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Comments on California Energy Commission's

"2011-2012 Investment Plan for the Alternative Fuel and Vehicle Technology Program"

Overall, this investment plan does a good job of summarizing the reason behind funding in the different allocated areas. The report doesn't fully address the potential weaknesses of the various alternative fuel options in a realistic fashion to meet the short (and long term) goals of California. Some more detailed comments and suggestions are provided below:

1. The hydrogen section seems very optimistic. Table 11 shows a dramatic increase in fuel cell vehicles between 2015-17 to 53,000 vehicles. At the same time, the section indicates that the current costs for these vehicles are in the range of \$100,000. Some indication should be given as to who might be purchasing/acquiring these vehicles and where they might be used. I think getting input from the major vehicle manufacturer's on meeting the goal would be an important and necessary addition. There are a number of other challenges with hydrogen such as on-board storage. The costs of producing hydrogen from renewable sources should also be discussed in a little greater detail, since there is still a relatively large incremental cost compared to producing hydrogen from fossil fuels. Given these outstanding issues, how long might it be expected before hydrogen might make a dent in the 26 million vehicle fleet? Realistically, it still seems like decades, and yet hydrogen is still given as much funds as all of the allocation towards ethanol and diesel substitutes.
2. The battery technology section on p. 44 should cover the issues with current battery technologies in more detail. The second paragraph discusses this, but in a very limited fashion. How long can it be anticipated before the improvements in batteries noted in the paragraph will be realized?
3. The investment of funds in industries looking to expand in state ethanol production seems a wise investment, as California produced ethanol has GHG benefits in comparison with Midwest ethanol, and it could be immediately used to help meet the Low Carbon Fuel Standard.
4. P. 102 – 2nd paragraph. The issue of the biodiesel impact is likely to be a major limitation in the expanded use of ethanol within the state. It is likely that some modification of the base diesel properties or investment in renewable – hydrotreated diesel fuels will be needed to address this issue. Since biodiesel will likely be a transitional fuel, it seems that investment in a biodiesel infrastructure should not be overemphasized.
5. Some investment in facilities for production of ethanol from cellulosic feedstocks appears to be prudent. It is useful to note that that there are still challenges to the commercialization of this technology, and that the production capacity is still lacking in the US. These issues are discussed on p. 94.
6. While biomethane seems to have potential to provide some fuel diversification, it does not appear that this fuel choice can provide a large penetration into the gasoline and diesel markets. In this regard, the percentage of investment in biomethane is probably disproportional to what market penetration might be achieved by this fuel option. Advanced diesel fuel substitutes, for example, would seem to have a much greater potential impact.

7. It is likely that hydrogenated diesel or other advanced diesel fuels will have a strong market penetration within this next decade. As such, it seems that a greater proportion of funds might be appropriate in the "diesel substitute production" category.

8. Grammar and other editorial things.

--- p. 9, second sentence, need space between combined and 16

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