

Annual Energy Outlook 2015:

Modeling updates in the transportation sector



For

AEO2015 Working Group

July 30, 2014 | Washington, DC

By

Nicholas Chase, Trisha Hutchins, John Maples

Office of Energy Consumption and Efficiency Analysis

Data updates

- Update historical fuel consumption data to latest state energy data (2011), annual national data from *Monthly Energy Review* (2012), and most recent *Short-Term Energy Outlook*
- Update historical light-duty vehicle attribute data through 2013 (pending)
- Update historical light-duty vehicle fleet operations share (pending)
- Update historical aircraft sales, stock, travel, and fuel use data (pending)
- Update heavy-duty vehicle sales and travel demand through 2014

Data updates (continued)

- Update historical freight rail travel demand and efficiency through 2013
- Update historical domestic marine travel demand through 2012
- Update historical lubricant and recreational boating energy consumption

Modeling updates

- New regional freight travel demand methodology (truck, rail, domestic marine)
 - Freight Analysis Framework (FAF) data instead of Commodity Flow Survey (CFS)
 - Shortest route method used for trucks to estimate travel demand share in between origin and destination points
 - Re-estimation of travel demand metrics
- Re-estimation of coefficients for air model equations
 - Revenue ton mile, aircraft sales, and yield coefficient updates

Freight Analysis Framework (FAF) and shortest route optimization compared to Commodity Flow Survey, Truck 2007

- Increase in truck travel through intermediate regions (census divisions 4,6,8)

Census Division								
1	2	3	4	5	6	7	8	9
-23%	-21%	-6%	+40%	-13%	+24%	-11%	+121%	-33%

- FAF better captures non-manufactured goods moving on trucks (primary metals, petroleum products, agriculture, and mining) and domestic legs of international trade flows

Commodity									
chemicals rubber plastic	primary metals	processed food	paper products	petroleum products	stone clay glass concrete	metal durables	other manuf	agricul	mining
-15%	+21%	-42%	-37%	+24%	-12%	-4%	-11%	+108%	+33%

Freight Analysis Framework (FAF) compared to Commodity Flow Survey, 2007

- Rail
 - Substantial reduction in census division 8
 - Substantial reduction in coal and increase in all other commodity groups
- Domestic marine
 - Substantial increase in ton-miles in census divisions 5 and 9, substantial reductions in census divisions 3, 4, and 7
 - Substantial increase in petroleum products and decrease in agricultural products

Comments/Discussion

- Pressing suggestions for *AEO2015*
- Comments or suggestions for *AEO2016*
 - Contact Transportation Team if interested in taking part in topical Working Group meetings starting early next year

Discussion/questions

Nicholas Chase | phone: 202-586-8851
| email: nicholas.chase@eia.gov

Trisha Hutchins | phone: 202-586-1029
| email: patricia.hutchins@eia.gov

John Maples | phone: 202-586-1757
| email: john.maples@eia.gov

U.S. Energy Information Administration home page | www.eia.gov

Annual Energy Outlook | www.eia.gov/forecasts/aeo