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Dear Mr. Parker and Mr. Yacobucci:

I appreciate the effort necessary for and the completeness of the model analysis in the report you authored which was released two weeks ago: "Climate Change: Costs and Benefits of the Cap-and-trade Provisions of H.R. 2454".

As you note the information was in large part drawn from the EIA analysis [SR/OIAF/2009-05] "Energy Market and Economic Impacts of H.R. 2454" and the documents which provided the data for that study, including AEO 2009 [EIA- SR/OIAF/2009-05] and the EPA documents on carbon dioxide emissions:

(1) energy sector [http://epa.gov/climatechange/emissions/downloads09/Energy.pdf], (2)EPA data appendices [http://epa.gov/climatechange/emissions/downloads09/Annexes.pdf], (3)trends in greenhouse emissions [http://epa.gov/climatechange/emissions/downloads09/TrendsGhGEmissions.pdf]

This leaves one major source of carbon dioxide emissions unaccounted for in your analysis: biomass combustion. The resultant projections are based on data limited by a statement in the energy sector pdf noted above which states that "combustion of biomass emits greenhouse gases….[but] the CO_2 emissions from these activities are not included in the national emissions totals. It is assumed that the C released during the consumption of biomass …causes no net addition of CO_2 to the atmosphere."

Unfortunately this assumption is not valid given current scientific knowledge.

This is important for many reasons:

[1] As you state on page 18 "change now has immediate impact and the effect increases exponentially in the future." Biomass combustion will have an immediate impact and an exponential lasting impact.

[2] The change that results from correcting the data input will be significant. Using EIA information [HYPERLINK "http://www.eia.doe.gov/oiaf/analysispaper/biomass/figure_4.html" http://www.eia.doe.gov/oiaf/analysispaper/biomass/figure_4.html], if the

renewable energy targets for biomass combustion are realized in 2020 the resultant emissions will be 700,000,000 tons per year based on a conservative figure of 10,000 tons per year of CO_2 per megawatt of power produced [see enclosed plant data]. The cap projected in the Section 721 of HR 2454 is 5056 million tons as shown in Table B1 of SR/OIAF/2009-05. If the cap covers 85% of total emissions, total national emissions will be approximately 6000 million tons. Using Figures 5 &6 from your report the projected total emissions for the nation are as high as 7600 million tons per year depending on the model. Therefore, at minimum, biomass combustion will represent more than 9% of total emissions, and potentially up to 11.6% of total emissions, yet that number is being totally ignored.

a. Another way to express the significance of this amount of CO_2 is that it reduces the cap reduction called for under ACES from 17% to less than 11%.

b. The financial incentives available under ARRA and the proposed incentives in the current pending legislation which augment those in EISA permanently skew the economics of this form of power generation since allowances will not be required [resulting in huge cost savings – see P 10 and P 12 of your report]--but the power suppliers will be granted renewable energy credits equivalent to those of clean sources of renewable energy further distorting the economics and further lessening the real reduction in CO_2 emissions that will result in the first years due to the availability of cheap international offsets. It is ironic that the potential reductions in greenhouse gases that you note on page 13 brought about by allowances available for international projects [approximately 720,000,000 tons] is equaled, and hence negated, by the unaccounted for biomass CO_2 emissions.

You note on page 18 that "the key factor in reducing the intensity driver over the long run is technology development. This is recognized in most greenhouse gas reduction bills, including H.R. 2454, with substantial funding, incentives, regulatory standards, and price signals to encourage both accelerated deployment and the initiation of efforts to develop new generations of technology. The effectiveness of these initiatives and price signals would be pivotal to the ultimate cost of any reduction strategy, particularly in the long term." The result of the incomplete data on carbon emissions, however, is to divert significant private and public funds into a form of energy generation that is dirtier than coal.

Contrary to the EPA assumption, the rationalization for doing so cannot be that the emissions are biogenic. While it is true that the total amount of carbon in the biosphere is fixed, what matters at this time, and in the next few decades, is the percentage of that carbon which is in the atmosphere. Human burning of wood will produce a spike which is not "natural" or "biogenic". Moreover, it cannot be quickly neutralized. The EPA endangerment proposal in April [see enclosed Federal Register No. 74, P 18899] states that "50% of all carbon currently emitted will take hundreds to thousands of years to reabsorb." Moreover cutting the trees for burning not only eliminates immediate sequestration capacity, but because newly planted trees are net carbon emitters for 10-20 years there is further acceleration of climate change even if trees are replanted promptly and competently [see

enclosed documents on old growth, old tree sequestration, terrestrial sequestration, and carbon neutrality]. A further factor to consider is that the effects of current rising levels of carbon in the atmosphere are not likely to be realized for 20-30 years [see enclosed document "30 year lag"]—a third factor which increases the harmful effects of biomass combustion.

Therefore in your analysis biomass combustion should not be included in the group of technologies that "emit less greenhouse gas (or none) compared to a conventional coal-powered facility" [page 53] and if biomass is included in references to "low-carbon duel alternatives" this is inappropriate [e.g. p61]. In addition the failure to include biomass data compromises all the models, but especially the Heritage model and the NEMS model [see **Report #:DOE/EIA-0581(2003)**], though an accurate accounting will effect all the models that included RES [EPA/ADAGE, EPA/IGEM, NBCC/CRA, EIA/NEMS,ACCF-NAM/NEMS, CBO, and MIT/EPPA] in their analyses. Furthermore, having a "10% error factor" clearly changes all the calculations in terms of monetizing benefits and social costs [P 86-91]. Likewise calculations about household effects and industrial carbon leakage will be altered if the biomass combustion emissions are included in the data base.

Other statements require reconsideration if biomass is properly accounted for, e.g on page 20, since biomass combustion is a large percentage of the increase in renewable generating capacity that result from ARRA, the following conclusion about reduction in energy-related carbon dioxide emissions cannot be true:

> "a 27,700 megawatt (MW) increase in projected renewable electric generating capacity by 2030, (2) a 4,900 MW reduction in the projected increase in nuclear power capacity, and (3) an 11,300 MW reduction in overall electric generating capacity. The net result is a projected reduction in 2030 of 36.5 million metric tons of energy-related carbon dioxide emission from the level estimated by EIA without ARRA."

Perhaps accounting for biomass could be approached in terms of opportunity costs. For instance, on page 7 you note the original price for allowances will be set at $28 in 2012 and then increase in the following years. Requiring biomass plants to purchase allowances as do other stationary power generators would then generate income over the next three decades [minimum operating life of the plant]. How much income would this be and what are the ways these funds might be directed towards research on other clean energy technologies, with projections of the resultant climate and economic benefits from this investment? Renewable energy credits are a significant economic factor that are premised on the generation of "clean" energy. Since biomass combustion is not clean, what would be the economic impacts of renewable energy credits not being given to biomass plants, including the increased value to renewable energy credits for wind, solar, and geothermal projects?

Such unmerited diversions of investment capital to biomass will have significant effects as you note since there will be a need for "a low-carbon source of electric generating capacity in the mid- to long-term [page 54]. However, by not accounting for biomass combustion

carbon emissions, the analysis does not reflect what should happen as stated on page 52: "the free enterprise system provides significant rewards for those who develop cost-effective alternatives and introduce them into the market." Ignoring the emissions creates a very profitable investment in dirty energy that will distort decision-making. This will have a negative impact on productive investment since the biomass renewable sector will appear falsely attractive, further altering the balance. As you note on page 55: "other alternatives, such as natural gas, renewables, or nuclear are seen as more cost-effective than CCS." Technologies such as CCS may not turn out to be effective, but the current situation makes the "dirty energy" investment in biomass combustion falsely attractive.

On page 95 your report quite correctly emphasizes that "technological development will be critical". The lessons of the past are quite clear that appropriate decisions must be based on accurate data. In order to solve the "climate problem" accurate data and analysis from the Congressional Research Service will be critical guidance for policy makers and investors. Please take this opportunity to address biomass combustion and the carbon emissions that result which will impact the environment during a critical time frame. The data is available currently since the EPA has information on biomass CO_2 emissions as well as emissions of other criterion pollutants [See tables A-1, A72 thru A-75, A-243, HYPERLINK "http://epa.gov/climatechange/emissions/downloads09/Annexes.pdf" http://epa.gov/climatechange/emissions/downloads09/Annexes.pdf]. As a real world example, the numbers vastly exceed those of the oft-maligned cement industry.

And most importantly, remember that burning biomass is dirtier than burning coal. For that reason I have also enclosed a letter to Speaker Pelosi which clearly acknowledges the problem and proposed language for a climate bill which is gaining support in the Congress to address this issue.

I appreciate your attention.

Sincerely yours,

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