ICCT Proposed Changes

ICCT Proposed Changes, Primarily in Response to Public Comments

Page 1-2 (first paragraph)
"Meeting Climate change and environmental goals … or ~~do~~ may not yet exist"
(*ICCT suggestion*)

Page 1-10 (first row on unfavorable standards, right hand column)
Insert at end of text: "These barriers can be legislative or regulatory."
(based on public comment)

Page 4-5
"Storage~~, utilizing batteries, compressed air, or pumped storage (hydro-electric),~~ can use~~s~~ excess generation to charge batteries, compress air, ~~or~~ pump water, or generate hydrogen which can then be used by the grid operator at a later time to generate power."
(based on public comment)

Page 4-11
"While biomass gasification for power production has been applied in other countries ~~under development for some time~~, it has yet to reach commercial success in the United States."
(based on public comment)

Page 4-12
~~Microbial~~ Fuel Cells Using Renewable Fuels
Microbial fuel cells are biologic fuel cells that generate electricity by harvesting the electrons produced by bacteria during the digestion of organic feedstock such as wastewater or sludge. They serve the dual benefit of clean power production and wastewater treatment. As the injection of biogas from wastewater treatment plants and landfill gas into utility gas pipelines is either expensive due to clean up requirements or prohibited (in the case of landfill gas), microbial fuel cells provide an ideal solution where onsite generation is not feasible, e.g. due to air emissions regulations. The development of microbial fuel cells is at an early stage and will require demonstration support as the technology further advances.

Biomethane can also be used in stationary onsite fuel cells~~, which have over 8 MW of deployments in California~~ and provide a source of low emission base load distributed generation. This is especially important as many of the dairies in California, which are potential biomethane sources, are located in the San Joaquin Valley and subject to stricter emissions standards due to EPA non-attainment status for several criteria pollutants. [*move the preceding section from "Biomethane" heading to this section*] Fuel cell technology offers environmental benefits from extremely low levels of traditional pollutants such as ozone and particulate forming compounds. Over half a dozen wastewater plants use digester gas in fuel cell installations ranging from several hundred kilowatts up to 1200 kilowatts (1.2

megawatts).[1]

Gill's Onions in Oxnard uses onion waste to produce digester gas from two 300 kilowatt systems, providing electricity and also reducing waste and waste hauling costs.[2] Sierra Nevada Brewery has installed 1000 kilowatts that can operate on natural gas and digester gas from brewery waste.

The National Fuel Cell Research Center has conducted research under a California Energy Commission grant to identify market and technical barriers to fuel cell commercialization in California and potential actions to overcome these barriers[3] and is in the process of finalizing this research.
(based on public comment)

pages 6-2 and 6-3
"The US EPA has announced that it will establish GHG standards (working with the US Department of Transportation, which is responsible for fuel-economy standards) from model years 2012 through 2016 that are as strict as those set by CARB. These standards are estimated to decrease GHG emission from new passenger vehicles by approximately 25-30% by 2016 and can be met through 2016 by deploying existing technology.[i] CARB and the federal government have agreed that CARB will be granted a waiver to implement GHG standards, while deferring to a national standard from model years 2012 through 2016 that is comparable to California's GHG regulation. This is also an important precedent for state GHG standards post-2016.
(based on public comment)

p6-10:
"medium-duty and heavy-duty vehicle hybrids from AB 118 funding"
(based on public comment)

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[1] Jonathon Foster, California Air Resources Board, personal communication October 27, 2009.
[2] Source: Reuters, "U.S. company converts onion juice to electricity", Fri Jul 17, 2009; available via web at http://www.reuters.com/article/lifestyleMolt/idUSTRE56G4IF20090717, last accessed October 27, 2009; for more information see also http://www.gillsonions.com/video/
[3] "EXPLORATION AND PRIORITIZATION OF FUEL CELL COMMERCIALIZATION BARRIERS FOR USE IN THE DEVELOPMENT OF A FUEL CELL ROADMAP AND ACTION PLAN FOR CALIFORNIA"; Josh Eichman Jack Brouwer, Scott Samuelsen; National Fuel Cell Research Center, Mechanical and Aerospace Engineering, University of California, Irvine: Proceedings of ASME 2009 Seventh International Fuel Cell Science, Engineering and Technology Conference.

[i] "Proposed Rulemaking to Establish 2012-2016 Light-Duty Vehicle CAFÉ and GHG standards", Bill Charmley briefing to Mobile Sources Technical Review Subcommittee, October 6, 2009.