Meszler
Engineering Services
906 Hamburg Drive, Abingdon, Maryland 21009

To: Heather Higginbottom, Policy Director, Obama for America

From: Dan Meszler, Meszler Engineering Services

Re: Magnitude of Potential Oil Supply and Demand Savings

Date: June 23, 2008

In response to your request, I am hereby providing estimates of the amount of oil that could reasonably be expected to be saved in the year 2025 by increasing domestic supply through the lifting of existing moratoria as compared to a doubling of the current fuel economy of all new vehicles over a sixteen year period from 2010 to 2025.[1] The supply side estimates are based on existing data prepared by the U.S. Department of Energy and do not reflect independent research on either the magnitude or the ease or timing of extraction of oil reserves. Similarly, the demand side estimates are based on a presumed doubling of fuel economy over the stated timeframe and do not reflect independent research on program cost effectiveness. The estimates are provided for the purpose of comparison of magnitude and are not intended to reflect a detailed review of the implications of either supply or demand side options.

On the supply side, I estimate that by 2025, roughly 2.0 million barrels per day (MMBPD) could reasonably be expected to be produced through aggressive exploitation of Arctic National Wildlife Refuge (ANWR) and offshore domestic reserves in the Atlantic, Pacific, and Gulf of Mexico. This estimate is derived by combining the Department of Energy, Energy Information Administration's (EIA's) recoverable resource estimates for these areas (26.95 billion barrels) with data from 2002 and 2004 EIA studies that estimated the rate at which oil could be extracted from the ANWR reserves.[2,3,4] For convenience, I assume that the rate of production in the offshore areas would be similar to that estimated by the EIA for ANWR.

It should also be recognized that because the total volume of recoverable resources in the ANWR area is not known with precision, the EIA studies rely on "best" (i.e., most likely) estimates of

[1] Increasing domestic oil supply does not actually result in an overall oil savings, but rather the potential for reduced oil imports. All else being equal, the actual volume of domestic oil extraction depends directly on the cost effectiveness of that extraction relative to the purchase costs of import oil. In order to evaluate the supply side potential under optimistic economic conditions, this memorandum assumes that domestic resources in the moratoria areas are economically recoverable relative to imports.

[2] Energy Information Administration, *The Effects of the Alaska Oil and Natural Gas Provisions of H. R. 4 and S. 1766 on U.S. Energy Markets*, SR/OIAF/2002-02, February 2002.

[3] Energy Information Administration, *Analysis of Oil and Gas Production in the Arctic National Wildlife Refuge*, SR/OIAF/2004-04, March 2004.

[4] Both EIA studies are based on surveys conducted by the U.S. Geological Survey of technically recoverable oil in the coastal plain area of ANWR.

total recoverable resources. The studies, however, also include both optimistic and pessimistic resource estimates. The optimistic resource estimates are based on a five percent likelihood that recoverable ANWR resources are about 55 percent higher than those assumed under the "best" case. Conversely, the pessimistic resource estimates are based on a five percent likelihood that recoverable ANWR resources are about 45 percent lower than assumed under the "best" case. If I apply these same assumptions to the entire moratoria area, potential 2025 supply impacts would range from a low of 1.2 MMBPD to a high of 3.8 MMBPD, with a best estimate of 2.0 MMBPD as stated above. Although both the lower and upper bounds are low probability estimates, they nonetheless provide an indication of the inherent uncertainty of estimating recoverable resources.

On the demand side, I estimate potential savings of about 5.3 MMBPD by 2025 for the assumed fuel economy program (i.e., a doubling of the 2009 fuel economy of all new passenger cars, light trucks, medium trucks, heavy trucks, buses, and motorcycles between 2010 and 2025). To derive this estimate, I performed an oil savings analysis based on the adjustment of a baseline oil consumption "future" derived from the EIA's Annual Energy Outlook to reflect the impacts of differing new vehicle fuel economy values. The analysis considers fleet turnover impacts (i.e., how long does it take for new vehicles to penetrate the fleet), real world versus laboratory fuel economy differentials, VMT rebound effects (i.e., how much further do drivers travel in response to a decrease in the cost of travel), and other critical modeling assumptions.

In considering the demand side estimate, recognize that there are currently no fuel economy requirements for vehicles other than passenger cars and light trucks. Thus, the assumed doubling of fuel economy for the other vehicle types will require the establishment of corresponding programs for these vehicles. You should also recognize that because the higher fuel economy vehicles take time to fully penetrate the onroad vehicle fleet, long term fuel saving impacts will be higher than those estimated for 2025 by 30-35 percent.

Please feel free to contact me if you need any additional information.