MW and 161 GWh/yr based on 14% peak and energy savings and commercial DX cooling usage and 25% applicability to DX systems with a baseline of 7,464 GWh and 4,618 MW.
4. **New air conditioner refrigerant charge and airflow (RCA) verification.** Each year approximately 441,000 new air conditioners are sold in California and approximately 50 to 67 percent of all units are installed with improper refrigerant charge and airflow (RCA)⁹ resulting in an average efficiency loss of 13%. The combined nonresidential and residential TRC for RCA verification is 4.1 based on savings of 0.357 kW/unit, 422 kWh/yr-unit, \$70 IMC, and 15 year EUL. RCA verification IMC is 43 percent less than the Xenergy retrofit Basic HVAC Diagnostic IMC of \$123 due to RCA verification being performed at time of new installation (which is lower cost procedure). Potential savings are 827 MW and 929 GWh/yr over 15 years based on savings of 13% and applicable baseline of 6,900 MW and 7,150 GWh (assumes 57.5 percent applicability). Note that the Xenergy study partly included savings for this measure through retrofit Basic HVAC Diagnostic.
5. **LED Lighting for exit signs and other applications.** New brighter white LED lamps promise to deliver significant savings over the next 10 years for many residential, commercial and industrial applications. Potential savings require more time to analyze.
6. **ECM fans for HVAC packaged and split system AC units** (emerging, see SWEEP study for details).
7. **Refrigerator and freezer recycling of second and third units.** (see statements from

ARCA and JACO).

8. Geothermal heat pumps.

9. Etcetera (see statements from SDREO and others).

³ The Xenergy studies provided limited information to perform “back of the envelope” calculations regarding potential savings for measures. We attempted to provide “draft” potential savings estimates for some measures that were not included in the studies to respond to questions #2 and #5. These “draft” savings estimates have not been peer reviewed for accuracy.

⁴ *California Statewide Commercial Sector Energy Efficiency Potential Study*, Xenergy, 2002. see page 8-8, “Evaporative pre-coolers are a promising measure for larger, air-cooled packaged systems. However, at current costs the measure is generally not cost effective. Ongoing research and development of this measure should continue with a focus on reducing costs. Finally, partly as a result of fairly high existing measure saturations, we found relatively small remaining potential for measures that have been widely available for years, such as EMS, programmable thermostats, and window film.

⁵ *EM&V Report of Dual-Cool Evaporative Pre-coolers on 6 RTUs*, prepared by Robert Mowris & Associates, Prepared for Modesto Irrigation District, 2002.

⁶ Ibid.

⁷ Single Family Measure Savings for Programmable Thermostat, page 184 where all the peak demand savings are either zero or negative (in zones 3 and 7 the savings are -0.99 kW), 2001 DEER Update Study, prepared by Xenergy, Inc., prepared for the California Energy Commission, August 2001.

⁸ Ibid.

Women’s Energy Matters:

...There are only two kinds of

lighting: "Compact fluorescent lamps and T8 lamps with electronic ballast;" no energy efficient outdoor lighting. Under refrigerators there is only "Energy Star refrigerators and early replacement of older refrigerators;" no refrigerator recycling program. Under space conditioning there is a listing for "double-pane low-E windows." However they left out windows on the list of measures in the CPUC ruling...

Q. 2

WEM Answer: There are a significant number of measures missing, and the potential is far higher than listed. See above for some of what’s missing. Here are a few others that should be considered:

Tree Planting. The Sacramento Tree Foundation and SMUD have proved over the last decade that shade trees are a cost effective with approximate TRC 2, possibly higher today, although they count costs differently and it’s difficult to compare apples to apples. In addition, there are great many secondary benefits, including mitigation of global warming gases, reducing the overall “heat island,” aesthetic benefits and improved property values. (Source: SMUD Shade Tree Program: A Unique Application, by Misha Sarkovich, PhD, SMUD, presented at the 1999 Energy Program Evaluation Conference, Denver.) I spoke to Mr. Baldeo of the Tree Foundation who indicated that the founder/director of the Foundation, Mr. Ray Trethaway, currently a Sacramento City Councilmember, may be interested in presenting at the workshop.

Office Windows that open (Source: former TURN Economist Dr. Eugene Coyle.) Dr. Coyle has reviewed many cost-effective measures that should be included, and he should be asked to be a presenter at the workshop. He could also speak about **Enforcing Title 24 Standards**. What’s the use of asking for measures 10% or 20% above standards, if the standards themselves are not enforced?

Energy Efficient Windows. There are no windows on the Residential list in the Ruling.
Daylighting.

Passive Solar Construction for heating and cooling

LED Traffic Lights

Clothes Lines

Agricultural measures. A major oversight in a California study, there was nothing on the list for agriculture. **Efficient pumps** are a large potential source of savings. **Solar pumps** should be considered. **Free range animals** would save lots of energy currently being used in climate-controlled animal confinement structures and systems for managing imprisoned animals' wastes.

Industrial Measures were also missing from the CPUC list. ...

Solar Water heaters should be mandatory on all new construction.

Dated: January 19, 2012

Respectfully Submitted,
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