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**JOBS CALCULATION FORMULA FOR DIESEL EMISSIONS REDUCTION ACT GRANTS
 UNDER THE AMERICAN RECOVERY AND REINVESTMENT ACT OF 2009**

GOAL: To create a simple formula that can be used in place of more precise data for generating the jobs impact of individual Diesel Emissions Reduction Act (DERA) grant applications.

METHODOLOGY: Building on the study conducted by Keybridge Research regarding the macroeconomic impacts associated with DERA funding, a formula can be derived to estimate the number of jobs generated by individual DERA projects.¹

First, the following RIMS II multipliers² are used for proxies for the activities that would be undertaken with DERA funding. Motor Vehicle Parts Manufacturing³ is a proxy for diesel retrofit manufacturing; Automotive Repair and Maintenance⁴ is a proxy for diesel retrofit installation; and Heavy Duty Truck Manufacturing⁵ is a proxy for replacement.

Multipliers	Jobs/Million
MVP Manufacturing	17.2
Auto Repair and Maintenance	25.1
HD Truck Manufacturing	14.9

Next, the percentage of cost associated with each aspect of production and supply for a diesel retrofit was determined using actual cost data supplied by a diesel retrofit manufacturer. The multipliers were then used to determine the number of jobs per million created or projected for both replacements and retrofit applications. The chart below shows these numbers⁶:

¹ “The Economic Impact of Funding the Diesel Emission Reduction Act: A Preliminary Analysis,” Keybridge Research (December 2008), available at: <http://www.ectausa.com/documents/DERAEconomicImpactStudy.pdf>.

² The RIMS II multipliers for jobs are denominated in 2006 dollars. Consequently, the multipliers were “deflated” to 2009 dollars using the Bureau of Economic Analysis’ implicit GDP deflator for 2006-2008 and assuming no inflation for 2008-2009. This adjustment allows DERA expenditures for 2009 to be directly applied to the multipliers.

³ **Motor Vehicle Parts Manufacturing:** This NAICS Industry Group includes establishments classified in the following NAICS Industries: 33631, Motor Vehicle Gasoline Engine and Engine Parts Manufacturing; 33632, Motor Vehicle Electrical and Electronic Equipment Manufacturing; 33633, Motor Vehicle Steering and Suspension Component (except Spring) Manufacturing; 33634, Motor Vehicle Brake System Manufacturing; 33635, Motor Vehicle Transmission and Power Train Parts Manufacturing; 33636, Motor Vehicle Seating and Interior Trim Manufacturing; 33637, Motor Vehicle Metal Stamping; and 33639, Other Motor Vehicle Parts Manufacturing.

⁴ **Automotive Repair and Maintenance:** This industry group comprises establishments involved in providing repair and maintenance services for automotive vehicles, such as passenger cars, trucks, and vans, and all trailers. Establishments in this industry group employ mechanics with specialized technical skills to diagnose and repair the mechanical and electrical systems for automotive vehicles, repair automotive interiors, and paint or repair automotive exteriors.

⁵ **Heavy Duty Truck Manufacturing:** This industry comprises establishments primarily engaged in (1) manufacturing heavy duty truck chassis and assembling complete heavy duty trucks, buses, heavy duty motor homes, and other special purpose heavy duty motor vehicles for highway use or (2) manufacturing heavy duty truck chassis only.

⁶ The retrofit jobs/million number is calculated by applying the percentage of use to the multipliers using the following formula: 50%(25.1) + 50%(17.2) = 21.15

Direct Jobs per \$1M in DERA ARRA Spending		
	Replace	Retrofit
Manufacturing %		50
Installation %		50
HD Truck Manufacturing %	100	
Jobs/Million	14.9	21.15

FORMULA: Using these new project multipliers, the following formulas were created to calculate the total jobs per application and also jobs per one million dollars. The “jobs/million” calculation will provide EPA with a metric by which projects of varying sizes and scopes can be compared.

Total Project Cost (in millions) = TPC

Percent of TPC for Retrofit (as a decimal number) = RT

Percent of TPC for Replacement (as a decimal number) = RP

Jobs/Million = (RT)(21.15) + (RP)(14.9)

Total Jobs = (Jobs/Million)(TPC)

EXAMPLES:

Example 1. State Y wants to spend its \$1.7M on retrofitting and replacing buses. 50% of the funds will be used for retrofit and the remaining 50% for replacement. Using the formula above:

Total Project Cost: \$1.7M

Percent of TPC for Retrofit: 0.50

Percent of TPC for Replacement: 0.50

Jobs/Million = (0.50)(21.15) + (0.50)(14.9)

Jobs/Million = 18.025

Total Jobs = (18.025)(\$1.7M)

Total Jobs = 30.64

Example 2. The Port of Q applies for funding through one of the regional Collaboratives. The port would like to retrofit \$1.25M worth of port equipment and replace another \$600K.

Total Project Cost: \$1.85M

Percent of TPC for Retrofit: 0.676

Percent of TPC for Replacement: 0.324

Jobs/Million = (0.676)(21.15) + (0.324)(14.9)

Jobs/Million = 19.125

Total Jobs = (19.125)(\$1.85M)

Total Jobs = 35.38