

October 15, 2012

MEMORANDUM FOR: JOHN CONTI
ASSISTANT ADMINISTRATOR FOR ENERGY
ANALYSIS

PAUL HOLTBERG
TEAM LEADER
ANALYSIS INTEGRATION TEAM

JIM TURNURE
DIRECTOR
OFFICE OF ENERGY CONSUMPTION AND EFFICIENCY
ANALYSIS

FROM: TRANSPORTATION CONSUMPTION & EFFICIENCY
ANALYSIS TEAM

SUBJECT: Second AEO2013 Transportation Working Group Meeting
Summary (presented on 10-09-2012)

Attendees: Dave Gelman (New West Technologies)
Kevin Green (DOT/VOLPE)
Carrie Huges-Cromwick (EIA/OES)
Jim Kliesch (UCS)
Therese Langer (ACEEE)
Kevin Lillis (EIA/OEA)
Fred Mayes (EIA/OEA)
Kathleen Ratcliff (DOE/CF)
Ed Nam (EPA/OTAQ)
Tien Nguyen (DOE/EERE)
Tom White (DOE/PI)
Pete Whitman (DOE/PI)
Lixin Zhao (DOT/NHTSA)

Attending by Phone: Jeff Alson (EPA/OTAQ)
Alicia Birky (TA Engineering)
Jeff Cole (EPA/OTAQ)
Ben Ellies (EPA/OTAQ)
Ken Howden (DOE/EERE)
Aaron Hula (EPA/OTAQ)
Ari Kahan (EPA/OTAQ)
Ken Katz (DOT/NHTSA)
John Meyer (SAIC)
Jesse Prentice-Dunn (Sierra Club)
Kevin Stork (DOE/EERE)

Luke Tonachel (NRDC)

Presenters: Nick Chase
Trisha Hutchins
John Maples

**WORKING GROUP PRESENTATION FOR DISCUSSION PURPOSES ONLY
DO NOT QUOTE OR CITE AS RESULTS ARE SUBJECT TO CHANGE**

The working group presentation provided a discussion of the major updates made for the AEO 2013 and preliminary projections resulting from those updates and other model changes that affect the transportation projections. An overview of the updates and preliminary projections discussed are included in the presentation materials provided as a separate attachment.

Specific discussion/questions

Light duty vehicle technology update:

1. EIA was asked to define micro and mild hybrid technologies as shown in the technology menu and state how they compared to those in the CAFE final rulemaking. EIA indicated that micro hybrids use a 12 volt start-stop system and provide no motive power to the vehicle and that the mild hybrid uses a 42 to 110 volt high efficiency system with start-stop capability and minimal motive power. EIA noted that both are a package technology that includes electric or electro-hydraulic power steering and improved efficiency accessories. The micro hybrid systems are similar in assumption across EIA/EPA/NHTSA, but there are inconsistencies across all three Agencies in the definition of mild hybrids. EIA stated that a previous discussion with EPA had already taken place and that EPA recommended the use of one particular technology in the rule as the mild hybrid.
2. EIA was asked if the new technology list employed cost reductions through learning or economies of scale. EIA stated that the learning employed in the model mimics the time based learning used in the 2017-2025 CAFE final rulemaking.
3. EIA was asked if it had base year market penetrations for the new technology menu. EIA stated that an analysis was completed that calculated the base year market penetration for each technology using data obtained from EPA and NHTSA as well as Ward's Automotive Group.
4. EIA was asked about the use of turbocharging and downsizing as a technology choice. EIA responded by noting the use of data provided by EPA and NHTSA and that such technology was a package with several other required technologies. A follow-up question about the use of cooled exhaust gas recirculation was answered by noting the use in level 3 turbocharging.
5. EIA was asked about whether dis-synergistic impacts of adding various technologies were taken into account. EIA answered in the affirmative and that such data was taken from the EPA and NHTSA Final Rule and by use of NHTSA's Lumped Parameter Model.

6. EIA was asked if other technology attributes are considered in addition to cost and fuel economy improvement. EIA answered in the affirmative, mentioning horsepower and weight.

Heavy duty natural gas vehicles:

7. EIA was asked what average payback period was used to determine the purchase of natural gas vehicles. EIA indicated that it previously used a 2.1 year payback and now uses a 3 year payback to determine costs effectiveness to consumers.
8. Given potential safety and logistical issues associated with LNG, EIA was asked if it was planning on researching or considering the possibility that all heavy trucks might be fueled by compressed natural gas. Because of inherent uncertainties associated with the development of natural gas refueling infrastructure and market acceptance of the available on-board storage options, EIA indicated due to these uncertainties there is limited information and that when more information becomes available it will be incorporated into the modeling.
9. EIA was asked if heavy duty vehicle projections of natural gas consumption included buses. EIA indicated that the information provided in the slides was for heavy duty trucks only and that buses were modeled separately, but that buses also showed significant increases in natural gas consumption over the projection.

Preliminary Projections:

10. EIA was asked how it defined a car and light truck and if that definition changed over the forecast. EIA stated that the car and light truck split determined in the base year reflected the data provided in the NHTSA database and that shifts in the projected sales of cars and light trucks were based on the definitions used for the underlying data in the base year inputs. Potential changes in vehicle design that could occur as a result of car and light truck definitions described in the CAFE rulemaking are not explicitly modeled.
11. EIA was asked if it included the model year 2022 through 2025 augural CAFE standards provided in the final rule in the preliminary *AEO2013* projections. EIA stated that the CAFE standards represented in the projections did include the augural CAFE standards.
12. EIA was asked if the CAFE compliance values achieved in the preliminary projections were the same as those projected in the *AEO2012 CAFE* case. EIA indicated that the current new LDV fuel economy projections were lower than last year's projections due to increased footprint sizes for cars and light trucks in the base year and due to increased light truck sales relative to last year's projections. Lower projected fuel prices and lower CAFE compliance costs contributed to the increase in light truck sales in the preliminary *AEO2013* projection.
13. EIA was asked if mass reduction was a significant contributor to increased fuel economy for cars and light trucks. EIA stated the projected mass reduction was more significant in light trucks, as up to 20 percent mass reductions are included in the technology menu but that the mass of cars was affected but to a lesser extent, as mass reduction technology is available only up to 10 percent for the largest size class and

3.5 percent for the vast majority of passenger cars. Others in the meeting concurred with this finding.

14. EIA was asked about market penetration rates for micro hybrids and CNG vehicles. EIA stated cost effectiveness relative to other alternatives was the primary explanation for the projected increases for those technologies and fuels.

Complete Listing of Invitees:

Alex, Aileen	DOE/CFO
Alson, Jeff	EPA/OTAQ
Birky, Alicia	TA Engineering
Charmley, Bill	EPA/OTAQ
Chase, Nick	EIA/OEA
Chien, David	DOT/RITA
Coe, Ed	EPA/OTAQ
Cole, Jefferson	EPA/OTAQ
Davis, Stacy	ORNL
Davies, John	DOT/FHWA
Duleep, KG	H-D Systems
Ellies, Ben	EPA/OTAQ
Garg, Rishi	OPC
Gazda, Walter	DOT/VOLPE
Gelman, Dave	New West Technologies
Green, Kevin	DOT/VOLPE
Greene, David	ORNL
Hassenboehler, Tom	ANGA
Hendrickson, Stephen	DOE/CFO
Herzog, Erik	EPA/OTAQ
Holtberg, Paul	EIA/OEA
Howden, Ken	DOE/EERE
Huges-Cromwick, Carrie	EIA/OES
Hula, Aaron	EPA/OTAQ
Hutchins, Trisha	EIA/OEA
Hwang, Roland	NRDC
Kaarsberg, Tina	DOE/EERE
Kafalenos, Robert	DOT/FHWA
Kahan, Ari	EPA/OTAQ
Katz, Ken	DOT/NHTSA
Kliesch, Jim	UCS
Kydes, Nico	OnLocation
Langer, Therese	ACEEE
Lillis, Kevin	EIA/OEA

Lipman, Zoe	NWF
Lott, Melissa	DOE/CFO
Maples, John	EIA/OEA
Mayes, Fred	EIA/OEA
Memmott, Jeffery	DOT/RITA
Mesnikoff, Ann	Sierra Club
Meyer, John	SAIC
Mintz, Marianne	ANL
Moore, Jim	TA Engineering
Nam, Ed	EPA/OTAQ
Neff, Shirley	EIA/OA
Nguyen, Tien	DOE/EERE
Norris, Sylvia	EIA/OES
Prentice-Dunn, Jesse	Sierra Club
Prugar, Andrew	EPA
Schaufele, Roger	DOT/FAA
Santini, Dan	ANL
Shpitsberg, Anna	DOE/CFO
Smith, Jason	ANGA
Owens, Russ	New West Technologies
Plotkin, Steve	ANL
Stork, Kevin	DOE/EERE
Sylvan, Stephan	EPA/OAR
Tonachel, Luke	NRDC
Turnure, Jim	EIA/OEA
VanSchalkwyk, John	DOT/VOLPE
Venu, Ghanta	EPA/OA
Ward, Jake	DOE/EERE
White, Tom	DOE/PI
Whitman, Pete	DOE/PI
Wolcott, Mark	EPA
Wood, Frances	OnLocation