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## **WOMEN'S ENERGY MATTERS TESTIMONY: WEM'S ALTERNATIVE BUNDLED PROCUREMENT PLAN FOR BUNDLED TRACK II**

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Barbara George, Executive Director  
Women's Energy Matters  
P.O. Box 548  
Fairfax CA 94978  
510-915-6215  
wem@igc.org

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## **PREFACE**

This testimony was prepared by Women's Energy Matters (WEM) in the R.10-05-006 proceeding, the California Public Utilities Commission (Commission) Order Instituting Rulemaking to Integrate and Refine Procurement Policies and Consider Long-Term Procurement Plans. In this testimony WEM presents its analysis and recommendations for an Alternative Bundled Procurement Plan for California investor-owned utilities.

WEM's witnesses' prepared qualifications are contained in Appendix A of this report.

**WOMEN’S ENERGY MATTERS TESTIMONY:  
WEM’S ALTERNATIVE PROCUREMENT PLAN FOR BUNDLED TRACK II**

Women’s Energy Matters (WEM) appreciates the opportunity to provide this testimony proposing a Bundled Procurement Plan (“WEMBPP”) as an alternative to Track II bundled procurement plans presented by the investor owned utilities (“IOUs”), pursuant to the ALJ’s Scoping Memo of January 13, 2011 (“Jan. 13 Memo”):

Parties other than the utilities may propose, in the form of testimony, their own Bundled Track II plans, or recommend modifications to the utilities’ proposed plans. Parties are encouraged to base their proposed plans upon the current Standardized Planning Assumptions, but are not required to do so. However, to the extent parties’ proposed plans use different assumptions, those plans must clearly identify all changes in the assumptions used, describe why those changes were made, and how those changes affect the resulting procurement plan. All non-utility Bundled Track II plans and supporting testimony are to be served on April 22, 2011. 1-13-11 Memo, p. 1.

The schedule for filing alternative proposals and testimony was revised in the Feb. 28, 2011 Ruling.

WEM’s Bundled Procurement Plan (“WEMBPP”) goes into greater detail for the PG&E area, though we have specific proposals for territories of southern California utilities as well. WEMBPP provides coordination between plans for various utility territories, as recommended in the Jan. 13<sup>th</sup> Memo. There is no need for a sensitivity analysis reflecting higher prices in scarcity conditions, as suggested in the Memo, p. 3, because we anticipate no scarcity.

**INTRODUCTION**

**WEM’s plan is based on CPUC’s current Planning Assumptions**

WEMBPP is based on the current Standardized Planning Assumptions (attached to the 2-10-11 Ruling) and conforms to the guidelines for these filings — i.e. “focusing on the short-to-medium term operational needs of the utilities,” and proposing no “construction of new [large-scale] generation facilities.” Ibid, p. 3.

In fact, WEMBPP will demonstrate that new large-scale generation facilities are likely to be unneeded for the foreseeable future, and the need for new transmission lines to relieve congestion has been overestimated.

## **The time is ripe to adopt robust, time-tested alternatives**

The January 13, 2011 Memo stated:

Given the range and complexity of issues to be addressed in System Track I, and the need for a relatively prompt Bundled Track II decision to extend the utilities' procurement authority, it is not possible to resolve the System Track I issues and incorporate that resolution in this year's Bundled Track II decision. Accordingly, the current Bundled Track II proceeding will not reflect the resolution of issues being addressed in System Track I. Ibid, p. 2.

Discussion at the Prehearing Conference helped clarify the procedural issues leading to this “cart before the horse” situation. While there is a rush to make a final decision, *WEM believes that the urgency of climate change as well as the economic impacts of the fragile “jobless recovery” on California communities requires the Commission to begin making changes necessary for utilities to move beyond “business as usual” now, rather than force everyone to wait around for another LTPP cycle.*

Rather than err on the side of more conventional methods that have failed in the past to address these challenges, the Commission should adopt the promising alternatives presented here, which already have a track record in other states, as WEM will demonstrate below. Otherwise, we will lose two more precious years, because the next LTPP proceeding will not even begin until 2012, and the next decision on bundled procurement plans could be as late as December 2013.

Indeed, California has a golden opportunity to renew its bold leadership, under Gov. Brown's Commission. It's the right moment to raise California's clean energy agenda to a higher level by initiating much-needed innovations.

## **California's energy glut enables necessary changes to be made immediately**

CPUC's Planning Assumptions revealed that California has a very large energy glut. WEM consolidated the categories and figures from separate IOU charts<sup>1</sup> to create a simplified chart, *Excess Energy with or without Nuclear Power. See attached.* It shows we will have 56% more electricity than we use in 2020 if nuclear power plants are still running, and 45% more than we use if they are shut down.

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<sup>1</sup> 2-10-11 Ruling, Attachment 1 Planning Assumptions, pp. 17-19:  
<http://docs.cpuc.ca.gov/efile/RULINGS/130669.pdf> (Attachment);  
<http://docs.cpuc.ca.gov/efile/RULINGS/130667.pdf> (Ruling)

Paradoxically, the poor economy and the failures to control spending on new resources in the past few years have resulted in a situation where there is so much excess electricity that there is virtually zero risk of a shortfall in electricity. Even with thousands of megawatts of old power plants with once-through-cooling shutting down, as the Planning Assumptions assume, there is room for even more shutdowns — of nuclear power plants — and still enough power for increased energy load, such as might occur with a rapid build-up of electric cars, or an unexpected surge in the economy.

***WEMBPP features cutting edge innovations in energy efficiency, distributed generation, and overall energy system planning. It complies with recent legislation, provides the cleanest, most affordable energy system — and greatly increases local economic development and jobs as well.***

## DISCUSSION

### **Innovative energy system planning; SBX1 2 retired the principle of *Least Cost Best Fit***

A brilliant systems thinker by the name of Deming became frustrated with US automakers' insistence on *minimizing costs*. He moved to Japan, where auto executives were more receptive to his idea that planning should start with *maximizing benefits* and only then look at how to minimize costs. As they say, the rest is history — Japanese cars run circles around US models in trouble-free longevity, at comparable or lower prices and plenty of comfort as well.

SBX1 2 was signed into law this April — retiring the concept of *Least Cost Best Fit*, so now California can put Mr. Deming's wisdom to use in building power systems.<sup>2</sup>

Our current energy system is highly inefficient. It's based on a far-flung grid, featuring primarily central station power plants running on nuclear and natural gas fuel. These power plants generate enormous amounts of waste heat; the transmission lines also heat up and waste energy. Almost two-thirds of the energy in the original fuel is lost by the time it reaches the end-use customer.

Our challenge and opportunity in the 21<sup>st</sup> century is to explore and utilize the many alternative resources that are available and affordable. "Fossil fuels" are in decline and need to be phased out because they cause climate change and other pollution; nuclear power has proved too dangerous to use. A more diverse, renewable energy supply controls both costs and risks:

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<sup>2</sup> PG&E's Bundled Procurement Plan declared that it was built on Least Cost Best Fit principles, p. 6.

- Power is generated largely from fuels available in the local area, such as solar, wind, geothermal, hydroelectric, or biofuels. Most of these fuels are free.
- Combined heat and power (CHP) (which can run on renewable-produced methane as well as natural gas) saves approximately 80% of the power ordinarily used for electricity generation by capturing and reusing waste heat.
- Energy efficiency (EE) focuses on reducing the amount of power needed for a nearly infinite amount of end uses, utilizing efficient elements in construction or retrofits, more efficient appliances and lighting, better maintenance, building codes, building designs, and even landscaping. Conservation focuses on changing customer behavior to reduce energy waste. Substitution of passive solar technologies (for example solar water heating, daylighting) carries energy efficiency even further.
- Demand response provides for consensual interruption of power, which is for the most part imperceptible to the user.
- Balancing of intermittent solar and wind resources uses "firm" power (available 24/7), which can come from hydro; geothermal; CHP; storage technologies including pumped storage and batteries, including electric or hybrid cars; or the grid itself.
- Distributed generation (DG) includes solar photovoltaics (PV) installed on or near customer premises, as well as fuel cells or "Bloom boxes." DG is located at or near the load it serves, therefore it reduces the need for transmission and distribution, solving grid congestion problems.
- New technologies for managing both transmission and distribution (T&D) systems can assist in balancing and regulating load and DG resources. "Microgrid" and "smart grid" innovations provide enhanced monitoring and communications throughout the system, which can be provided by fiberoptic cable.

The key to planning such a 21<sup>st</sup> century energy system is to embrace diversity and consider what combination of resources is appropriate for a given location, circumstance and local resource mix. It allows for new approaches, because such a system exists in, of, and for the community, rather than being removed and remote from it. Another great difference is that more of its components tend to enhance rather than hurt the quality of life of residents. It produces more jobs and local economic benefits, while being more affordable overall.

## **Long-Term Procurement Plans should include closure of nuclear power plants**

In May 2010, California ordered a phaseout of once-through cooling (OTC) for power plants.

Initial reports included nuclear power plants in the ban:

State water regulators on Tuesday ordered coastal power plants to begin phasing out a cooling process that is blamed for killing billions of aquatic organisms every year.

After a nine-hour public hearing, the five members of the state Water Resources Control Board voted unanimously to adopt regulations for 19 power plants that draw billions of gallons of ocean and estuary water each daily for cooling.

The board said the so-called "once-through" cooling process inadvertently traps a staggering number of fish, larvae and eggs each year, including an estimated 62,000 delta smelt — a species listed as threatened under the federal Endangered Species Act.

*In the case of Diablo Canyon, nearly 2.3 billion gallons of seawater — carrying an estimated 1.5 billion fish and crab larvae per year — are circulated through the cooling system each day. Many, if not all, of the larvae are killed by the 20-degree temperature increase or are eaten by barnacles and other crustaceans that line the cooling water pipes. The heated water has also altered the marine ecology of the plant's discharge cove.* “California water regulators adopt new rules for Diablo and other power plants,”

by Robin Hindery, AP; in May 5, 2010 San Luis Obispo Tribune

<http://www.sanluisobispo.com/2010/05/04/1128067/diablo-canyon-cooling-regulations.html>

## **Prudent response to Fukushima requires shutdown of CA nuclear reactors**

The disaster at Fukushima Daiichi nuclear power complex in Japan is ongoing; Japanese authorities recently predicted that it will be the end of the year at least before the situation is even stabilized. This indicates that there is still a potential for radiation levels from several broken, leaking reactors and fuel pools to increase to the point that workers must suspend activities and leave the area, with unknown consequences.

The Fukushima tragedy is the third wakeup call in thirty years, proving beyond a doubt that nuclear power is the greatest threat to the reliability of the electricity system, the viability of the economy, and indeed the survivability of the human race that the world has ever known.<sup>3</sup>

Even the nuclear industry anticipates a need for evaluation and retrofits of California's nuclear power plants to incorporate “lessons learned” from Fukushima. WEM believes that a permanent shutdown is warranted based on reliability and economic considerations that are within the CPUC's jurisdiction; also to protect lives and preserve the gene pool.

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<sup>3</sup> Nuclear power is also the breeding ground for nuclear weapons, because every nuclear reactor produces plutonium, the key ingredient for nuclear weapons. Technology for “reprocessing” nuclear spent fuel to extract plutonium is no secret; if a country has nuclear power it can readily manufacture bombs.



It is incumbent on the Commission to begin preparing for a shutdown of Diablo Canyon and San Onofre nuclear reactors, whether temporary or permanent. Both plants sit on and near multiple faults capable of major earthquakes; both sit on oceanfront real estate where tsunamis are a possibility. The earth's tectonic plates can heave at any moment, without warning.

People can argue all day long that Fukushima will or won't be repeated in California, but the incredible fact remains that neither earthquakes nor tsunamis were explored during the licensing process for either San Onofre or Diablo! A leaked transcript of three NRC hearings on Earthquake and Emergency Planning, during the Diablo Canyon licensing process, finds the Commissioners discussing how to paper over the fact that they intended to license Diablo without studying earthquakes, just as they had done for San Onofre. NRC Chair Palladino declared, "[E]arthquakes are really no worse than fog or whatever" in that they may cause momentary delay<sup>4</sup>

One thing that is known for certain is that every nuclear accident has revealed design flaws and human shortcomings that were ignored or undreamed of in advance.<sup>5</sup>

*We should appreciate having the luxury of commencing orderly shutdown and decommissioning procedures rather than having to endanger workers and the public trying to obtain a partial shutdown under desperate emergency conditions — like in Fukushima and Chernobyl — facing decades of wrestling with unquiet reactors, and having to explain to former residents why vast regions will be uninhabitable for centuries.*

*There are the astronomical costs if anything goes wrong with nuclear power, which the industry managed to foist onto the public through the Price-Anderson Act, which capped the utilities' liability. In Japan, not only the power company but other major industries are now at risk. Food products are already embargoed, and people are wondering if they're willing to risk exposure to radioactivity from Japanese electronics and cars? Worldwide fears are so grave that Secretary of State Hilary Clinton and her Japanese counterpart recently pledged publicly to deny access to information, to promote "calm."<sup>6</sup>*

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<sup>4</sup> NRC transcripts of closed meetings 7/25/1984, 7/30/84, and 8/3/84.

<sup>5</sup> For a fairly comprehensive list of nuclear accidents in the US at commercial reactors, research facilities and weapons complexes, see <http://www.lutins.org/nukes.html>

<sup>6</sup> Having American and Japanese leaders publicly announce censorship was a lamentable spectacle. But at least it provided a reference point for when we should quit believing public reports about Fukushima. This is perhaps preferable to the completely surreptitious decades-long tampering with radiation and mortality statistics in the U.S., and official downplaying of radiation dangers, which are described in the book *Deadly Deceit*, by Jay M. Gould and Benjamin Goldman, 1990. Or the stonewalling by Soviet authorities of hundreds of thousands of deaths and

**Ample resources exist to cover local reliability, resource adequacy or unexpected demand** WEMBPP ensures resource adequacy statewide and local reliability in all areas with power plant shutdowns, including gas or diesel once-through cooling (“OTC”) plants as well as nuclear power plants (“NPPs”). Our plan also provides plenty of power for unexpected increases in demand over the ten-year horizon, even beyond the 15% reserve requirement.

**Renewables.** There are renewables developers who would be delighted to have more business. Marin Energy Authority put out a Request for Proposals (RFP) in Jan. 2011 for 40 MW of power from within 200 miles of Marin; it received bids for 600 MW, all viable projects from developers with excellent track records. Clearly, there’s no shortage of power if utilities are willing to ask. These projects are expected to be up and running within the five-year window covered by WEMBPP; most can be online within two years.

**Conventional power.** The option exists for utilities to buy power through Power Purchase Agreements (“PPAs”) from newer combined cycle plants that have been underutilized.

**Demand resources and DG.** The number 1-2-3-4 options in WEMBPP’s recommended portfolio are demand resources — energy efficiency and demand response — as well as CHP and local solar DG. We mention these preferred resources last because IOUs and the Commission have up to now failed to fully appreciate or utilize their capabilities.

*The Commission can learn from the very successful experience of Sacramento Municipal Utility District (SMUD), which used demand resources — primarily energy efficiency — for replacement power, after precipitously shutting down its nuclear power plant, Rancho Seco, in 1989.<sup>7</sup> The owner of Three Mile Island (TMI) also solved its problem of replacement power with energy efficiency.*

## **Key features of WEM’s Bundled Procurement Plan for California IOUs**

### **WEMBPP complies with Commission directives**

WEM’s Bundled Procurement Plan (WEMBPP) builds on the foundation of the updated *Standardized Planning Assumptions for System Resource Plans* attached to the February 10, 2011 Ruling. How and where our plan diverges from those assumptions is: *the plan expands*

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degraded health for millions of people, resulting from Chernobyl; and the suppression of information about catastrophic explosions in a nuclear waste storage facility in the Urals Mountains near the town of Kyshtym in 1957.  
<sup>7</sup> The shutdown began with an unplanned outage following an incident at the plant. It never reopened, because the public subsequently voted for permanent closure and SMUD complied with the decision of its ratepayer-owners.

*preferred resources, particularly energy efficiency (EE) and distributed generation (DG), while retiring power plants that use once-through cooling — including nuclear reactors.*

### **WEMBPP is quick to implement; transmission upgrades not required**

New resources in our plan consist largely of additional energy efficiency and solar distributed generation, neither of which require transmission upgrades. See expanded discussion of these resources below.

### **WEMBPP improves access to the grid**

The vision of deregulation was to open up the grid and make it possible for anyone to sell energy to anyone through that grid. The devil of course was in the details. WEMBPP addresses two of these problems in particular: (1) the problem of congested power lines, and (2) the problem of getting financing for huge, risky ventures. WEMBPP's emphasis on EE and DG greatly reduces the amount of power that needs transmission, and also greatly reduces the amount of financing needed for each project, making it possible for many more clean energy entrepreneurs to participate in the market. In addition, WEMBPP's simple changes to contract language, including for Rule 21 projects (see below), makes it possible for small projects to obtain financing.

### **WEMBPP recommends a fiberoptic microgrid**

There will still be work related to the grid, but it will pull away from the grand but environmentally questionable invasion of wild and scenic places, to development of an intricate, sensitive, and responsive microgrid in populated areas, which can accommodate DG interconnections and provide feedback on both DG and EE installations to enable overall "right-sizing" of resources.

WEM recommends installing fiberoptic cable (with wired meters) – for huge bandwidth, superfast 2-way communications, full security, and no electromagnetic frequency (EMF) or radiofrequency (RF) problems. Revenue from telecom partnerships for phone and internet services on the same wires makes this affordable.

### **WEMBPP is not hung up on size**

WEMBPP's concept differs from the outmoded energy systems of the 20<sup>th</sup> century in resource and size diversity — we welcome all sizes, as long as they're clean. To old-fashioned procurement planners, many small, varied resources are a nightmare; they're used to dealing with power in chunks of 500 MW or larger. To them, a 2kW solar system is a toy, and 50W of savings from a 15W CFL replacing a 75W incandescent is beneath recognition. So they gravitate towards huge desert solar even though those deals tend to violate key environmental principles and also keep falling through...

To WEM, tiny EE and DG resources are magical. They are not at all limiting. After all, you can multiply small numbers to get big numbers. For example, 250,000 2 kW household solar PV systems; 5,000 100 kW commercial PV systems; 10 million CFLs, or appropriate numbers of efficient air conditioners in residential and commercial buildings would each provide resources comparable to a 500 MW power plant – without an inch of transmission lines and without producing smoke, GHG or nuclear waste...

Plus these resources generate happy customers with lower bills and healthier low-income people of color communities, when power plants are shut down that have been poisoning their children.<sup>8</sup>

### **WEMBPP comports with SB1X 2; assumes size is not an issue in resource adequacy**

Pacific Environment Motion filed April 22, 2011 quoted language from SBX1 2, just signed into law, requiring that “by July 1, 2011, the commission shall determine the effective load carrying capacity of wind and solar energy resources on the California electrical grid...”<sup>9</sup>

The Motion specifically requested that CPUC:

[D]etermine and include the load carrying capacity values of solar PV systems less than 20 MW in the LTPP Standardized Planning Assumptions . . . in evaluating system resource needs and resource adequacy requirements. 4-20-11 Ruling p. 1, quoting 4-22-11 Motion, p. 1.

The Ruling denied the motion on the basis that the issue is being handled in the resource adequacy proceeding.

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<sup>8</sup> *Power Against the People*, Nov. 2001, Latino Issues Forum, found that the vast majority of power plants are located in low-income, people of color communities.

<sup>9</sup> P.U. Code § 399.26(d).

The statute required that a decision be issued by July 1, 2011. Passing the bill in emergency special session and setting such an early date for a decision clearly shows that the Legislature intended for this law to go into effect without delay.

WEM is confident that the Commission will honor the Legislature's intent, and that parties including Pacific Environment will carry the small resource issue to the resource adequacy docket.

The decision on Track II issues in this LTPP proceeding is projected for September; therefore the ALJ and Assigned Commissioner will have the benefit of the final resource adequacy decision complying with the new RPS bill in time to include its provisions in the proposed decision in this case slated for September. Reply briefs in this proceeding will be filed only one day before the resource adequacy decision (June 30<sup>th</sup>), so it appears that parties will not yet know exactly what the Commission will decide, however the draft decision in Resource Adequacy will be available to provide some guidance for our briefs. In any case, the schedule in this proceeding affords time for the ALJ to determine whether proposed procurement plans comply with the new resource adequacy provisions, or if adjustments must be made.

*For all these reasons, WEM has chosen to assume the admissibility of renewable resources of any size in its BPP.*

We note that the 1-13-11 Scoping Memo allowed for procurement plans to differ from Planning Assumptions as long as they explain the basis for the difference. WEM believes that no resource should be disqualified based on small size; that would eliminate virtually all Distributed Generation and Energy Efficiency.

It's important for CPUC to develop processes to ensure that small resources can be interconnected and that they are functioning as intended.

### **Interconnection and contract issues**

The Long-Term Procurement Plans should address issues regarding Rule 21, the tariff that sets metering and operating standards for self-generation facilities interconnected to the utility distribution system. Although the Commission's regulation of interconnection of independent power producers with the utilities' electric systems is being addressed in other proceedings (R.10-05-004, et al.), certain issues must also be considered as a part of the procurement policies required of the regulated utilities in this proceeding.

The utilities' interconnection procedures approved by the Commission and known as Rule 21 are hindering the achievement of California's distributed generation goals. The workshop organized by the Commission's Energy Division and held on April 29, 2011, presented an opportunity for independent power producers (IPPs) to describe their experiences with the Commission mandated policies. Many IPPs explained that they had tried to construct projects and interconnect, but most had failed. The few IPPs who announced success also explained their problems. Too few projects are now interconnected to the State's electric system and the problem is the dysfunctional Commission procedures.

This issue also has federal aspects because federal law, the Public Utilities Regulatory Policy Act (PURPA), and the agency mandated to implement this law, the Federal Energy Regulatory Commission (FERC) have another program and separate procedures for interconnecting IPPs with the regulated utilities' electric systems. The regulated utilities have been requiring the IPPs to choose which procedures they are opting to use. Those who choose the Commission mandated Rule 21 procedures have failed to interconnect their projects.

### **Resolve problems in contract language**

Utilities' contract language for small renewable projects have had the effect of killing their opportunity to get financing. The problem is a clause in the contracts which allows the utility to cancel the contract at any time if they could get a better deal. This clearly needs to be changed.

### **Additional issues related to nuclear power plants shutdown**

#### **Deploy solar DG and EE in cities and counties where local reliability is an issue**

Some areas may experience local reliability issues when power plants are shut down pursuant to the State's Water Quality Control Board ban on once-through-cooling (OTC).

According to CPUC's presentation to the Senate Energy Committee hearing on nuclear power safety issues April 14, 2011, California needs 595MW to meet CAISO's local reliability capacity requirement in the Los Angeles Basin if and when San Onofre Nuclear Generating Station (SONGS) shuts down.<sup>10</sup>

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<sup>10</sup> *Nuclear Power Plant Issues at the CPUC; Senate Hearing April 14, 2011*, by Gurbux Kahlon, Program Mgr., Energy Division, slide 6.

As noted above, a variety of DG and EE resources are available that can either serve or erase local reliability needs. These resources are perfect for deployment in populated areas; indeed most of them *require* populations to exist!

WEM recommends solar DG, energy efficiency, demand response, CHP, and/or other renewables and hydropower (including pumped storage). The amount of each resource in the overall mix would depend in part on how quickly they are needed. Energy efficiency (and demand response) can be up and running most quickly, so they should take precedence in any urgent situation. Energy efficiency resources that reduce air conditioning load would be particularly appropriate to address the local reliability area currently served by SONGs.

### **Grid operational stability**

CPUC's 4-14-11 presentation to the Senate Energy Committee (described above) also stated that SONGS provides "grid operational stability" in addition to its capacity. Ibid, slide 6. WEM recommends initiating meetings with ISO immediately to determine what else might be able to fulfill this requirement.

WEM took part in two years of meetings in San Francisco in which ISO maintained there was a need for a minimum of 200 MW of in-town resources for grid operational stability, which prevented shutting down the ancient Hunters Point Power Plant even after local capacity requirements were met. In the end, it turned out that grid stability could be achieved by the simple expedient of regularly washing saltwater residue off of key components at substations on weekends, when usage is typically low so these lines can be temporarily disabled.

### **Replacing "strategically located" resources, e.g. Diablo Canyon Power Plant**

CPUC's presentation stated that Diablo Canyon Power Plant ("DCPP") "is not located in a transmission constrained area [and] it does not fall into a Local Capacity Area defined by CAISO." It concluded with the vague assertion: "DCPP is strategically located but is not critical for grid stability." Ibid, slide 7. Meetings with ISO should determine exactly what is meant by "strategically located," and take steps to determine how to mitigate that.

WEM assumes that this means that DCPP serves power to a wide range of communities in northern and central California. If correct, this would offer the opportunity to replace power

in each community along the lines described above for replacing San Onofre power in the Los Angeles area.

## **How to *really* make Energy Efficiency #1 in the “Loading Order of Resources”**

### **(1) Decapitate the peak with efficient a/c, insulation, white roofs and trees**

We plan “supply” resources to meet peak load — a hot afternoon when air conditioners are cranked up to the max, and cash registers, computers, tvs, refrigeration, and all kinds of machinery are humming.

*The most elegant and cost-effective way to meet that peak is to make all those energy end-uses more efficient — simply eliminating the high usage, which cuts off the peak.* Examples of energy efficiency that can dramatically reduce peak load are more efficient air conditioning; “recommissioning” of HVAC, which ensures that air conditioners are properly charged and maintained; “shell” measures such as insulation that tighten up the outer “shell” of a building; white roofs that reflect the sun’s heat rather than absorbing it; and planting shade trees to shield the south and west sides of buildings against the summer sun. ***All of these measures serve to reduce load from air conditioning, which is forty percent of peak load in California.***<sup>11</sup>

Ever since it shut down its nuclear power plant, SMUD has been funding the Sacramento Tree Foundation to plant shade trees throughout the city. This has saved vast amounts of energy — by *lowering the outdoor temperature* in the city 7 degrees!

Perversely, California’s energy efficiency evaluation system rewards items that save “baseload” instead of peak — because they are used more hours day or night and during all seasons. This is why some 90% of our EE dollars are spent on lighting.

***California needs to prioritize peak savings by evaluating energy savings based on the value of the supplies that are deferred or displaced.***

One of the most effective way to do that is to allow EE to bid against supply resources in RFOs, as described further below. There are successful examples of this practice in other states.

California urgently needs to treat EE on a par with supply side resources, most urgently by tracking where and when savings occur — but also by changing the “culture” of both EE and

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<sup>11</sup> “Assistance in Updating the Energy Efficiency Savings Goals for 2012” Itron Inc, Submitted to CPUC March 24, 2007, Table E1-1 page E1-2.



procurement, to foster greater understanding of how these things can fit together. Other ways to increase energy savings at specific times and places are described below.

## **(2) Redefine the EE department as part of Energy Supply**

The first step in making energy efficiency (EE) the top of the loading order is to redefine the EE department as part of the energy resources division in the company's organizational structure. In PG&E's case this is called "Energy Supply."

Currently, PG&E's EE dept. is part of "Customer Care." This erroneous designation is one reason why the company's "procurement planners" had no communication with EE planners, and therefore had no idea how to use EE as a resource, as they testified in the 2007 LTPP hearings.

## **(3) Treat EE as a real resource**

CPUC need not wait for the Legislature to direct it to use EE as a resource — this has already happened in AB57, and the Community Choice law specifically envisioned use of EE for local reliability.

The Commission has yet to provide the basic policy necessities for EE to function as a resource. These most local, tangible and well-defined resources are treated as disembodied, floating above each IOU's territory as one large, generalized number — "energy savings" that are simply everywhere! but nowhere when you need them...

Other states quit making this mistake a few years ago and developed the means for determining reliability based on EE. In those states EE operates on a par with energy supplies — and is held to higher standards of performance. At well over a billion dollars a year of EE spending, it's high time for California to follow suit.

## **(4) Begin evaluating energy efficiency in terms of grid reliability**

***California urgently needs to track EE spending and savings in ways that enable it to substitute for supply side resources (or transmission/distribution).***

Currently, California's elaborate Evaluation, Measurement & Verification (EM&V) system spends \$100m per 3-year EE cycle, measuring almost everything *except* what's essential for utilizing EE as a resource, namely *where* on the grid the savings are achieved (and where the

money is spent). Another major problem is that *EM&V reports are published up to a year after the end of the EE cycle — i.e., up to four years after the savings were made.*

The reason for this disconnect is that EM&V has been primarily occupied with determining “shareholders incentives” for utilities based on the results of EE programs — rather than ensuring that EE can serve as a reliable resource, comparable to energy supplies.

Unfortunately, there has been a lack of communications between the procurement proceedings and the energy efficiency proceedings— similar to the lack of communication between the procurement and EE depts. of the utilities.

***The EM&V system is under the purview of CPUC, therefore the ALJ and Commissioner in this proceeding should direct specific changes to be made to EM&V, to enable EE to fully function as a resource.***

Utilizing energy efficiency as a resource would require, among other things, better “ex ante” (upfront) projections of how much savings each measure is expected to achieve (in context of the program design);<sup>12</sup> rigorous “baseline” measurement (i.e. what is being replaced by the efficiency measure); and more “real-time” EM&V, measuring EE impacts on the grid as they occur, rather than long after the fact — which in some cases is even after the end of the “useful life” of the measure.

#### **(5) Adapt ISO New England’s manual for measuring demand resources**

ISO-New England has developed evaluation/measurement/verification guidelines that enable EE to bid into RFOs. In our 2-23-11 Prehearing Conference Statement, WEM recommended that the Commission utilize or adapt *ISO New England Manual for Measurement and Verification of Demand Reduction Value from Demand Resources (Manual M-MVDR)*, Revision: 2, Effective Date: June 1, 2010, which is posted with other ISO-NE manuals at [http://www.iso-ne.com/rules\\_proceeds/isone\\_mnls/index.html](http://www.iso-ne.com/rules_proceeds/isone_mnls/index.html)

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<sup>12</sup> Currently, utilities are rewarded for *exaggerating* ex ante estimates. This is because “shareholders incentives” (utility profits on EE) have been based largely on these values, even though independent evaluations revealed they were too high. See for example, Grueneich dissent to D1012049 [http://docs.cpuc.ca.gov/PUBLISHED/FINAL\\_DECISION/128882.htm](http://docs.cpuc.ca.gov/PUBLISHED/FINAL_DECISION/128882.htm)

**(6) Revise RFO rules to enable bidding by demand resources (and DG)**

*RFO terms must be revised to allow demand-side resources including EE and Demand Response (“DR”) the opportunity to bid.<sup>13</sup>*

In the LTPP hearings in 2007 (in R0602013), PG&E’s top procurement planner rejected more efficient air conditioning as eligible to address peak load, on the basis that peak load-serving supplies had to be “ramping” and “dispatchable” — neither of which applied to EE.

ISO-New England made EE eligible to bid in its auctions beginning four years ago. In the very first year it was allowed to bid, Energy Efficiency won the auction with a variety of EE resources totaling 1000 MW of peak capacity. This most cost-effective resource continues to win “procurement” contracts in the six states encompassed by ISO-New England; see the latest results here: [http://www.iso-ne.com/committees/comm\\_wkgrps/mrks\\_comm/dr\\_wkgrp/mtrls/2009/dec22009/index.html](http://www.iso-ne.com/committees/comm_wkgrps/mrks_comm/dr_wkgrp/mtrls/2009/dec22009/index.html)

**(7) Establish a revolving fund for On-Bill Financing of peak-reducing measures**

Many current EE programs risk failure to meet goals because customers can’t afford the “customer share” of EE costs — which can run as much as 95% of the total cost of an efficiency item or service — and have great difficulty accessing loans in this poor economy. “On-Bill Financing” (OBF) removes this barrier by providing 100% of up-front costs, which are then paid back by retaining the amount of the old bill (reflecting higher usage) until repayment is completed, and only then dropping the bill to the new, lower usage.

*Residential programs have proved successful in other states, and should be launched in California without delay.* Currently, the only OBF programs are for small businesses (PG&E only recently launched a small OBF program; SDG&E and SCE have had successful programs for several years).

OBF programs could be directed to prioritize peak-reducing measures such as efficient air conditioning, shell measures, white roofs and trees.

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<sup>13</sup> RFO terms should also be revised to allow bidding by Distributed Generation (DG).

**(8) Increase the capability of EE to meet goals — and increase the goals**

There are serious performance problems with utility EE programs, which could negatively affect the achievement of EE goals subject to this LTPP. These problems have not been fully resolved — some have not yet been examined. They include:

**Massive shortfalls in utility performance.** 2006-08 utility EE portfolios measured lower than 65% of goals for all utilities; major 2004-05 programs were in the 40% range. 2010-12 performance could also be poor, in part because economic problems and the tight credit market are severely limited the ability of customers to finance their share of the costs. Federal stimulus funds are helping somewhat, but will be depleted before the end of the cycle. Unfortunately, a major program that is using most of the stimulus funds (“Energy Upgrade California”) has design flaws that may result in much of the federal funding being wasted on unsuccessful marketing and energy audits instead of actual energy savings. This program largely bypasses hot inland areas where peak savings are most needed.

**Only 20% of EE goals credited as available to reduce supplies, in last LTPP.** The LTPP decision D0712052 credited only 20% of EE goals as actually available to serve load (i.e., reducing energy supplies) citing uncertainty about utility performance as well as confusion among utilities, CEC and CPUC about how much EE was already “embedded” in demand forecasts. This led to a multi-year study conducted by CPUC and CEC staff. Uncertainty remains, which the current LTPP will have to resolve. Among other issues, there is a dispute about whether or not short-lived measures will be replaced (e.g. CFLs, which last only a couple of years in commercial applications); “cumulative savings” assumptions rely on replacement but so far, utilities refuse to be responsible for this.

Joint Staff has identified ongoing work on this issue including “refining IOU program estimates”, and “identifying and estimating overlap among programs, standards, and naturally occurring savings.”<sup>14</sup>

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<sup>14</sup> CEC Draft forecast, May, 2009, p. 149.

**(9) Ensure use of actual IOU goals from EE proceedings**

The actual goals CPUC set for utility EE programs in 2004 (in D0409067) would provide less than 0.3%/year reductions — i.e. less than 3% over ten years; in 2008 and 09 these goals were *further reduced*. These numbers bear no relation to the much higher goals in the CPUC’s “Strategic Plan for Energy Efficiency through 2020” (updated January 2010) or the ARB goals.

*The Planning Assumptions reflect the lower goals set in EE proceedings, but the ALJ and parties to this proceeding should be aware of the confusion on this issue and make sure the IOUs’ numbers reflect the actual EE goals.*

**(10) Recognize that EE savings from RFOs would be *additional* to “EE goals”**

The Commission should understand that an RFO allowing EE could capture savings — particularly peak savings — that are not likely to be realized in current EE programs.

The overall potential for EE savings is far greater than what is reflected in current goals, which are based on studies of a very limited number of EE measures. Many effective peak-reducing measures were not included in the potential studies nor in current programs. Other savings are unlikely to be captured because incentives are inadequate in this economy and there is very little financing available.

If we end up with a hybrid system (including RFOs in addition to utility-controlled EE programs), there is all the more reason for updating EM&V to be able to sort out and properly evaluate the impact of energy savings on the grid.

**(11) Anticipate potential savings resulting from GHG reduction funding**

The decision in this case should recognize the potential for additional energy savings stemming from future funding for GHG reductions. D0810037, OP 15 recommended that ARB require “all auction revenues allocated to the electricity sector be used to finance investments in energy efficiency and renewable energy or for bill relief, especially for low income customers.”

Currently, R1103012 is involved in setting rules to make that happen, in the event that the courts lift the environmental justice injunction against cap & trade, or ARB (or CPUC) come up with a near-term alternative. The decision in this case should take into account any decisions emanating from that proceeding prior to issuance of this proposed decision.

**WEMBPP is compatible with expanded departing load through Community Choice**

WEM's Bundled Procurement Plan is compatible with any amount of Community Choice departing load. Stranded assets need not be created. Indeed, WEM's plan allows for a smooth transition to local community control, if desired.

**CONCLUSION: New concepts for a 21<sup>st</sup> century energy system**

While the Jan. 13th Memo seemed to indicate that “down and dirty” short-term plans are all that's needed here, WEM believes there's no time like the present to begin developing an energy system based on 21<sup>st</sup> century concepts. It's especially fortuitous to do so now, since California has such a large cushion of reserves. This gives us time to make the shift and tweak it further as necessary, without risk of energy shortfalls.

What's needed is a fundamental mind-shift away from the 20<sup>th</sup> century model of centralized systems where huge power plants and long transmission lines are seen as the highest achievements — and a smattering of renewables and energy efficiency are grafted onto that. An appropriate 21<sup>st</sup> century energy system that's built around renewables and efficiency doesn't look like that. It's a fundamentally different system, with its own internal logic.

A host of energy efficiency, renewables, and microgrid developers, and job-seekers in these industries, look forward to the Commission moving us into this new era promptly.

**Appendix A**

**QUALIFICATIONS AND PREPARED TESTIMONY**

**QUALIFICATIONS AND PREPARED TESTIMONY**  
**OF**  
**MARTIN HOMEC**

Q1. Please state your name and business address.

A1. My name is Martin Homec. My business address is P. O. Box 4471, Davis, California 95617

Q2. By whom are you employed and in what capacity?

I am an attorney in private practice and I am working with Women's Energy Matters in the R1005006 proceeding.

Q3. Please describe your educational background and professional experience.

A3. I received a B.A. in Physics from the University of California. I worked for the CPUC from 1983 through 2007.

Q4. What is the purpose of your testimony?

A4. I am sponsoring WEM's testimony on renewables interconnection issues.

Q5. Does this complete your testimony?

A5. Yes, it does.



**QUALIFICATIONS AND PREPARED TESTIMONY  
OF  
BARBARA GEORGE**

Q1. Please state your name and business address.

A1. My name is Barbara George. My business address is P. O. Box 548, Fairfax, California 94978.

Q2. By whom are you employed and in what capacity?

I am the Executive Director of Women's Energy Matters (WEM) and I am working with WEM as an advocate in the R1005006 proceeding.

Q3. Please describe your educational background and professional experience.

A3. I received a B.A. in Theater and English from Stanford University. I have been WEM's principle advocate in multiple CPUC proceedings since 2001. I have worked in many capacities on energy policy issues since the 1970s, particularly supporting energy efficiency and renewables, and analyzing the dangers of nuclear and fossil fuel power.

Q4. What is the purpose of your testimony?

A4. I am sponsoring WEM's testimony on energy systems, energy efficiency, and nuclear issues.

Q5. Does this complete your testimony?

A5. Yes, it does.