

Matrix #2

Annual Cost-Effectiveness (regulation, PM only)

10/17/2003

The variable used to establish the low and high end scenarios is the annual usage:
1,200 hours/year for the low end (typical short-haul usage) and 3,000 hours/year for the high end (typical long-haul usage.)

VDECS Retrofit: Low-Cost Scenario

Operator Cost Range (2002 \$)
(basis for calculations below) Interest rate for 2008 Cost Pmt. Adj.: 0.05
\$78,760 \$2,346,240

Year	Emission Benefits (tpy)	Annual In-Use Cost (2002 \$) (low-cost scenario)	Annual Operator Reporting Cost Range		In-Use & Operating Costs = Total Ann. Operating Cost		2008 In-Use Cost Payment Adj.		PM Cost Effectiveness (In-Use & Rept. Costs Only)		Not Used for Cost-Effectiveness Calculation				
			(low)	(high)	(low)	(high)	(low)	(high)	\$/lb. (low)	\$/lb. (high)	Fac. Rep. Cost Range (low) (high)	Total Annual Cost (low) (high)			
2000		\$0	\$0	\$0	\$0	\$0									
2001		\$0	\$0	\$0	\$0	\$0									
2002		\$0	\$0	\$0	\$0	\$0									
2003		\$0	\$0	\$0	\$0	\$0									
2004		\$0	\$0	\$0	\$0	\$0									
2005		\$0	\$0	\$0	\$0	\$0									
2006		\$0	\$0	\$0	\$0	\$0									
2007		\$0	\$0	\$0	\$0	\$0									
2008	0.000	\$5,509,003	\$52,481	\$1,563,399	\$5,561,484	\$7,072,402			See Footnote 1		\$198,200	\$5,145,153	\$198,200	\$5,145,153	
2009	213.890	\$5,944,029			\$5,944,029	\$5,944,029	\$6,602,879	\$6,781,873	15.44	15.85	\$198,200	\$5,145,153	\$6,801,079	\$11,927,026	
2010	219.000	\$6,222,225			\$6,222,225	\$6,222,225	\$6,881,075	\$7,060,069	15.71	16.12	\$198,200	\$5,145,153	\$7,079,275	\$12,205,222	
2011	253.675	\$6,489,439			\$6,489,439	\$6,489,439	\$7,148,289	\$7,327,283	14.09	14.44	\$198,200	\$5,145,153	\$7,346,489	\$12,472,436	
2012	269.735	\$6,746,534			\$6,746,534	\$6,746,534	\$7,405,385	\$7,584,378	13.73	14.06	\$198,200	\$5,145,153	\$7,603,585	\$12,729,531	
2013	279.225	\$6,993,685			\$6,993,685	\$6,993,685	\$7,652,536	\$7,831,529	13.70	14.02	\$198,200	\$5,145,153	\$7,850,736	\$12,976,682	
2014	286.890	\$7,232,186			\$7,232,186	\$7,232,186	\$7,891,036	\$8,070,030	13.75	14.06	\$198,200	\$5,145,153	\$8,089,236	\$13,215,183	
2015	296.015	\$7,461,809			\$7,461,809	\$7,461,809	\$8,120,659	\$8,299,653	13.72	14.02	\$198,200	\$5,145,153	\$8,318,859	\$13,444,806	
2016	293.825	\$7,683,852			\$7,683,852	\$7,683,852	\$8,342,703	\$8,521,696	14.20	14.50	\$198,200	\$5,145,153	\$8,540,903	\$13,666,849	
2017	242.360	\$7,898,202			\$7,898,202	\$7,898,202	\$8,557,052	\$8,736,046	17.65	18.02	\$198,200	\$5,145,153	\$8,755,252	\$13,881,199	
2018	222.650	\$4,723,774			\$4,723,774	\$4,723,774	\$5,382,624	\$5,561,618	12.09	12.49	\$198,200	\$5,145,153	\$5,580,824	\$10,706,771	
2019	204.035	\$4,657,703			\$4,657,703	\$4,657,703	\$5,316,553	\$5,495,547	13.03	13.47	\$198,200	\$5,145,153	\$5,514,753	\$10,640,700	
2020	191.625	\$4,175,634			\$4,175,634	\$4,175,634	\$4,834,485	\$5,013,478	12.61	13.08	\$198,200	\$5,145,153	\$5,032,685	\$10,158,631	
2972.925 Tons PM Reduced (13 Yrs.)							\$84,135,277	\$86,283,198	12	18	\$2,576,600	\$66,886,989	\$86,711,877	\$153,170,187	
									Minimum	Maximum	Total Cost Range (2002 \$)				

These columns take the 2008 in-use cost and converts it into uniform payments for the years 2009 - 2020 by doing the following: converting the 2008 in-use cost to 2009 dollars, and then converting that amount to a uniform payment series; interest rate used is 5%. This calculation is performed to account for the 2008 in-use costs, since a cost-effectiveness figure cannot be calculated for this year due to zero PM emission reduction.

VDECS Retrofit: High-Cost Scenario

Operator Cost Range (2002 \$)
(basis for calculations below) Interest rate for 2008 Cost Pmt. Adj.: 0.05
\$78,760 \$2,346,240

Year	Emission Benefits (tpy)	Annual In-Use Cost (2002 \$) (high-cost scenario)	Annual Operator Reporting Cost Range		In-Use & Operating Costs = Total Ann. Operating Cost		2008 In-Use Cost Payment Adj.		PM Cost Effectiveness (In-Use & Rept. Costs Only)		Not Used for Cost-Effectiveness Calculation				
			(low)	(high)	(low)	(high)	(low)	(high)	\$/lb. (low)	\$/lb. (high)	Fac. Rep. Cost Range (low) (high)	Total Annual Cost (low) (high)			
2000		\$0	\$0	\$0	\$0	\$0									
2001		\$0	\$0	\$0	\$0	\$0									
2002		\$0	\$0	\$0	\$0	\$0									
2003		\$0	\$0	\$0	\$0	\$0									
2004		\$0	\$0	\$0	\$0	\$0									
2005		\$0	\$0	\$0	\$0	\$0									
2006		\$0	\$0	\$0	\$0	\$0									
2007		\$0	\$0	\$0	\$0	\$0									
2008	0.000	\$5,800,773	\$52,481	\$1,563,399	\$5,853,255	\$7,364,172			See Footnote 1		\$198,200	\$5,145,153	\$198,200	\$5,145,153	
2009	213.890	\$6,262,573			\$6,262,573	\$6,262,573	\$6,955,989	\$7,134,982	16.26	16.68	\$198,200	\$5,145,153	\$7,154,189	\$12,280,135	
2010	219.000	\$6,525,600			\$6,525,600	\$6,525,600	\$7,219,016	\$7,398,009	16.48	16.89	\$198,200	\$5,145,153	\$7,417,216	\$12,543,162	
2011	253.675	\$6,778,368			\$6,778,368	\$6,778,368	\$7,471,784	\$7,650,777	14.73	15.08	\$198,200	\$5,145,153	\$7,669,984	\$12,795,930	
2012	269.735	\$7,021,705			\$7,021,705	\$7,021,705	\$7,715,120	\$7,894,114	14.30	14.63	\$198,200	\$5,145,153	\$7,913,320	\$13,039,267	
2013	279.225	\$7,255,753			\$7,255,753	\$7,255,753	\$7,949,168	\$8,128,162	14.23	14.55	\$198,200	\$5,145,153	\$8,147,368	\$13,273,315	
2014	286.890	\$7,481,774			\$7,481,774	\$7,481,774	\$8,175,189	\$8,354,183	14.25	14.56	\$198,200	\$5,145,153	\$8,373,389	\$13,499,336	
2015	296.015	\$7,699,512			\$7,699,512	\$7,699,512	\$8,392,927	\$8,571,921	14.18	14.48	\$198,200	\$5,145,153	\$8,591,127	\$13,717,074	
2016	293.825	\$7,910,236			\$7,910,236	\$7,910,236	\$8,603,651	\$8,782,645	14.64	14.95	\$198,200	\$5,145,153	\$8,801,851	\$13,927,798	
2017	242.360	\$8,113,805			\$8,113,805	\$8,113,805	\$8,807,221	\$8,986,214	18.17	18.54	\$198,200	\$5,145,153	\$9,005,421	\$14,131,367	
2018	222.650	\$4,749,989			\$4,749,989	\$4,749,989	\$5,443,404	\$5,622,398	12.22	12.63	\$198,200	\$5,145,153	\$5,641,604	\$10,767,551	
2019	204.035	\$4,657,703			\$4,657,703	\$4,657,703	\$5,351,118	\$5,530,112	13.11	13.55	\$198,200	\$5,145,153	\$5,549,318	\$10,675,265	
2020	191.625	\$4,175,634			\$4,175,634	\$4,175,634	\$4,869,050	\$5,048,043	12.70	13.17	\$198,200	\$5,145,153	\$5,067,250	\$10,193,196	
2972.925 Tons PM Reduced (13 Yrs.)							\$86,953,637	\$89,101,558	12	19	\$2,576,600	\$66,886,989	\$89,530,237	\$155,988,547	
									Minimum	Maximum	Total Cost Range (2002 \$)				

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