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Editorial

Lessons from California's stumble into the dark ages: Disrespect of knowledge

An eleven-year-old girl called recently into a live National Public Radio program in which the electricity shortages in California were discussed, and expressed surprise at the big fuss. She offered that this is commonplace in many countries, and people still live well. So, we could just regard this as an “event” (a nuclear industry expression for disasters or near-disasters), keep fresh batteries for the flashlight and kerosene for the lamp, and hope that someone will find a fix. What is amazing though to many of us is that this is happening in California, one of the most wealthy, productive and educationally and technologically advanced regions of the world. The consequences of this mishap are having seriously damaging consequences to the economy directly through immediate loss of productivity, and to employment shortly thereafter, a vicious cycle.

Like any other crisis, this has also created an opportunity, for objective and constructive citizens, experts, and leaders, for special interest groups, and, unfortunately, for scoundrels too. The crisis has been blamed on the California lifestyle and growth, on environmentalists, on those who oppose nuclear power, on the international concern about CO₂ emissions, on the greed of corporations in the electricity supply chain, on OPEC, on SUV-s and the car industry in general, on the federal government (past and present, depending on which of them is doing the blaming), on the state government (past and present, ditto), and within some groups, I am sure, it was blamed on inadequate application of Fung Shuey to the design of power plants and the unfavorable constellation of the planets and stars. Consequentially, pursuing its crisis-independent agenda, the current federal administration uses this crisis to justify increased fuel exploration in previously protected areas, rejection of the international CO₂ emission-reduction Kyoto proposals, and weakening of the Clean Air and Clean Water Acts which are generally viewed as two of the most outstanding legislation gems passed by Congress.

While the blame should be shared by many, this editorial focuses on disrespect of knowledge.

I have invited several experts to prepare papers, for publication in *ENERGY*, which would analyze the situation and make recommendations that could help resolve the existing problem and perhaps help avoid the repetition of such problems in both the US and elsewhere. Dr CK Woo's article published in this issue of *ENERGY* is the first response. Experts are welcome to submit additional articles on this subject, for publication consideration.

I would like to add a few comments. One is about the use of common sense, preferably *before* everything else fails. The California Energy Commission stated recently: “California's energy

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crisis is rooted in a flawed 1996 deregulation plan that allowed wholesale power prices to soar while capping retail rates”. Everybody, including the 11-year-old caller, could have understood that before the plan was approved. Contrast this with the commission’s enthusiastic proclamation which was issued when this deregulation plan was signed into law: “With Governor Pete Wilson’s signing of the Electric Industry Restructuring Law (Assembly Bill 1890, Statutes of 1996, Chapter 854, Brulte), California is now poised to greatly reduce the government’s direct involvement in utility business activities and to rely increasingly on market forces to set prices for energy services”. And now California is begging the federal government for a bailout and price capping regulation, which all US taxpayers will be expected to pay for. With typical political bombast, Governor Wilson has stated that: “By dealing with this difficult issue in a comprehensive way, California will be a pace-setter in the national deregulation movement.” Right..., only as a good example of how it shouldn’t be done.

The Governor obviously didn’t, and indeed shouldn’t have, conceive this entire plan just by himself. He had, if he only wished, the services of nearly every energy expert in the world. One (just for example) such “expert” group which he did ask for advice from was the California Energy Commission, which states “it is the vision of the California energy commission for Californians to have energy choices that are affordable, reliable, diverse, safe and environmentally acceptable”, and that its “highest responsibility is to the people of California. We will strive to conduct business in a manner that results in maximum public benefit while ensuring fiscal integrity and accountability for the expenditure of public funds”. However, their recent, post crisis statement is: “without prompt and decisive FERC (*The Federal Energy Regulatory Commission*) action, California and other Western states face the prospect of electricity and economic disaster this year. Stage 3 alerts and blackouts may become commonplace if electricity supply continues to be withheld from the market, and exorbitant wholesale electricity prices are a virtual certainty, even if all the measures proposed in the Order can be successfully implemented. The situation calls for rigorous exercise of FERC authority to assure ‘just and reasonable’ wholesale prices, not just to protect the interests of consumers but to prevent market collapse...”. Besides objectivity and common sense, they all should also have sought knowledge of such engineering and scientific tidbits as the nature of the time-dynamics of the deregulatory plan. In the absence of sufficient electricity storage capacity (which the expert engineers could have told them how to implement and how much it would cost, and the expert economists could have told them which of the players in the electricity supply scheme should own), sudden reductions in available capacity (yes, Dorothy, they do happen...) cause a sudden increase in cost, which the transmission and distribution companies can’t immediately retrieve from the customers and which thus bankrupts them. The absence of such a buffer is an Achilles heel of this deregulatory program. They should have also learned that power plants exist now which have an efficiency of about 60% (as compared to fossil fuel power plants which have an efficiency of 40–45% and nuclear ones which have an efficiency closer to only 30%). These plants can be relatively small and modular and thus easily distributed to where the demand is and thus also reduce transmission needs and losses, and they are easy to fire up based on temporal demand.

Some may feel that the California energy problem has certain good consequences. One is that others may (hopefully) learn from it and thus learn to avoid it. Even more importantly, it can be construed as a serious warning that should lead to the moderation of our extravagant use and abuse of energy resources. But again, I am sure that the young caller’s parents warned her, as

most parents do, how to avoid risky situations, because it is easier and safer to use good accumulated knowledge and experience (and common sense), than to learn from the more perilous personal experience route.

California, in which I lived and studied very happily, calls itself variously “The Land of Milk & Honey”, “The El Dorado State”, “The Golden State”, and “The Grape State”. The state motto is “Eureka”, a Greek word meaning, “I have found it!”, and it was adopted by California in 1849, alluding to the discovery of gold in the Sierra Nevada. The gold is mostly gone by now and it would behoove its government and voters to try to emulate Archimedes’ wisdom and knowledge rather than his out-of-context bathroom proclamations. While California has some of the most enlightened human and environmental policies in the US, it would do well to adopt the wisdom and knowledge of sustainable growth. The state is growing at one of the fastest rates; in 1990 its population was 30 million and it is projected to reach 50 million in about 20 years. About half of it being a desert devoid of major natural resources, it is drawing on the needed resources from both in and out of California, at disproportionate, inconsiderate, and dangerously high rates. For example, to populate the desert (which includes the burgeoning Los Angeles) and make it bloom, water is imported from Northern California and from the Colorado River, over distances of more than 1000 km, often against objections from those living around these sources. Pumping and urban and agricultural pollution have reduced the mighty Colorado River to a polluted trickle at its end. The combination of this growth, inefficient energy use, and the refusal of the citizens and their opportunistic politicians to construct new power generation capacity has become an important, but by no means only, cause of this crisis. The California solution, applied to the water problem is now an attempt to exploit power generation states in a similar way. Let some other states face the consequences of power plant construction and operation, and we shall buy their clean product, and if it is too expensive we will ask the Federal Government, i.e. all the US taxpayers, to pay for the difference. One almost wishes that the “Grape State” made those choices based on excessive consumption of its delicious grape products, and not from ignorance.

A more profound and longer-term question brought about by this crisis is that of state responsibilities, authority, and role in general. At this time, when the US is a leader in globalization, isn’t our own existing state system pathetically antiquated or even unnecessary? We are all in the same country with unlimited rights to move from one state to another. The current system of states, which was vital to the foundation of the US, seems, as demonstrated by this crisis, to impose many unnecessary obstacles in our pursuit of happiness. Or are states now only administrative units (in which case they should all have roughly equal population)?

The main theme that this editorial comment is attempting to address is that there exists more than enough knowledge, and even common sense, rather readily available, in the possession of objective and peer recognized expert scientists, engineers, economists and other energy specialists. The use of this knowledge could have averted the poor decisions that led to this crisis and indeed to many others worldwide. This knowledge was acquired in important part, it should be underscored, with the support of enormous national (i.e. taxpayers’) expense and sacrifice. The perennial problem is that politicians are often either ignorant in certain critical areas, or prefer to learn only from those who support their sometimes capricious personal aspirations and viewpoints, rather than seek or heed objective expert advice. Moreover, the experts, as well as the voters in general, don’t really seem to care. Why else, for example, wasn’t any of the US Department of Energy Secretaries a recognized (or unrecognized, for that matter) energy expert? And the situation isn’t different in most of the world.

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