Comments by Frank Brandt to California Energy Commission, 2012. 2012 Integrated Energy Policy Report Update. Publication Number: CEC-100-2012-001-LCD.

This is another CEC document of doubtful value in its present configuration.. It spends 71 pages trying to justify the provisions of AB 32. The basic problem of AB 32 as I have stated in numerous previous comments is that it mandates the wrong energy sources to try to meaningfully reduce CO2 production by electric generators in CA. Solar, Wind, biofuel and distributed generation are not capable of generating reliable, inexpensive 24/7 commercial electricity. Solar and wind energy may not produce CO2 but they are diffuse, unreliable and expensive. Biofuels all produce CO2 and simply cannot be produced in the quantities required by commercial electricity. Distributed generation produces CO2 and requires too much control mitigation to maintain voltage and power factor on the grid. Geothermal energy is fine but there is not enough of it. Natural gas which the state is promoting as an energy source to meet the increase power demand for the next 20 years as a reliable energy source produces tons of CO2. Wave energy is ridiculous .The state has mandated the wrong energy sources to solve the problem of meaningfully reducing CO2 production in the state. The report deals with this but brushes it aside as a soluble problem when it is not.

The CEC should contemplate table 1 of the report and understand the magnitude of what the state is trying to accomplish with the mandated energy sources. Aside from the funny numbers for estimated energy demand and estimated power sources required to meet the demand the table shows that just to meet the increased electric power demand by 2022 a staggering 17000mw of generation must be added. Most of this will probably be met by gas fired thermal plants with little reduction of CO2. If 80% mandated power is used and solar at 25% efficiency is mandated to provide part of this added amount, 45 500mw solar plants will be required. The state will have to be paved with solar plants. The report should make these numbers readily available to the readers.

The CEC refuses to promote the only energy source which can successfully generate 24/7 electricity while CO2 production is reduced by meaningful amounts. The report should explain in detail why nuclear power is ignored. The report agonizes that SONGs is down for repairs ignoring the fact that solar and wind go down each day. Nuclear down time is predictable and the required CO2 free generation should be met by having enough nuclear plants to back up just as solar and wind require additional reliable plants to back them up.

Chapter 1 table 1 should be revised for several reasons.
When I try to duplicate the 2010 to 2020 electric numbers shown on Table 1, I get results different from those shown.. For example: .0169 annual rate x 10years = .169. 1.169 x 273103= 319257 versus 322760 shown on table 1. Something is amiss with CEC calculations. I show my result in brackets. This is a good reason for not showing 6 digit numbers for estimated data The ridiculous 6 digit estimated amounts should be rounded out to 3 digits based on the growth rate multiplier of 3 digits.
The natural gas numbers should be adjusted for the same reason.

The low and intermediate estimates should be deleted. The utilities cannot afford to fool around with the low numbers. They have to be able to deliver the higher amounts because CA residents won't accept brownouts if the generating capacity is below the demand

Table 1 revised
Consumption
2010 273103 gwh a measured amount (6 digits acceptable)
2015 298000 gwh (296000gwh FAB) an estimate based on 1.69% growth rate
2020 323000 gwh (319000gwh FAB) “
2022 334000 gwh (328000gwh FAB) “

Electricity peak mw
2000 57000mw was this the measured amount rounded out?
2011 58737mw measured amount?
2011 60310mw why 2 different for 2011?
2015 66000mw (61800mw FAB) estimate
2020 72000mw (66600mw FAB) “
2022 74000mw (78200mw FAB) “

Working with the CEC table 1 numbers.

30% CO_2 reduction in 2022 by mandated energy sources
334000gwh per year x 30% = 100000gwh per year renewable required in 2022
Assume 10% is solar
100,000gwh = x 10% = 10,000 gwh per year
10,000gwh divided by 8760 hours per year = 1.14gw = 1140mw solar generation required.
1140mw divided by 25% solar efficiency = 4560mw solar nameplate required
10 500mw nameplate solar plants required. Need 1140 mw reliable backup for 24/7 service
80% by 2050???
1.69% per year increased demand per year x 28 years =47%
334000gwh x 1.47= 491000gwh per year in 2050
assume 10% is solar
491000gwh x 10% = 49100gwh per year
49100 / 8760 = 5.6 gw = 5600mw / .25 = 22400 mw solar nameplate required
Need 45 500 mw solar plants plus 5600mw reliable backup The state will have to be paved with solar plants.

6 1000mw nuclear plants will meet the requirements with an 80% reduction of CO_2 and 24/7 service Add 1 1000mw back up.

Figure 3
How can the low demand be above the high demand?

I have run out of time to make any more comments. I suspect there are more anomalies in the remainder of the report which the editors should correct.

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