Department of Energy
Washington, DC 20585

OCT 6 2010

Ms. Janice Mays
Chief of Staff
Committee on Ways and Means
U.S. House of Representatives
Washington D.C. 20515

Dear Ms. Mays:

Thank you for your letter of August 16, 2010, requesting that the U.S. Energy Information Administration (EIA) analyze several provisions included in the July 26, 2010, discussion draft of the *Domestic Manufacturing and Energy Jobs Act of 2010*. I am pleased to provide the results of our analysis.

In your request (supplemented with additional information from Kase Jubboori of your staff), you asked that we analyze five specific provisions of the discussion draft: an extension of the tax credit for manufacturers of energy efficient appliances (section 102); the establishment of Home Energy Conservation Bonds (HECBs) (section 301); an extension of the placed-in-service deadline for the 30 percent investment tax credit for offshore wind and geothermal properties (section 202); an extension of the Clean Renewable Energy Bonds (CREBs) program (section 203); and an investment tax credit for heavy vehicles using natural gas, hybrid electric, or all-electric drive (section 401).

The enclosed report summarizes our findings. An electronic copy of the detailed model results will be transmitted to your staff and subsequently posted on our website in a few days together with the report itself, as previously discussed with them.

I hope this information is useful to you and your staff. If you have any questions, please call me at (202) 586-2222 or Chris Namovicz at (202) 586-7120.

Sincerely,

John J. Conti

John J. Conti
Assistant Administrator for Energy Analysis
U.S. Energy Information Administration

Enclosure

Printed with soy ink on recycled paper

Enclosure

Analysis of Selected Provisions of the Domestic Manufacturing and Energy Jobs Act of 2010

This report responds to a letter dated August 16, 2010, from Janice Mays, Staff Director of the U.S. House of Representatives' Committee on Ways and Means, requesting that the U.S. Energy Information Administration (EIA) analyze several provisions included in the July 26, 2010, discussion draft of the Domestic Manufacturing and Energy Jobs Act of 2010. In this request (including supplemental information from Committee staff), EIA was asked to analyze five specific provisions of the discussion draft: an extension of the tax credit for manufacturers of energy efficient appliances (section 102); the establishment of Home Energy Conservation Bonds (HECBs) (section 301); an extension of the placed-in-service deadline for the 30 percent investment tax credit for offshore wind and geothermal properties (section 202); an extension of the Clean Renewable Energy Bonds (CREBs) program (section 203); and an investment tax credit for heavy vehicles using natural gas, hybrid electric, or all-electric drive (section 401).

Residential sector energy efficiency. To encourage energy efficiency in the residential sector, the draft legislation extends tax credits to manufacturers of energy-efficient dishwashers, clothes washers and refrigerators made in 2011, 2012, or 2013 and provides $2.4 billion for federally-subsidized HECBs for low-interest loans and grants to support measures that achieve at least a 20 percent reduction in household energy consumption. EIA estimates that these two initiatives would reduce projected residential delivered energy consumption in 2013 by 14 trillion Btu (0.1 percent) relative to the Reference case projection in EIA's *Annual Energy Outlook 2010* (*AEO2010*). Energy savings would continue over the life of the more efficient equipment, but consumption moves towards the Reference case levels as the equipment is replaced after incentives are no longer available. Efficient clothes washers account for 45 percent of the projected energy savings in 2013, due to both reduced water heating needs and lower energy use by the washers themselves.

Offshore wind and geothermal projects. Under current law, offshore wind and geothermal power projects may elect to take either a 2.1 cent per kilowatthour production tax credit (PTC) for the first 10 years of operation or a 30 percent investment tax credit (ITC). These tax credits are only available to wind projects that enter service before January 1, 2013, or geothermal projects that enter service before January 1, 2014. The proposal would extend the ITC placed-in-service deadline for both technologies to January 1, 2017 (geothermal plants may continue to claim a 10 percent ITC beyond the expiration of the 30 percent ITC; the PTC would not be extended). EIA projects that this provision will result in more than 500 Megawatts of additional geothermal capacity installations during the extended 30 percent ITC availability period compared to EIA's Reference case. EIA projects that the extended ITC availability period will not result in any additional off-shore wind capacity.

In 2016, the last year of assumed availability for the geothermal and offshore wind investment tax credits, the projected costs of electricity from these sources decline compared to the Reference case. Costs for each technology vary significantly by region, but the combined impact of both the direct tax subsidy as well as additional cost reductions induced by increased technology penetration (in the case of geothermal) result in lower overall costs, as shown in Table 1.

Table 1. Levelized Cost of Energy for Geothermal and Offshore Wind ($ per MWh)[1]

	Geothermal	Offshore Wind
Reference Case	98	173
Policy Case (unsubsidized)	99	173
Policy Case (with subsidy)	77	130

[1] 2008 dollars. Results are shown for California for geothermal and the Mid-Atlantic for offshore wind, which are the regions of greatest growth for those respective technologies. Calculations assume 30-year financial life.

Note that the levelized cost of energy estimated above does not reflect the selling price of electricity from the specified source, but rather represents the minimum average price for which a producer would have to sell its output in order to recover its investment and operating costs (including minimum return on investment) over the assumed financial life of the project. Actual electricity prices are determined through various regulatory and competitive processes, and may differ significantly from the costs shown.

Alternative transportation fuels. To encourage the use of alternative transportation fuels, the draft legislation provides tax incentives for the purchase of natural gas heavy vehicles (at least 8,500 pounds gross vehicle weight rating) that would cover up to 80 percent of the incremental cost of the vehicle that is above comparable diesel-fueled counterparts, subject to a cap. As a result of these incentives, an additional 2,800 heavy natural gas vehicles are projected to be sold between 2012 and 2016 above the 9,700 projected sales of eligible vehicles in the Reference case. Natural gas vehicles remain a small portion of new heavy vehicle sales, increasing from 0.1 percent of total new vehicle sales in 2012 to 0.9 percent in 2016 (compared to 0.8 percent in the Reference case). In terms of the total heavy vehicle stock, the share of natural gas heavy vehicles rises from 0.3 percent in 2012 to 0.4 percent in 2016, about the same share as in the Reference case. The increase in natural gas heavy vehicle sales results in a cumulative increase in natural gas consumption of about 3 billion cubic feet between 2012 and 2016, representing an increase in the natural gas share of total heavy vehicle energy demand from 0.15 percent in 2012 to about 0.2 percent in 2016.

As discussed in the *AEO2010*, the size of the potential market for heavy trucks fueled by natural gas is one key factor that determines the sales impact of tax incentives. The analysis of tax incentives presented in the *AEO2010* considered alternative cases that varied both the size of the potential market (Reference versus expanded) and the expiration date for the tax credits. However, an expanded market size case, which results in higher sales penetration, was not considered in the analysis described herein.

The draft legislation also provides tax incentives for hybrid electric/all-electric and mixed fuel heavy vehicles. With respect to electric vehicles, EIA would not expect any impact on market penetration, which already reaches the maximum level eligible for credits in the *AEO2010* Reference case. EIA could not assess the effect of the tax credit for mixed-fuel trucks, because our National Energy Modeling System (NEMS) does not include those vehicles.

This analysis suggests that market limitations due to fuel availability and potential economic issues associated with natural gas vehicle residual values are not expected to be overcome in the limited period when investment tax credits are provided. Given the much shorter tax credit period and the lack of infrastructure and fuel tax credits that are present in tax credit extension cases in the *Annual Energy Outlook* side cases, it is less likely that owner/operators would be willing to purchase natural gas vehicles unless they already are natural gas users with refueling facilities.

EIA was not able to model implementation of the natural gas heavy vehicle incentives based on the "expanded market" assumptions used in the *AEO2010*, as requested by the Committee staff in a supplemental request. The expanded market case was developed to examine the potential impact of long-duration tax credits that significantly affect the cost of owning, operating, and refueling a heavy duty natural gas vehicle. The *AEO2010* includes two side cases examining the impact of these tax credits where the credits expire in 2019 and 2027, respectively. Furthermore, in the 2027 phase-out case, the size and duration of the tax credits are assumed to incentivize the creation of an expanded market for natural gas vehicles, where all owner/operators of heavy vehicles that operate primarily within 200 miles of a central refueling facility are willing to consider purchasing a natural gas heavy vehicle. The draft legislation includes a tax credit covering up to 80 percent for the incremental cost of heavy natural gas vehicles between 2012 and 2016. Given the relatively short duration of the credits and the presence of other market obstacles, evaluating the draft legislation's natural gas vehicle tax credits in an expanded market context could significantly overstate expected outcomes.

Finally, EIA was not able to model the CREBs extension because this program applies to a limited segment of the electric utility market (i.e., publicly-owned and rural cooperative utilities) that EIA is not able to differentiate within the framework of the NEMS.