BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Integrate and Refine Procurement Policies Underlying Long-Term Procurement Plans.

Rulemaking 08-02-007
(February 14, 2008)

COMMENTS OF THE COMMUNITY ENVIRONMENTAL COUNCIL
ON SCENARIO ANALYSIS AND METRICS

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August 22, 2008
The Community Environmental Council ("Environmental Council") submits these comments pursuant to the August 13, 2008, Notice of August 28, 2008 Energy Division Workshop on Planning Scenarios & Metrics and Data Request ("Data Request").

The Environmental Council is a member-supported non-profit environmental organization formed in Santa Barbara in 1970 and is one of the leading environmental organizations in our region. In 2004, the Environmental Council shifted its mission to focus entirely on energy and transportation issues and we are spearheading a regional effort to wean our communities from fossil fuels, on a net basis, during the next two decades. We are almost unique in combining vigorous on the ground advocacy on a number of energy and climate change-related issues with our work on state and federal policy issues. Our state policy work is directly informed by our experience with what works at the local level – "on the ground." More information on the Environmental Council and our energy programs may be found at www.cecsb.org.

In summary, the Environmental Council:

- Supports the suggested principles for determining the appropriate scenario analyses
- Suggests the Commission include this succinct statement re the distinction between scenario and sensitivity analyses: “Scenario analysis is distinguished from sensitivity analysis in that scenarios require additional parameters and sensitivity analyses require only different values for the various parameters.”
Urges the Commission to require a number of specified scenarios and sensitive analyses be included in the LTPPs; more specifically, we urge the Commission to require a reference case, a 33% by 2020 RPS case, and a 40% by 2020 RPS case.

I. Scenario and Sensitivity Analysis

The Commission describes very well the distinctions between scenario analysis and sensitivity analysis, hitting all the right points. We suggest adding a succinct description of the distinction, such as:

“Scenario analysis is distinguished from sensitivity analysis in that scenarios require additional parameters and sensitivity analyses require only different values for existing parameters.”

The Environmental Council agrees with the three principles set forth by staff in the data request (pp. 2-30). Pursuant to these principles, we propose the following scenarios be required in the LTPPs, among others selected by the Commission and the utilities, with more description after the brief table.

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<td>33% RPS by 2020, plus aggressive EE</td>
<td>All current laws plus a 33% by 2020 RPS and &quot;high case&quot; for EE potential</td>
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1. A reference case that accounts for all existing laws (20% RPS extended to 2020, EE programs through 2020, AB 32, demand response, cogeneration, CSI, etc.). The AB 32 draft Scoping Plan should be finalized by the time the LTPPs are begun, even if the final AB 32 rules are not yet in force. So while the AB 32 requirements may not be “set in stone” by the time the LTPPs are begun, there will likely be significant guidance for the utilities in the form of a completed scoping plan.

2. A 33% by 2020 RPS and more aggressive energy efficiency case. According to our preliminary calculations (offered in comments submitted in this proceeding on March 17, 2008), achieving the 33% RPS level will require that the utilities add no more natural gas plants to their portfolios between now and 2020 (with the possible exception of new plants required for reliability purposes, as determined by CAISO, the Energy Commission and this Commission). Utilities will also likely have to curtail generation from existing natural gas plants as new renewables come online. Obviously, reliability issues are implicated when we consider the higher RPS levels and work is reportedly being carried out by the CAISO on this issue. The more aggressive energy efficiency case should use the “high case” from the 2008 Itron energy efficiency potential study completed for the Commission in R.06-04-010. If the Itron study is updated before the LTPPs are begun, as it may be, the LTPPs should use the “high case” from the updated study. This scenario should also include a 3,000 MW CSI buildout by 2020 (the CSI’s official goal is 3,000 MW by 2017, but this seems ambitious under current trends; hence, it’s inclusion in this more ambitious scenario). We leave it to the Commission and the utilities to
decide what levels of demand response and cogeneration are appropriate for this scenario.

3. A 40% by 2020 RPS and more aggressive energy efficiency case. With Prop 7 on the ballot, it is possible that a 40% by 2020 RPS will become law this year. While Prop 7 may not actually result in attaining the 40% by 2020 RPS level (our view is that it will make it much more likely that the state will reach the 33% by 2020 level), this case should be modeled. At the least, this scenario will provide guidance on the next step beyond the 33% RPS level, which will very likely be useful for the 2025-2030 time frame. (For example, Prop 7 requires a 50% RPS by 2025).

The Environmental Council proposes that the following sensitivity analyses be required for each scenario:

1. A reference case assumption about natural gas prices, reflecting the latest (probably 2009 figures, but 2010 if available at that time) market price referent figures.

2. A high case assumption about natural gas prices, assuming a gradual march toward $20/MMbtu by 2020. NYMEX Henry Hub futures contracts reached over $13/MMbtu in July of 2008 before pulling back over the last month to $8, indicating the high volatility and upward trend more generally that we can expect in the coming years, particularly if the international trend toward pegging natural gas prices to oil prices is adopted in the U.S.). Natural gas prices have appreciated 300% in the last decade, from $2 to $8 in 2008 – with some steep peaks along the way. Extrapolating this trend to 2020 yields approximately $32/MMbtu natural gas. This is certainly a possibility, but it seems unlikely natural gas will reach this level. $20 by 2020 reflects a 150% increase over 12 years, or an average 2.25% increase each year (non-compounded), which seems to be a
more reasonable figure for LTPP scenario purposes. See the Environmental Council’s comments submitted on June 11, 2008, in R.06-04-010 on the global and domestic energy price situation, attached to the end of these comments (also see Fig. 1). Natural gas prices and oil prices are integrally linked, so as oil prices continue their upward march (reaching $147/barrel in July and at about $120/barrel at the end of August, up over 1,200% in the last decade), we can expect natural gas prices to follow suit – particularly as energy markets are increasingly globalized for natural gas and coal.1

Figure 1. U.S. wholesale natural gas prices 1998-2008 (Source: EIA).

3. A low case assumption about natural gas prices in which natural gas prices are assumed to average $10/MMbtu through 2020. This is a

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1 Oil is already traded in a highly fungible global market.
possibility, albeit with a low likelihood, so should be considered in each scenario.

II. Metrics

Due to limited time, the Environmental Council has no comments on the metrics issues at this point.

Respectfully submitted,

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Dated: August 22, 2008
Attachment A: Abbreviated Community Environmental Council comments on global and domestic energy price situation submitted in R.06-04-010 on June 11, 2008
BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA


COMMUNITY ENVIRONMENTAL COUNCIL POST-WORKSHOP COMMENTS ON LONG-TERM ENERGY EFFICIENCY SAVINGS GOALS

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June 11, 2008
COMMUNITY ENVIRONMENTAL COUNCIL POST-WORKSHOP
COMMENTS ON LONG-TERM ENERGY EFFICIENCY SAVINGS GOALS

The Community Environmental Council (“Environmental Council”) respectfully submits these post-workshop comments on the long-term energy efficiency savings goals, pursuant to ASSIGNED COMMISSIONER AND ADMINISTRATIVE LAW JUDGE’S RULING SEEKING COMMENT ON DEFINITION OF ENERGY SAVINGS GOALS FOR 2009 THROUGH 2011, dated June 2, 2008.

The Environmental Council is a non-profit environmental organization founded in Santa Barbara in 1970. Promoting renewable energy and energy efficiency is now our sole mission. More information on our programs may be found at www.cecsb.org. The Environmental Council is also a consultant to Southern California Edison for the South Coast Energy Efficiency Partnership in southern Santa Barbara County (www.southcoastenergywise.org), a “local government partnership” funded by public goods charge and procurement funds. Our state policy work is informed by our local efforts on energy efficiency and renewable energy project development and outreach.

In summary, the Environmental Council:

- seeks to apprise the Commission of the very different energy price environment we have entered into and will probably be stuck with in perpetuity. In particular, global oil production is very likely at or near its peak – a conclusion that has reached the mainstream media in recent months – and substantial additional price increases will very likely follow. Oil prices lead all other energy prices because the oil market is by far the largest energy commodity market and because fossil fuels are to some
degree fungible. We have recently witnessed record high natural gas prices without any major events (like Hurricanes Katrina and Rita in 2005) prompting this increase, and far higher prices are likely to follow due to domestic and global natural gas market dynamics. Similarly, coal prices have reached record highs, doubling over the last year, and are set to go much higher as US coal producers expand exports into global coal markets. For these reasons, the Commission should complete an update of the Itron potential study in light of the 2008 Market Price Referent and its associated natural gas price forecasts. With today’s natural gas price of $12.50/MMbtu, vs. the $7.50/MMbtu used in Itron’s current study, there will likely be a significant increase in economic potential for energy efficiency, and a concomitant increase in market potential.

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I. Discussion

a. Global energy prices are surging

Oil prices and Their Connection to Utility Sector Costs

It is important that the Commission consider in this proceeding the dramatically changed price environment for energy of all types. We have entered an era of rapidly growing global demand for all forms of energy, pushing prices to new records in every sector. We are also entering a period of plateauing or diminishing oil supplies, with consequent rapid price increases (which will likely rise far higher than the $139/barrel record reached on June 6, 2008). Global oil supplies have been on a plateau for three years now (see Figure 1), with a small uptick in the last quarter of 2007 and first quarter of 2008. In the second quarter
of 2008, global supplies have trended downward again, even as global demand continues to rise.

Figure 1. *Global oil supply and demand (EIA).*

The “peak oil” debate leads to some very startling scenarios, particularly when we consider the fact that global *exports* of oil have in fact declined in recent years, as the Wall Street Journal reported on May 29, 2008 (Figure 2), even as global oil *production* rested on a plateau during the same period. “Peak exports” is a discussion related to the peak oil discussion, and it focuses on the set of problems that arise from domestic consumption increasing in oil-producing countries while those same countries experience stagnant or declining oil production. **The result of these two trends is the declining net exports we’ve witnessed over the last two years.** When we consider that rising resource nationalism (and common sense concern about the future of their own economies) may lead oil-exporting nations to dramatically reduce oil exports, faster than their total production would otherwise decline, in order to have more for their own use or for their
future generations’ use, we can see that substantial reductions in global oil exports may materialize very quickly, leading to far higher oil prices.

Figure 2. Global oil export declines in 2007 (Wall Street Journal, 5/29/08).
Jeffrey Brown and Samuel Foucher have shown that under recent trends, the top five global oil exporters (Saudi Arabia, Russia, Iran, Norway and United Arab Emirates) will have literally zero net exports by 2030. While Brown and Foucher’s work is not yet peer-reviewed, much corroborating information has come to light in recent months, not least the May 29th, 2008, Wall Street Journal story on declining oil exports. Imports from Venezuela and Mexico, two of the top five importers to the US, have declined dramatically in the last two years as those countries reduce their net exports (down 32% on an annualized basis in the last six months), suggesting that the peak exports situation may worsen rapidly if other countries are unable to make up the difference.

**Natural Gas Costs**

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2 Brown and Foucher’s is available online at: [www.graphology.blogspot.com](http://www.graphology.blogspot.com).
Oil, as the primary fossil fuel consumed today, leads all energy markets. Natural gas prices historically have traded at about 1/6th the price of oil ($/barrel vs. $/MMbtu), but this ratio has diminished considerably recently, suggesting that natural gas prices may rise substantially in order to “catch up” with oil prices. Supporting this conclusion is the fact that LNG contracts abroad are increasingly being connected to the price of oil as an explicit index. **Accordingly, it is highly likely that oil and natural gas prices, domestically and globally, will be far higher by 2020 than they are today.** This context is important in considering the role of higher natural gas prices on estimates of energy efficiency potential because higher avoided costs translate into higher economic potential and market potential for EE measures.

NYMEX Henry Hub futures are currently selling for about $12.50/MMbtu and East Coast natural gas prices are over $14. Henry Hub prices have been over $10/MMbtu for most of 2008. LNG shipments to the US have plummeted in the last year (declining from an average of 2.9 billion cubic feet per day in May of 2007 to just 900 million cfd in May of 2008\(^3\)) as natural gas prices have surged in Europe and Asia, making US markets unattractive.

A recent Platts podcast provides a very good overview of the current global LNG market: [http://www.platts.com/podcasts/news/index.xml?src=energybulletin](http://www.platts.com/podcasts/news/index.xml?src=energybulletin). Platts LNG Daily senior editor, Ronen Nissimov, describes how the US is the “market of last resort” because of far higher prices in Europe and Asia arising from the different indexing prices used to set LNG prices. Moreover, as the Environmental Council’s consultant, Crossborder Energy, discussed in the attachment to the our opening comments in R.07-11-001, the LNG proceeding.

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California gas trades at about a 50 cent discount to the Henry Hub prices that act as a “floor” for LNG import prices globally. Accordingly, California will probably be the most economically unattractive market for LNG for the foreseeable future. (The fact that Sempra’s Baja LNG import terminal was recently commissioned with two shipments of LNG establishes only that the terminal is physically ready to receive imports, not that the two recent shipments were priced favorably to domestic natural gas).

Current NYMEX futures prices provide strong support for a significant upward revision to the 2007 MPR natural gas forecast, and it is a certainty that the 2008 MPR natural gas forecast will be substantially higher than the 2007 forecast. The contract for December 2020 delivery traded on June 10th for $12.62/MMbtu.4 Contracts for delivery in the period between 2008 and 2020 traded on the same day between $9.54 and $13.33/MMbtu, demonstrating the fact that traders in 2008 don’t see prices coming down to anywhere near the prices currently projected in the 2007 MPR forecast. While there is no absolute certainty associated with today’s futures prices, in terms of their predictive power re actual prices in future years, the fact that futures prices rise for at least the next year strongly suggests that the 2006 and 2007 MPR natural gas price forecasts are wrong in forecasting prices diminishing from 2008 through 2016 (as they currently do).

The previous discussion establishes that updated avoided cost figures should lead to very different energy efficiency potential estimates. For this reason, **we strongly urge the Commission to contract with Itron to revise its 2008 potential study in light of dramatically higher natural gas forecasts.**

*Coal Price Forecasts*

Similarly, coal prices have skyrocketed over the last year. Wyoming’s Powder River Basin coal price has almost doubled, to over $14/short ton\(^5\) and other US producing regions have risen even more, from a much higher base price than the PRB. Coal prices have been volatile, with PRB coal rising to over $20/short ton in 2005, settling back and rising again over the last year. The bigger picture with respect to coal is, however, the same as with natural gas: coal markets are becoming more globalized as demand for coal surges around the world.

Consequently, US coal exports have risen dramatically in recent years and regional coal prices are becoming increasingly connected to external markets. International coal prices have repeatedly hit record highs over the last year as demand from China (which became a net importer last year after being a significant exporter for years) and India have grown and bottlenecks have developed.\(^6\) The GlobalCOAL NEWC Index (the price for coal at Australia’s Newcastle port, the world’s largest coal hub) was up 81% in 2008 alone, as of June 30, at a new record of $158.30.\(^7\) US coal exports rose 19.2% in 2007 after staying fairly level over the previous six years.\(^8\) At the same time, imports stayed the same in 2007, but almost doubled from 2001.\(^9\) EIA’s coal team leader, Bill Watson, projects as much as 80 million tons per year for US exports in 2008, up from 59 million tons in 2007.\(^{10}\)

As the New York Times reported in its May 19, 2008, story, PRB coal had at that time risen 64% over the previous year, due in large part to a growing export

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\(^5\) EIA, online at: [http://www.eia.doe.gov/cneaf/coal/page/coalnews/coalmar.html#spot.](http://www.eia.doe.gov/cneaf/coal/page/coalnews/coalmar.html#spot)  
\(^9\) Id.  
market (see Figure 3). The story also quotes a coal analyst warning about higher electricity prices due to the rising cost of coal:

“Watch out, consumer,” said David M. Khani, a coal analyst at Friedman, Billings, Ramsey Group. “You’re probably going to see accelerating electricity prices in 2009, 2010 and 2011.”

The same story states that many industry leaders expect US exports to reach 120 million tons per year “in the next few years.” From the same story (emphasis added):

Just within the last couple of months, Peabody began sending coal from Wyoming to Europe, first by rail to the Mississippi River, then by vessel through the Gulf of Mexico. And for the first time in a decade, the company is shipping coal to Japan from the California coast.

“As U.S. coal demand is constrained because of increasing environmental regulation, coal production in the United States will increasingly go toward overseas buyers,” Chris Ruppel, an energy analyst at Execution, a brokerage and research firm, predicted.

It is a certainty that such dynamics, all else being equal, will cause PRB coal prices to rise significantly. The New York Times article supports this conclusion:

“There’s no question that the incremental rise in exports this year has driven the prices up,” said Charles E. Zebula, senior vice president for fuel supply at American Electric Power, one of the country’s largest utilities.

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Costs of Nuclear Power

As the Wall Street Journal reported in May, 2008, cost estimates for the new round of nuclear power plants in the US have risen substantially, doubling or quadrupling in almost all cases, even before construction has begun, to $5 to $12 billion per 1 GW plant.\textsuperscript{12} During construction of existing plants in the US, costs rose far higher than estimated before construction. The article states:

\begin{quote}
Part of the cost escalation is bad luck. Plants are being proposed in a period of skyrocketing costs for commodities such as cement, steel and copper; amid a growing shortage of skilled labor; and against the backdrop of a shrunken supplier network for the industry.
\end{quote}

The price escalation is sobering because the industry and regulators have worked hard to make development more efficient, in hopes of eliminating problems that in the past produced harrowing cost overruns. The Nuclear Regulatory Commission, for example, has created a streamlined licensing process to make timelier, more comprehensive decisions about proposals. Nuclear vendors have developed standardized designs for plants to reduce construction and operating costs. And utility executives, with years of operating experience behind them, are more astute buyers.

The Energy Commission’s 2007 Integrated Energy Policy Report concluded that new nuclear plants would cost about 10.4 cents/kWh, on a levelized basis, if built by an investor-owned utility, and 11.8 cents/kWh if built by a merchant plant operator and sold to a utility. As the above article shows, however, these are substantial underestimates of the actual cost for nuclear power plants because they assume capital costs far lower than recent estimates.

Comments continue but are not included in this attachment.