October 28, 2009

Dr. Alan Lloyd, PhD
Chairman
Economic and Technology Advancement Advisory Committee
California Air Resources Board
1001 I Street
Sacramento, CA 95812

RE: Advanced Technology Development Report comments

TechNet, the national network of CEOs and senior executives of the nation's leading technology companies in software, hardware, networking, venture capital, biotechnology and clean energy, appreciates the hard work of the ETAAC in updating the committee's original report.

As we have stated previously, we believe that it is critical to harness innovation to the maximum extent possible if we are to achieve the targets and timetables in AB 32 in a cost-effective manner. To the extent possible, government should establish overall performance targets, with technology neutral-policies that allow the best technologies to win in the market place. With a view to this objective, we have reviewed the proposed draft currently out for public comment and submit for your consideration the recommended changes, with the rationale noted in each case. We appreciate your attention to our concerns.

Best regards,

Jim Hawley

1. Page 2-6, paragraph 2

This landscape favors manufacturing advanced technologies with low input costs and healthy profit margins and disfavors those that are more capital, labor and energy intensive.

Rationale: ETAAC has identified capital costs as among the most significant barriers and this change is necessary to conform to what the Committee is saying in other areas, including later on the same page. California has in place policies that disfavor capital investment, such as the sales tax on manufacturing assets and it is important that the state's disadvantage in attracting capital-intensive investment is noted.

2. Page 4-9, paragraph 1.

To further improve solar PV's competitiveness, the State can support technology developments in areas such as more efficient inverters, solar concentrators, power

optimization, and tracking devices, as well as mounting systems that are more labor efficient to install.

Rationale: Power optimization is an emerging area in solar because the shading of even a small portion of a solar panel can produce disproportionate losses in production. The state has an interest in ensuring that the anticipated production from solar technologies is in fact realized. This is an area that is getting more attention and that ETAAC should flag.

3. Page 5-3: Section 5.2 – Propose a new section for inclusion in list of promising sectors.

Advanced Electrical Distributed Generation Technology (AEDG)

Today new, highly-efficient distributed generation technologies are being developed and deployed in California. These new technologies achieve unprecedented levels of electrical efficiency by *internally* utilizing the "waste" heat generated as part of their internal process to reach higher electrical efficiency than traditional cogeneration technologies.

Internal utilization of the waste heat increases the electrical efficiency of the energy produced and eliminates the need for the external utilization of waste heat to economically and environmentally justify a distributed generation installation. This technological breakthrough will allow customers to install distributed generation units, even if they don't have need for thermal heat elsewhere in their facilities. As a result, these AEDG technologies will provide viable clean energy solutions to any commercial, industrial and/or residential customer without being limited to niche applications.

California recently recognized that this technology can play a key role in helping the state meet its emission reduction and air quality targets (Chapter 508, Statutes of 2009). AEDG technology is now eligible for many of the same incentives that traditional cogeneration technologies enjoy. The California Air Resources Board should encourage AEDG to further the state's progress toward realizing GHG emission reduction and air quality targets.

For Table

Technology: Advanced Electrical Distributed Generation (AEDG)

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Market Introduction: Currently in the market

GHG Reduction Potential: 2 million metric tons of CO2; 9,000 metric tons of NOx; and 2,000 metric tons of PM reduced for every 100 MW installed

Implementation Strategy: California Self Generation Incentive Program and other cogeneration incentives and mandates

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Barriers/Risks to Implementation:
Incentive programs and utility tariffs that support legacy cogeneration technologies need to adapt to also support AEDG based on statutory authority created by AB 1110. The customer that might invest in the low GHG technology does not see the full benefit from doing that because they only indirectly pay for GHG emissions.

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Rationale: The update includes a very comprehensive list of promising new energy efficiency technologies. TechNet suggests inclusion of advanced electrical generation distributed technologies, which include sectors like advanced stationary fuel cells, a segment expected to grow over 1000% over the next decade. This represents one of the more significant growth sectors in the clean tech sector. Because fuel cell systems are large durable goods, it makes

economic sense for them to be manufactured domestically and to take advantage of local goods and services creating a beneficial “multiplier effect”. An estimated 60,000 new jobs can be created by 2021 in the burgeoning US fuel cell production.

4. Page 6-3: Section 6-1, paragraph 2.

In the transportation sector, the introduction of electric drive and decarbonization of fuels (particularly focusing on use of electricity, advanced biofuels, and hydrogen) offer the potential for substantial job creation in California as noted earlier.

Rationale: Advanced biofuels should be mentioned as California is home to a number of companies doing very promising work on advanced biofuels -- creating jobs and potentially having the capability to scale up with little infrastructure investment. The focus should go beyond just electricity and hydrogen.

5. Page 6-12: Section 6-3, paragraph 2.

The Appendix contains a technical description of pathways from feedstocks to biofuels through the following processes:

- **advanced biofuels (such as biojet or butanol) produced by fermentation, preceded by hydrolysis for cellulosic or starch feedstocks;**
- **various potential products produced by thermochemical conversions;**
- **bio-oil or renewable diesel produced by hydrotreatment;**
- **bio-diesel produced by trans-esterification; and**
- **renewable natural gas produced by biomethane production**

Deleted: ethanol or butanol

Rationale: Just trying to be technology neutral and more descriptive about the broad potential for advanced biofuels.