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Joint Agency Report - Charting a Path to 100% Clean Energy Future

Additional submitted attachment is included below.

From: [Bill Mayben](#)
To: [Energy - Docket Optical System](#)
Subject: Docket 19-SB-100; SB100" Joint Agency Report: Charting a Path to 100% Clean Energy Future"
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Following are my written comments to the CEC docket:

Draft of “100% Clean Energy Act of 2018” potential implementation issues:

Wm Mayben and Associates

Fairfield, CA

10-12-19

1. At its core, we need to recognize that we are making fundamental changes to the basis of our economy. It has been largely based on fossil fuels for almost a century. The ramifications need to be considered, not only within the State; but in relation to other states and economies still fossil-fuel based. We need to speculate on the effects of inevitable job losses, and how to bridge this.
2. Renewable electrical generation is episodic rather than continual; solar when the sun is out, wind energy when the wind blows, hydroelectric based on seasonal water flows. 100% renewal energy requires a more sophisticated grid to allow for switching, regionally. We will also have to reconsider electrical transmission power losses. These changes will become expensive; and some of it will occur outside California. This will require regional cooperation.
3. It has been argued that we cannot provide enough renewable electricity to continue our culture as it currently operates. We need to base planning on effective assessments of what our current and projected electrical requirements will be, in order to develop an effective scope of work. Many technical components of the legislated system do not exist; so simply voting in favor of it does not make it so. The football in this game is our economy. The public costs to convert an entire energy system will be staggering. We have to pay for that within the bounds of a new economy. This project will require us to reassess all public spending by the State of California.
4. Note that while our renewable energy conversation addresses some climate change mitigation costs we must face; it does not address all of them. There will be other substantial societal costs of mitigation; and as we get deeper into the timetable, adaptation costs will begin to intrude.

The budget for energy conversion needs to be realistically embedded in all anticipated societal mitigation and adaptation costs. A major example is the cost of mitigating sea level rise. We cannot budget one aspect without recognizing and addressing the others; or we will be blindsided halfway to our conversion goal, and unable to turn back or go forward. Contingency plans are the name of the game. All is connected.

5. Nuclear energy will be mentioned. Nuclear is not a renewable resource. It simply has a different type of toxic pollutant, not less polluting, or non-polluting.
6. Current fossil fuel electric generation does not provide for charging large numbers of personal battery powered cars, however this transportation change is on the rise. Projections are that we can only maximally accommodate 80% of projected battery cars; and only then under controlled conditions regarding charging. The battery charging needs of the entire ground transportation sector adds considerable new demands to our projected electrical requirements.
7. Conservation is now, and will increasingly become, our most important renewable resource. We are departing from an era of unlimited electricity on demand; so we need to start now in getting used to navigating our new energy characteristics.
8. The need for a progressive reduction of fossil fuel use in favor of public transportation and electric vehicles necessarily parallels the additional loads on the electrical grid, if we are to reduce emissions. A gas tax structure that progressively places the actual costs of fossil fuel use and remediation onto the consumer, can serve two purposes. One, it will show car owners a clear path to our energy future, and two, it will provide a stream of revenue for public transportation and other desirable incentives to convert our economy. We cannot provide a 100% renewable electric system without paralleling that in the transportation sector; as the two are merging. The public may see fossil fuel transportation as desirable either by habit or cost; and leading all of us away from our denial and resistance to change is a very necessary social engineering aspect of the practical, electrical engineering tasks. This is the PR component of getting everyone on board.
9. Tax incentives will need to be renewed for residential and commercial solar installations; these will prove necessary to augment a 100% sustainable system.
10. All qualifying government buildings, state and local, and all schools, colleges and universities should be fitted with solar systems as applicable.
11. Neighborhood Electric Vehicle (NEV) development should be incentivized. These 35 mph, secondary street only community vehicles may allow significant numbers of commuters to use public transportation

and forgo a full-sized family vehicle altogether. There are presently only two manufacturers of these environmentally low-impact vehicles selling in CA.

12. Public transportation system expansion should be supported with gas tax money, to create an extensive system with adequate carrying capacity. This can help reduce the number of battery commute personal vehicles.
13. In parallel to changing the electrical grid and the source of electricity; basic changes need to be made to the electrical systems in commercial, industrial, and residential, to make the best use of a quantifiable resource. We will no longer simply be able to pour on more power. There will be some basic changes to equipment such as HVAC, lighting, people moving systems, water heating and pressure systems, etc. Not all of this equipment has been engineered at this point.
14. We do not have a robust vehicle charging system. This will become a daily necessity.
15. Gas powered vehicles sold in the process of the acquisition of battery-powered vehicle purchase, should be dismantled rather than allowed to remain on the road. Every day they continue to be used incrementally prolongs our efforts to reduce emissions.
16. Wherever possible, we will need to engineer out our use of high load, high voltage electrical systems.
17. We will need to consider how to handle our continued use of heavy duty construction and agricultural equipment currently powered with fossil fuels.
18. In favor of reducing our transportation costs, we need to consider decentralization of commercial interests, jobs, and urban citizens into outlying communities. If one of our parallel societal goals is resilience; decentralization meets that goal in communities that are complete in terms of food production, jobs, public transportation use, collaboration and cooperation among citizens, and self-reliance based in having more time for community, home, and family. The modern village can be a much less stressful, healthier existence, compared to a desperate daily commute amounting to 3 or 4 hours in traffic, electric or otherwise. This would necessitate the communication and connectivity value of a ubiquitous ultra-high-speed fiber optic cable internet system in addition to effective public transportation. This is one example of alternatives to social understandings we now take for granted, but can no longer afford the energy to support.

Respectfully,

Bill Mayben

Wm Mayben and Associates