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Climate/Ocean change necessiate increased nuclear power

Docket No. 15-IEPR-11
Workshop on the State of the Science on Scenarios to Deeply Reduce Greenhouse Gas Emissions from Californiaâ€™s Energy System 7/24/15 and 7/27/15

Dear Commissioners:

The realities of global warming and ocean acidification are harsh and demand substantive action, as we all agree. The reality iis that we were on track, years ago, to eliminate much of their impacts by elimination of combustion power by about 2000. This was implicit in President Kennedy's discussion with our then Atomic energy Commission and its Nobel Chemist head Glen Seaborg: http://tinyurl.com/6xgpkfa

Unfortunately, later political influences and administrations dropped the ball and so instead of eliminating combustion power by this century, we still burn vast amounts of coal worldwide and vast amounts of gas, even in California.

In our state, this gas consumption and emissions increases have even been stimulated by our deployments of what are called 'renewables' -- wind and solar power, especially. These are all variable and some (wind &* hydro) are even subject to climate change. Thus they need fast-responding backup generation -- today that's gas turbine.

Others have commented to the Commission that 'renewabals' are woefully insufficient in providing needed clean power themselves, so that adding combustion backup, whether gas in state or coal out of stae, becomes antithetical to the purpose of our clean air laws and emissions mandates.

The fact is, only nuclear power is both climate independent and environmentally benign, as France, Canada and others have shown for decades. An attachment will be given with summary graphics related to all assertions made herein.

Germany and France have provided the world with examples of what not to do and what indeed can be done. For example: "France emits around 40 grams of CO2 per kwh. Germany, the US, Japan, and most other industrialized nations emit between 400 and 500 grams/kwh."
http://ambafrance-us.org/spip.php?article637 (history)
France will be increasing its use of local sollar PV/hot-water, which is good most anywhere, but it will not be reducing its dominat clean-power sources -- nuclear (per personal conversation with the French Ambassador to the US).

German energy policy, however, has been politically captured, not scientifically informed, and the results are a cautionary tale for us all, especially in California...
In 2014, "...Germanyâ€™s wind turbines as a whole ran at between 0 to 10% of their rated capacity 45.5% of the time (3986.75 hrs)! The turbines, which the German government says will become the â€œworkhorseâ€ of the German power industry, ran at over 50% of their rated capacity only for 461 hours, or just 5.2% of the time."

The German Vice Chancellor and former Energy Minister themselves decry to wastefulness of Germany's uninformed dance with intermittent grid power sources. https://www.youtube.com/watch?v=y7Ca72-WxuI
Striking descriptions of the Energiewende failures are summarized here...

http://tinyurl.com/kyq6ddr (note Fig. 25 Interventions)
http://tinyurl.com/jwofrtx
http://tinyurl.com/qd3pswl

California must understand the importance of scientific & engineering reality when setting energy policy. In particular, we should recognize that nuclear power is even more naturally included in the RPS than is highly variable, low power-density wind, because each windmill of capacity X demands gas-combustion backup of at least 2/3 X..

The NREL presentation to CEC on 7/24 confirmed this in an interesting way -- its graphics showing the variability of 'renewable' energy sources depicted their typically wide variations in output over time. In contrast with that variability, the NREL graphs showed a thick, stable lower bar continually delivering clean power 24/7. The bar was nuclear power.

In conversation with the NREL speaker after the CEC Workshop, he revealed that they had planned to do an energy analysis for California that included nuclear, but that it didn't get funded.

So, our CEC has received incomplete information to guide its clean energy policy. How is California to progress and continue emission reductions and in crease power reliability for some tens of millions of citizens, if it bases actions on analyses that are incomplete?

There is no way for California, or the US, or the world, to meet needed emissions reductions without greatly increased nuclear power. Further, even reaching zero CO2 emissions today will not prevent the ongoing dissolution of CO2 emission in seas, acidifying them to extinction points for the major oceanic food chains. Billions of people are threatened by this and it's on schedule to happen before 2050, well before any IPCC projections for dangerous warming.

California is responsible for only a few percent of global emissions, but it is also responsible for leadership, as begun by former Commissioner Art Rosenfeld. Our great progress inj previous decades, on emissions, efficiency, environmental legislation, and so, deserves to be followed by a wise energy policy.

there's no way what are currently termed 'renewables' can even begin to meet the clean energy needs our descendants rightly expect us to meet. Ocean acidification alone will require on the order of 1000 new nuclear reactors to provide clean energy for remediation of ocean chemistry.

There is reason for climate scientists, other scientists/engineers, and even the Dalia Lama to advocate large new nuclear -power rollouts. California could benefit, both from their use, but also from its taking a leadership position in their development. Both reap economic benefits for our state that 'renewables' cannot.

California could move away from the influence of gas interests to far cleaner, beneficial development of nuclear power. It could fix San Onofre, as Ohio's FirstEnergy fixed their similar Daves-Besse last year (http://tinyurl.com/mem8lhq). It could take part in Generation-IV reactor development, expanding R&D jobs that provide citizens with far superior employment opportunities. It could stimulate this today by simply including nuclear power in the RPS, as other states are now doing.

We all also know what serious drought and the historical records of long droughts means. 'Renewables' again cannot supply the continuous power needed by desalination systems, such as the new one in Carlsbad, or the re-opening one in Santa Barbara. The Carlsbad unit will serve just 7% of San Diego County. That means 14 such plants would be needed to protect the county.

San Diego county is ~10% of our state population. thus, ignoring river flows and agricultural uses, our residents

would need 140 Carlsbad-like desalination plants. Carlsbad will consume ~40MW, 24/7. Just for desalination, San Diego County needs about half of San Onofre fixed. For our residents, we'd need all of San Onofre operatiing plus 2 or 3 more plants just as big as it or Diablo Canyon. 'Renewables' are irrelevant.

In other words, our California energy decisions could become true examples for others to follow. As it is now, we ook at our various energy websites, funded by us taxpayers, and we see some windmills & solar panels as representing clean energy. Yet, we all know that each of those pictures hides the reality -- a gas plant was built to back up those 'renewable' sources when they flag, as we know they do every day. California deserves and needs better.

Graphics will be supplied via separate submission.

Sincerely,

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