PACIFIC ▪ ENVIRONMENT

Protecting the living environment of the Pacific Rim

8 June 2009

Commissioner Jeffrey D. Byron
Commissioner Arthur Rosenfeld
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

Re: Avenal Energy, Application for Certification (08-AFC-1)

Dear Commissioners Byron and Rosenfeld,

Pacific Environment is a non-profit organization with environmental programs around the Northern Pacific Rim. In California, we are dedicated to keeping the state's clean energy promise, and upholding the energy loading order which prioritizes meeting electrical demand with energy efficiency and renewable development over new fossil fuel projects.

The Avenal Energy project is inappropriate for California's energy future, and is in direct conflict with state renewable portfolio standard law. As detailed in comments submitted by Center on Race, Poverty and the Environment, this project will have significant negative impacts on the region's air basin. This letter will detail why those impacts are unnecessary.

I. Avenal will run counter to California's Renewable Portfolio Standard.
According to state law, California's investor owned utilities are required to procure 20 percent of their electricity from renewable energy by 2010, less than 7 months from now. The only way to ever accomplish this, or the proposed increase to 33 percent by 2020, will be to cease building new natural gas fired power plants, including the Avenal project.

As the state has slipped year after year on meeting renewable energy targets, a spree of construction since 1999 has resulted in major investment for new natural gas electric generation, at least $15 billion so far. Many of these plants replaced older, less efficient power plants, and for a time actually reduced consumption of natural gas fuel. However, this improved efficiency is undermined by the fact that while 7,500 megawatts of plant capacity retired by 2008, over 18,000 megawatts have been built, or will be built, by the end of 2010. [1] Note that the following chart only shows new natural gas plant construction; this is far less than the total natural gas plant capacity—which exceeds 40,000 megawatts.

[1] Source data for the chart is in Appendix 1, from the California Energy Commission's Energy Facility Status database. The column on the far right adds in plants that are outside the jurisdiction of the commission's approval process, particularly plants under 50 megawatts built between 2000 and 2007.

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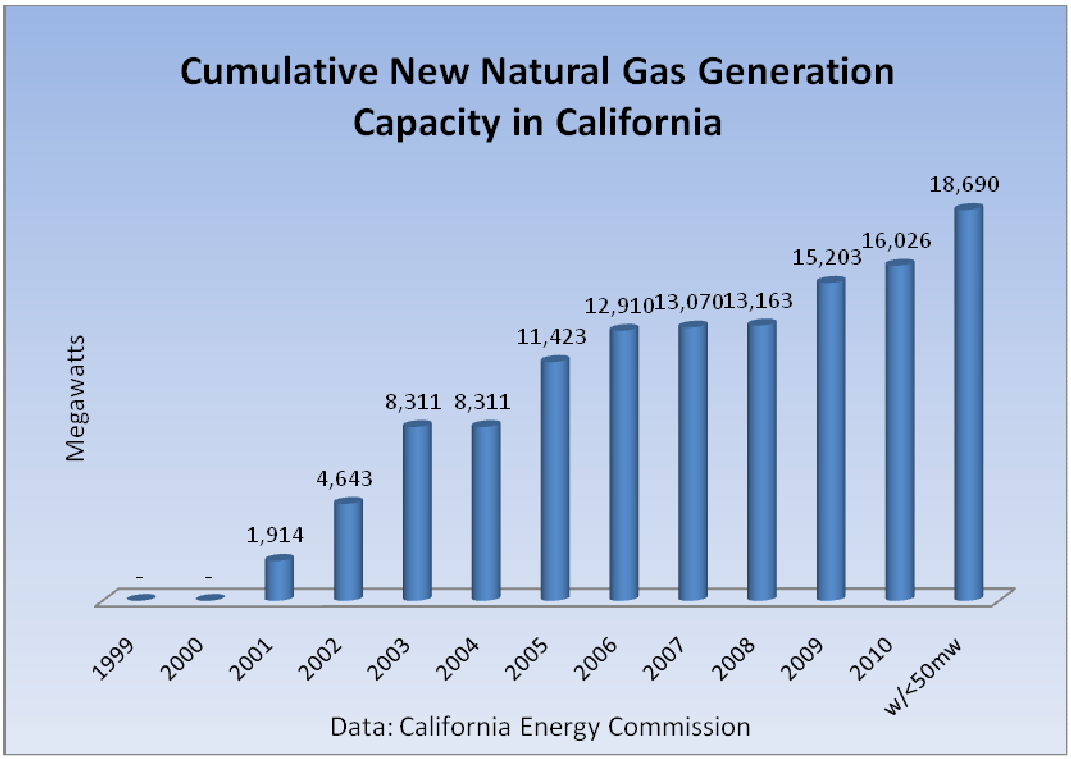
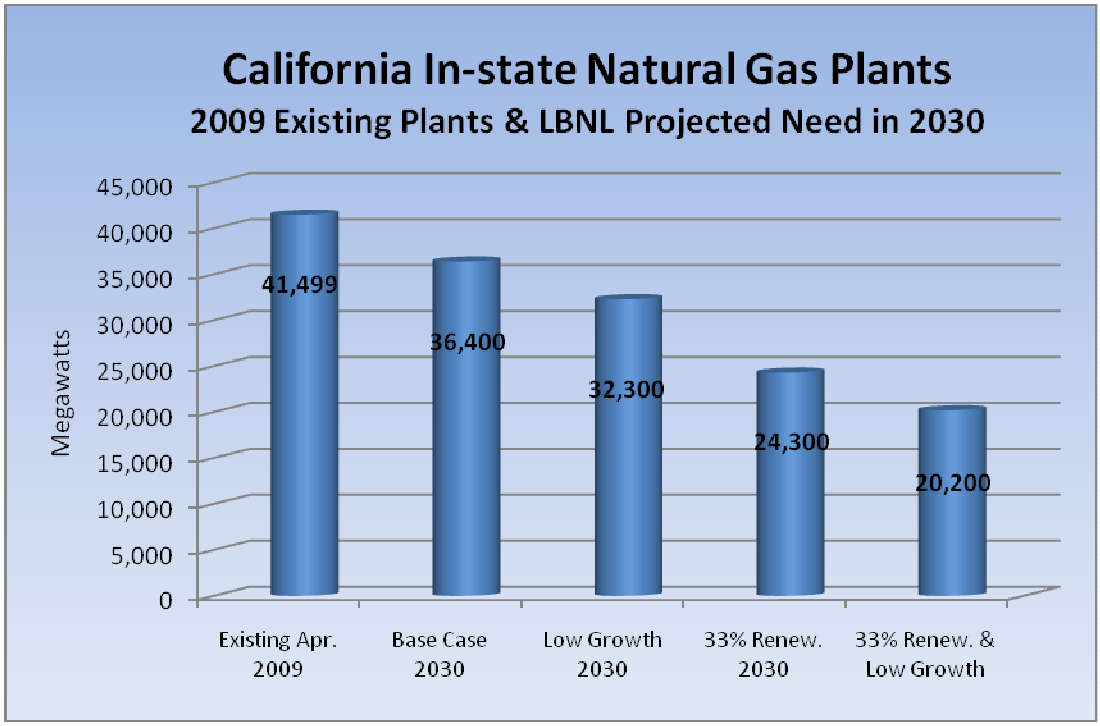


The build-up of natural gas plants occurred just as the state was supposed to be implementing its renewables policy. But the capacity of natural gas plants will *need to decrease* if the clean energy policies are to achieve their goals.

II. Lawrence Berkeley National Lab Study. A study from 2003 by Lawrence Berkeley National Laboratory (LBNL) looked at the effects of increasing renewables, and reducing growth in energy demand, on the future need for natural gas plants in California. They found that by 2030 the state would need 8,000 megawatts less of natural gas plants if it were to adopt the proposed requirement to get 33% of electricity from renewable energy. Similarly, if aggressive energy efficiency policies can slow the rate of growth in electricity demand, then this could reduce the need for natural gas power plants by about 4,000 megawatts. The study did not consider the possibility of combining energy efficiency with renewables, but the state is actually in the process of adopting both of these requirements.



The chart above shows California's existing natural gas plants in April 2009 at 41,499 megawatts. [2] By 2030, the LBNL study projected that if the 33 percent renewables portfolio standard requirement is implemented, then far fewer natural gas plants will be needed. [3] If the state implements both the renewables requirement and aggressive efficiency programs, then over 20,000 megawatts would need to be retired. Adding more capacity, as the Avenal project will do, would reverse this effort by 600 megawatts. The policy to move to renewables directly conflicts with any new natural gas capacity beyond those already built or under construction.

It is important to realize how much "padding" is placed into the LBNL projections. The report looks at the need for natural gas power plant capacity in 2030, a full decade beyond the 2020 renewable program policy target. This allows up to a full decade of delay in meeting these targets, and also accomodates an extra decade of growth in demand. The report's made the following growth assumptions:

"To address California transmission interconnections for the future, this study focused on the year 2030. By that time, California is forecast to experience:

- Population growth to over 50 million, an increase of 18 million over 30 years;

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[2] California Power Plant Database (Excel File), http://energyalmanac.ca.gov/powerplants/POWER_PLANTS.XLS

[3] California's Electricity Generation and Transmission Interconnection Needs Under Alternative Scenarios, CERTS, LBNL, 2003. CEC, 500-03-106. The original study, however, shows only 32,100 megawatts of existing natural gas plants due to the fact that the report dates to 2003. Since that time thousands of megawatts of new plants have been built, as the previous chart illustrates.

- Electricity peak demand of 80 GW, an increase of 28 GW from current [2003] levels, or an average annual peak demand growth of 1.5 percent."

III. California has more than enough to meet electrical load. There are huge resources available to the state's electric power grid, including generation from natural gas, nuclear, hydroelectric and renewable power sources. For purposes of grid reliability, natural gas and some kinds of hydroelectric generation are "dispatchable," meaning they can be ramped up and down in a controlled manner to respond to changing needs for energy. A power plant operating in this manner is called "load following." Solar and wind are said to be "intermittent," generating power according to when the sun shines or the wind blows. The table below shows power supplies from different sources, including the aging power plants currently in operation, adjusted for a reliability factor called "effective load carrying capacity" (ELCC): [4]

Table 1: California In-State Generation Resources

	Capacity	elcc	reliable
	mw		mw
Natural Gas [5]	41,499	100%	41,499
Coal	400	100%	400
Nuclear	4,472	100%	4,472
Hydro	10,420	100%	10,420
Pumped Storage [6]	4,132	100%	4,132
Biofuel	1,107	100%	1107
Geothermal	1,827	100%	1,827
Solar	357	60%	214
Wind	2,706	25%	676
Total Database	66,920		64,474

Conventional power sources such as natural gas, nuclear and hydroelectric plants are considered to count 100% of their capacity toward reliability needs, and thus are rated with 100% Effective Load Carrying Capacity (ELCC). About half of the state's renewable power is wind, which is quite variable and has a 25 percent ELCC in California, while solar thermal generation in the desert has a 60 percent ELCC. The Effective Load Carrying Capacity is calculated by measuring the reliable output of the wind or solar plants during the limited hours of peak energy demand.

The total reliable generation resource above, of 64,000 megawatts, exceeds the CAISO summer heat storm peak demand needs in 2006, which was just over 60,000

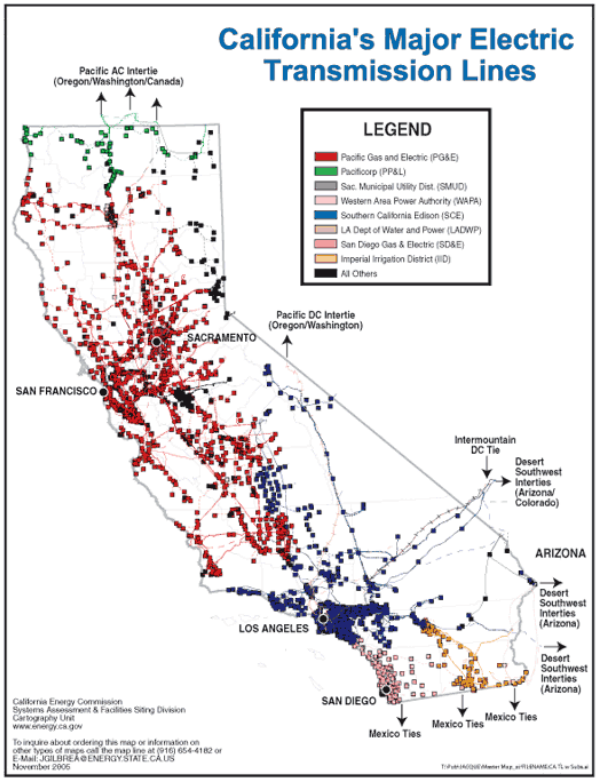
[4] Totals derived from California Power Plants Database, California Energy Commission.. http://www.energy.ca.gov/database/POWER_PLANTS.XLS

[5] Some of these plants list oil, diesel or distillate as alternate fuels, however nearly all the capacity runs on natural gas.

[6] This figure does not include SMUD's proposed 400 megawatt Iowa Hill pumped storage project in the Sierras.

megawatts. [7] That heat storm represented an event expected less than once in 30 years, a level of demand that is higher than the normal long term growth trend line. [8] Current state reliability criteria only require demand projections for a 1 in 2 year event, plus a margin of 15 to 17 percent for extra security. It is noteworthy that these planning criteria for electric system resources were more than sufficient to meet the needs for the extraordinary 2006 event.

In addition to the in-state power plants considered above, there are several other significant resources available to meet the demand for electricity. For example, Investor Owned Utilities (IOUs) are required by the California Public Utilities Commission to obtain 5 percent of peak energy needs from peak demand reduction programs, called Demand Response. Demand Response is a voluntary program where utilities have contracts with their large power customers to cut back their usage when the system is under strain, and the customers are compensated for this cutback. While the utilities have fallen short of meeting this target, other programs allowing the utility to curtail their customers' energy usage during power emergencies—called Interruptible Load—has more than picked up the slack. In all, 236,195 customer "Service Accounts" participated in the demand reduction programs offered by the Investor Owned Utilities. Another resource is the wide assortment of small customer-owned generation, particularly Backup Generators ("BUGS"), and rooftop solar photovoltaics (PV).



[7] The CAISO load accounts for nearly all of the state's electricity, but a few public utilities, LADWP, SMUD and IID operate outside of CAISO and add several thousand megawatts to the state peak load. On the hottest day in 2006, LADWP peaked at 5388 mw (http://www.ladwpnews.com/go/doc/1475/169933/); SMUD's peak is about 3000 mw (http://www.smud.org/en/board/Pages/compact-customer.aspx); and IID's peak is over 800 mw.

[8] The OTC Reliability Study cited correctly an expected long term growth rate in demand of 1.1 to 1.2 percent "for the foreseeable future" (p. 19), but did not point out that the cited peak demand in 2006 was an extraordinarily high anomaly, not a baseline for future expected growth.

Finally, there are several major power transmission lines that bring in electricity from out-of-state. [9] Import capacity includes 7,900 megawatts from the Pacific Northwest, 1,900 megawatts from Utah, 7,500 megawatts from the Desert Southwest, and 800 megawatts from Baja region of Mexico, for a total of over 18,000 megawatts. [10]

Table 2: Total Resources Available to California Electric Grid

Resource	mw
Instate Generation	64,474
Transmission Import	18,100
BUGS Database [11]	3,492
Peak Demand Resource (DR/IL) [12]	2,669
Rooftop Solar	120
Total All	88,855

If all these resources are included, the power capacity for the state is near a staggering 89,000 megawatts, about 50 percent higher than has ever been recorded as a peak demand. [13]

The chart below helps to picture what a "typical" day of demand looks like for the California ISO grid. [14] During the spring and fall daily electricity demand peaks at about 30,000 megawatts, while in the summer it can rise in the late afternoon to 40,000 megawatts or more. After the peak demand falls over a period of 10 to 12 hours to a low point in the early morning before dawn, when the demand begins to rise again. Note that the on-call resources available, even on a summer day, were over 12,000 megawatts higher than what was needed.

California ISO Forecast and Demand for June 24, 2004

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[9] Map source: California Energy Commission, http://www.energy.ca.gov/maps/transmission_lines.html

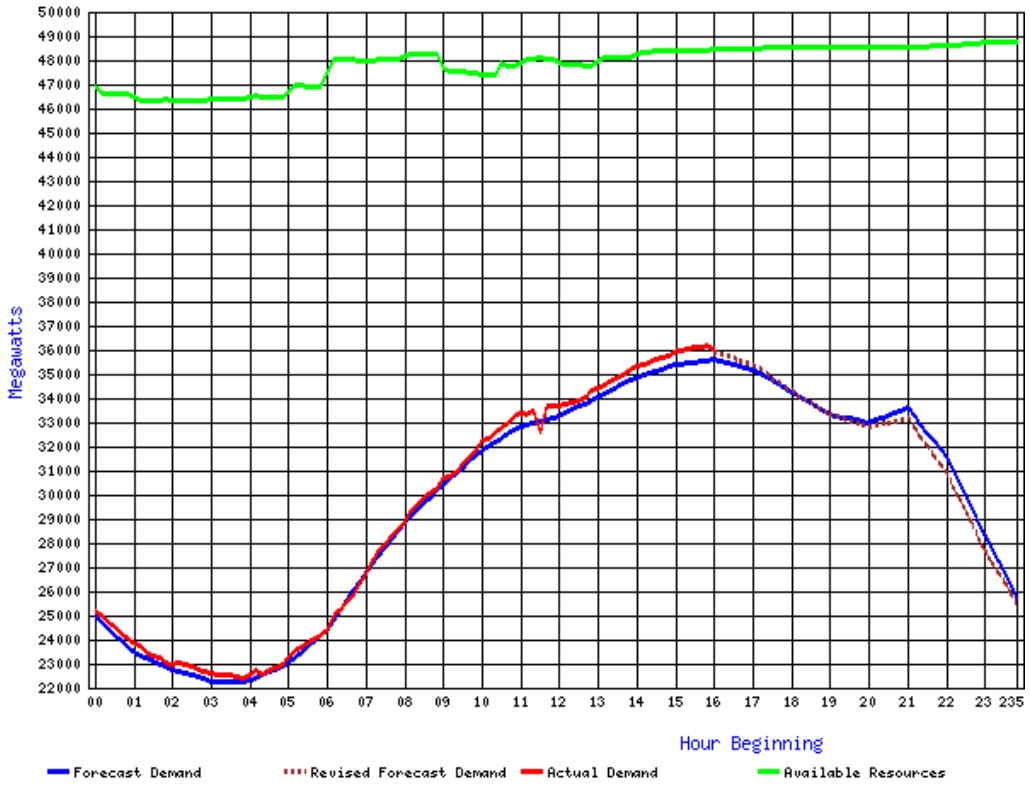
[10] US Transmission Capacity: Present Status and Future Prospects, by Eric Hirst, prepared for Edison Electric Institute and Office of Electric Transmission and Distribution, US Dept. of Energy, August 2004, p.34.

[11] BUGS 1 – Database of Public Back-Up Generators (BUGS) in California, Updated January 2004. California Energy Commission, http://www.energy.ca.gov/database/EDITED_PUBLIC_BUGS_INVENTORY.XLS

[12] The State of Demand Response in California, A. Faruqui, R. Hledik, Publication Number CEC-200-2007-003-F, California Energy Commission Division of Electricity and Demand Analysis, September 2007. Table 6, p. 16.

[13] On July 24, 2006 CAISO peak load reached 50,270 megawatts, with total California load at about 60,000 megawatts. Total resources available to the state are nearly 30,000 megawatts above the highest peak.

[14] July 2006 CAISO Actual System Daily Peak Demand, Generation and Imports at Time of Daily Peak,
CAL_ISO_08_29_2006.



IV. Avenal Energy would violate the Energy Commission and the CPUC's own policies and goals. The CPUC and CEC, in their 2008 update to Energy Action Plan Update, have stated that they are committed "to working together to evaluate the potential for making 33 percent of the power delivered in California renewable by 2020." The Energy Commission could back up this stated commitment by denying the application for the Avenal Energy project. As detailed in these comments, there is already excess capacity to meet California's energy needs. The same CPUC report concluded that the only way to arrive at a 33 percent RPS is to reduce generation from non-renewable resources by 11% in 2020. Such a result, according to the report, would require that nearly *all new procurement be renewable.* There is simply no need for the Avenal Energy project. We urge a denial of the application.

Yours,

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