

William Acker Finds Modal Energy Efficiency Data Errors On The Maritime Administration Web Site February 19, 2003

The Department of Transportation Maritime Administration (MARAD) is a branch of the Government that oversees the Nation's waterborne commerce. An energy consultant Mr. William G. Acker of Acker & Associates in Green Bay Wisconsin was recently on the MARAD Web Site looking for modal fuel efficiency data for waterborne freight. On this Web Site he found a document called "Environmental Advantages of Inland Barge Transportation". The data provided on this site is listed below and is included as an attachment.

Number of Miles One Ton Can Be Carried Per Gallon of Fuel

1. Truck : 59 miles
2. Rail: 202 miles
3. Inland Barge: 514 miles

First of all the engineering units for this data is incorrect, it should read ton-miles per gallon of fuel. This data used on the web site came from the Sam E. Eastman Study in June 1980. The correct engineering units from this study are as follows:

1. Truck: 59 ton-miles/gallon
2. Rail: 202 ton-miles/gallon
3. Inland Barge: 514 ton-miles/gallon

The Department of Transportation no longer uses ton-miles/gallon, instead they now use Btu/ton-mile. Below you will see the Sam Eastman data converted to Btu/ton-mile.

1. Truck : 2351 Btu/ton-mile
2. Rail: 686 Btu/ton-mile
3. Inland Barge: 269 Btu/ton-mile

The problem with the above data is that it is no longer accurate. In September 2002 the Transportation Energy Data Book Edition 22 prepared by the Oak Ridge National Laboratory shows the following more accurate energy data.

1. Truck: 3200 Btu/ton-mile Page 2-19
2. Class I Rail: 352 Btu/ton-mile Page 2-19 & Page 12-9
3. Waterborne Commerce: 508 Btu/ton-mile (All water freight) Page 2-19 & Page 12-5

From this more recent data we now can see that trucks require 6.29 times more energy than waterborne freight, but waterborne freight uses 1.44 times more energy than rail which is quite different than the results from the Sam E. Eastman study. It should be pointed out that

if you look at a fully loaded barge on the Mississippi River, that is southbound (downstream), it consumes 145.5 Btu/ton-mile which is more efficient than rail. On the return trip (upstream) with a 37.7 % backhaul(37.7 % loaded), the fuel consumption increases to 571 Btu/ton-mile which is higher energy consumption than rail.

When Mr. Acker contacted MARAD about these errors they refused to change the data. So he then contacted the Department of Transportation which is the Department that MARAD reports to and on October 3, 2003 Maggie Blum of MARAD contacted Mr. Acker and thanked him for his persistence, and told him that the incorrect data was removed from the web site.