

DOCKETED

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E3's Ridiculous Assumptions Regarding California Nuclear Power are Challenged

Some of the assumptions that the San Francisco, California consulting firm utilized to develop the CEC conclusion, "Diablo Canyon is not needed to reach California's GHG goals" shown on page 204 of 320 of the large-file-size version of the 2015 IEPR are challenged in this public comment.

Even though the 2015 IEPR was adopted in a CEC 10 February 2016 business meeting, those proposed policy decisions will result in higher GHG emissions, lower electric grid stability, and tremendously increased California electric power prices. While this may be good for the economic elites that desire (and wish to procure) these policy changes, it will likely result in grievous harms to lower-class and middle-class Californians. Sadly, a similar experiment was tested in California with disastrous results in 2000-2001 by the greedy firm Enron, based in Houston, Texas. See the book and movie, "The Smartest Guys in the Room" for details.

Additional submitted attachment is included below.

Attached some excerpts from the large-file-size version of the 2015 IEPR released on the 11th. Please note the paragraph that I have boxed with a red line on page 204 of 320 about the many public comments in support of DCCP - and the CEC plans for a workshop related to the public input in 2016.

I also investigated the model used by the San Francisco, CA consulting firm Energy + Environmental Economics (E3) referenced on page 204 of 320 to arrive at the CEC conclusion that nuclear power may be phased out by 2025 and replaced by "renewables."

IMO, this E3 report commissioned by the CEC, the CPUC, and Cal ISO is a clear example of "Garbage In, Garbage Out." The report projects long-term widespread use of natural gas, despite the greenhouse gas CO2 produced by combustion - and the fugitive methane emissions between 2% and 4% of consumption. Cost assumptions are unbelievably optimistic, likely because those assumptions were a stipulation from the report sponsors.

The Power point of the E3 report does **not** contain a key term for a future California power generation and distribution system, namely "**Stability**." "Capacity Factor" is only discussed in conjunction with a mythical "Carbon Capture Storage" (CCS) system. The proposed widespread substitution of solar and wind for nuclear power ignores the fact that **nuclear power provides both voltage stability and frequency stability**. On the other hand, **solar and wind, without energy storage, destabilizes the California power grid**. Such an unstable electric power grid would severely cripple the California economy. Enron caused similar problems, including exorbitant electricity prices by manipulating California energy generation and distribution in 2000-2001.

There are many optimistic projections in the E3 models regarding the use of battery-powered electrical vehicles, (BEVs) fuel-cell-powered electrical vehicles (FCEVs,) the use of hydrogen, and the cost-effectiveness of CCS - even though the proposed Hydrogen Energy California (HECA) project http://www.energy.ca.gov/sitingcases/hydrogen_energy/ near Buttonwillow, California was recommended to be terminated by the CEC in a news article dated 15 December 2015.

<http://bakersfieldnow.com/news/local/california-energy-commission-kern-county-hydrogen-plant-should-be-terminated>

California Energy Commission: Kern County hydrogen plant should be 'terminated'

By Bakersfieldnow staff Tuesday, December 15th 2015
BAKERSFIELD, Calif. (KBAK/KBFX) The California Energy Commission on Wednesday concluded that a [hydrogen energy plant in western Kern County](http://www.energy.ca.gov/sitingcases/hydrogen_energy/) should "be terminated rather than continue to be held in suspense."

The Hydrogen Energy California plant proposed near Buttonwillow would use coal to "create the hydrocarbons," project spokesman Larry Pickett told Eyewitness News in February 2013.

The HECA project is being developed by SCS Energy, which said it would operate on a fuel blend of "75 percent western subbituminous coal and 25 percent California petroleum coke, a byproduct of oil refining." They say that will be converted into a "syngas," which will then produce electricity and fertilizer.

The people behind the project claim it is clean energy, but area residents, especially nearby farmers, said they worried about coal and air pollution.

The California Energy Commission said the project has been before it for consideration for more than seven years. The commission determined, according to a released document, "HECA has not met the requirements, and will not be able to meet the requirements of the July 3, 2015 Committee Order."

A "well-defined, complete project" won't be ready for another two or three years, at which time the organizers can seek new approval.

The commission wants the project to show the economic and technical feasibility of the project that would have no revenue from the sale of CO₂.

DOCKETED

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Document Title:	2015 Integrated Energy Policy Report - Large File Size
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2015 IEPR

INTEGRATED ENERGY POLICY REPORT

CALIFORNIA ENERGY COMMISSION
EDMUND G. BROWN JR., GOVERNOR
CEC-100-2015-001-CMF



at any point in time for... a day-to-day type basis.”³⁶⁶ In supplemental comments filed after the workshop, PG&E stated that Diablo Canyon is unable to provide load-following services due to safety and operations provisions that are based on 100 percent power operations.³⁶⁷ Nevertheless, as California continues to add renewable resources to the electric system, flexible generating resources will be increasingly needed. To this end, CPUC President Picker directed PG&E in his April 2015 letter to prepare a detailed study of the costs, benefits, and safety issues of cycling the Diablo Canyon units to address overgeneration problems on the grid.

Role of the Plant in Achieving the State’s Greenhouse Gas Emissions Goals

Assembly Bill 32 (Núñez, Chapter 488, Statutes of 2006) requires that California achieve a statewide goal of reducing greenhouse gas (GHG) emissions to 1990 levels by 2020. Although the requirement is not sector-specific, California’s electricity system has already achieved this level of GHG reductions, as noted in Chapter 2.

A study completed by Energy+Environmental Economics, the *Pathways Study*,³⁶⁸ shows that Diablo Canyon is not needed to meet California’s GHG goals. The study examined various pathways to reduce GHG levels in 2030 to achieve the 2050 GHG reduction goal. The study assumed in the reference case and several other scenarios that Diablo Canyon would not be relicensed and would

366 Integrated Energy Policy Report workshop on Nuclear Power Plants, California Energy Commission, April 27, 2015, http://docketpublic.energy.ca.gov/PublicDocuments/15-IEPR-12/TN204516_20150506T152343_Transcript_for_the_April_27_2015_Nuclear_Joint_Lead_Commissione.pdf, p. 84.

367 PG&E Comments: Supplemental Nuclear Response, August 5, 2015, http://docketpublic.energy.ca.gov/PublicDocuments/15-IEPR-12/TN205641_20150805T174531_Valerie_Winn_Comments_Pacific_Gas_and_Electric_Company_Suppleme.pdf, p. 1.

368 Energy+Environmental Economics (E3), 2015, *Summary of the California State Agencies’ PATHWAYS Project: Long-term Greenhouse Gas Reduction Scenarios*, https://ethree.com/public_projects/energy_principals_study.php.

cease operations after 2025. The study showed that natural gas-fired generation would increase in the years after Diablo Canyon ceases to operate, and this generation would not be GHG emissions-free. However, the state will still be able to meet its climate goals by relying on other measures to reduce GHG emissions.

Still, the Energy Commission recognizes that Diablo Canyon is a low GHG source of electricity that can help meet the state’s energy requirements at a time when the focus is increasingly on reducing GHG emissions. In response to public comments in support of Diablo Canyon for its GHG benefits, and because of the multifaceted issues surrounding nuclear energy in California, the Energy Commission plans to hold a public workshop on nuclear power as part of the *2016 IEPR Update*.³⁶⁹

Nuclear Waste Storage Issues for California

The initial regulatory pact between nuclear power plant operators and the federal government called for the federal government to take the spent nuclear fuel away from the plants either for reprocessing or final disposal at a federally owned or managed site. For years the federal government researched and studied building a final waste depository at Yucca Mountain in Nevada. That effort has been mired in controversy, leaving nuclear plant operators with no clear federal plan for removing spent nuclear fuel from plant sites for final disposal in a safe and secure location. On November 20, 2015, the State of California submitted comments on NUREG-2184, the NRC staff’s draft *Supplement to the U.S. DOE’s Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada*. The Energy Commission maintains that the U.S. DOE’s original environmental impact statements, which the NRC staff has augmented with the Supplement, are deficient.

369 For a listing of public comments received on the October 2015 final draft 2015 IEPR, see http://www.energy.ca.gov/2015_energypolicy/documents/#02102016.



https://www.ethree.com/documents/E3_PATHWAYS_GHG_Scenarios_Updated_April2015.pdf Archived and annotated 02 12 16 by Gene A. Nelson, Ph.D. 5 instances of "Nuclear." Nuclear is phased out by 2025. CCS is assumed. Large amounts of natural gas and other fossil fuels are utilized. See Page 11 for extremely optimistic adoption projections for "Battery Electrical Vehicles" BEVs... The term "Capacity Factor" only appears twice. - in reference to CCS! The term "Grid Stability" does not appear at all! The term "Voltage Stability" does not appear. The term "Frequency Stability" does not occur. Thus, this report appears to neglect key electrical generation and distribution grid system design principles. **CEC, we have a problem....**

+ California PATHWAYS: GHG Scenario Results

Updated Results April 6, 2015

Amber Mahone, Elaine Hart, Ben Haley, Jim Williams,
Sam Borgeson, Nancy Ryan, Snuller Price