

# **2024 Funding Agricultural Replacement Measures for Emission Reductions (FARMER) Program Guidelines: Appendix B**

Approved: October 24, 2024

## Appendix B - Emission Factors, Load Factors, and Other Reference Tables

This appendix presents tables summarizing the data needed to calculate the emission reductions and cost-effectiveness of potential projects. Included are data such as Emission Factors (EF), Deterioration Rates (DR), load factors, and other conversion factors used in the calculations discussed in Appendix A: Quantification Methodology.

**Table B-1: Heavy-Duty On-Road Vehicles  
Gross Vehicle Weight Rating (GVWR) 14,001 to 33,000 pounds (lbs.)  
2012 Model Years and Older  
EFs in grams per mile (g/mi) and DRs in g/mi-10,000 miles**

Engine Model Year	NOx EF	NOx DR	ROG EF	ROG DR	PM EF	PM DR
Pre-1986	15.611	0.0329	1.2343	0.070334	0.98973	0.039268
1986 - 1989	15.388	0.0441	0.9694	0.083579	1.07516	0.034997
1990 - 1992	11.506	0.0577	0.5139	0.043670	0.59075	0.026867
1993 - 1996	11.304	0.0678	0.3811	0.050308	0.33587	0.017876
1997 - 2001	11.115	0.0772	0.3882	0.049955	0.36765	0.016222
2002 - 2005	7.637	0.0765	0.3869	0.036274	0.25256	0.009848
2006	6.721	0.0677	0.3520	0.028642	0.18869	0.007311
2007	4.811	0.0411	0.2583	0.010424	0.02389	0.001178
2007+ (0.21-0.50 g/bhp-hr NOx Family Emission Limits)	1.700	0.0673	0.0569	0.002078	0.00441	0.000310
2008	4.739	0.0401	0.2548	0.009733	0.01765	0.000946
2009	4.273	0.0450	0.2193	0.008359	0.01527	0.000832
2010	2.146	0.0673	0.0569	0.002078	0.00441	0.000310
2011	1.553	0.0735	0.0117	0.000329	0.00139	0.000165
2012	1.546	0.0727	0.0117	0.000317	0.00139	0.000159

**Table B-2: Heavy-Duty On-Road Vehicles  
GVWR 14,001 to 33,000 lbs.  
2013 Model Years and Newer  
EFs and Emission Rates (ER) in grams per mile (g/mi) and DRs in g/mi-10,000 miles**

Total Activity (miles)	Engine Model Year	Emission Standard (g/bhp-hr)	NO <sub>x</sub> ER <sup>1</sup>	ROG EF	ROG DR	PM EF	PM DR
0 - 49,999	2013+	0.20 NO <sub>x</sub>	0.3889	0.0055	0.000218	0.00159	0.000061
	2016+	0.10 NO <sub>x</sub>	0.2907	0.0055	0.000218	0.00159	0.000061
	2016+	0.05 NO <sub>x</sub>	0.2527	0.0055	0.000218	0.00159	0.000061
	2016+	0.02 NO <sub>x</sub> and 0.01 PM	0.2299	0.0055	0.000218	0.00159	0.000061
	2023+	0.02 NO <sub>x</sub> and 0.005 PM	0.2299	0.0055	0.000218	0.00080	0.000061
50,000 - 99,999	2013+	0.20 NO <sub>x</sub>	0.5062	0.0055	0.000218	0.00159	0.000061
	2016+	0.10 NO <sub>x</sub>	0.3969	0.0055	0.000218	0.00159	0.000061
	2016+	0.05 NO <sub>x</sub>	0.3589	0.0055	0.000218	0.00159	0.000061
	2016+	0.02 NO <sub>x</sub> and 0.01 PM	0.3362	0.0055	0.000218	0.00159	0.000061
	2023+	0.02 NO <sub>x</sub> and 0.005 PM	0.3362	0.0055	0.000218	0.00080	0.000061
100,000 - 199,999	2013+	0.20 NO <sub>x</sub>	0.6084	0.0055	0.000218	0.00159	0.000061
	2016+	0.10 NO <sub>x</sub>	0.4895	0.0055	0.000218	0.00159	0.000061
	2016+	0.05 NO <sub>x</sub>	0.4516	0.0055	0.000218	0.00159	0.000061
	2016+	0.02 NO <sub>x</sub> and 0.01 PM	0.4288	0.0055	0.000218	0.00159	0.000061
	2023+	0.02 NO <sub>x</sub> and 0.005 PM	0.4288	0.0055	0.000218	0.00080	0.000061
200,000 - 399,999	2013+	0.20 NO <sub>x</sub>	0.7402	0.0055	0.000218	0.00159	0.000061
	2016+	0.10 NO <sub>x</sub>	0.6089	0.0055	0.000218	0.00159	0.000061
	2016+	0.05 NO <sub>x</sub>	0.5709	0.0055	0.000218	0.00159	0.000061
	2016+	0.02 NO <sub>x</sub> and 0.01 PM	0.5481	0.0055	0.000218	0.00159	0.000061
	2023+	0.02 NO <sub>x</sub> and 0.005 PM	0.5481	0.0055	0.000218	0.00080	0.000061
400,000+	2013+	0.20 NO <sub>x</sub>	0.8055	0.0055	0.000218	0.00159	0.000061
	2016+	0.10 NO <sub>x</sub>	0.6680	0.0055	0.000218	0.00159	0.000061

<sup>1</sup> For engine model years 2013 and newer, the NO<sub>x</sub> ER is based on the midpoint of the total activity range, except for the ER for vehicles with a total activity of 400,000+ miles, which is based on 400,000 miles.

Total Activity (miles)	Engine Model Year	Emission Standard (g/bhp-hr)	NOx ER <sup>1</sup>	ROG EF	ROG DR	PM EF	PM DR
	2016+	0.05 NOx	0.6300	0.0055	0.000218	0.00159	0.000061
	2016+	0.02 NOx and 0.01 PM	0.6073	0.0055	0.000218	0.00159	0.000061
	2023+	0.02 NOx and 0.005 PM	0.6073	0.0055	0.000218	0.00080	0.000061

**Table B-3: Heavy-Duty On-Road Vehicles  
GVWR 33,001 lbs. and Greater  
2012 Model Years and Older  
EFs in g/mi and DRs in g/mi-10,000 mi**

Engine Model Year	NOx EF	NOx DR	ROG EF	ROG DR	PM EF	PM DR
Pre-1986	22.980	0.0194	1.9074	0.043474	1.74999	0.027773
1986 - 1989	22.651	0.0260	1.4980	0.051661	1.90103	0.024752
1990 - 1992	19.618	0.0394	1.0937	0.037179	0.79736	0.014505
1993 - 1996	19.274	0.0462	0.8112	0.042831	0.52406	0.011158
1997 - 2001	18.952	0.0527	0.8262	0.042530	0.57404	0.010132
2002 - 2005	13.027	0.0522	0.6915	0.025986	0.38682	0.006035
2006	11.465	0.0478	0.6459	0.021163	0.28865	0.004512
2007	8.208	0.0347	0.5416	0.010666	0.03803	0.000901
2007+ (0.21-0.50 g/bhp-hr NOx Family Emission Limits)	2.860	0.0574	0.1200	0.002192	0.00737	0.000262
2008	8.085	0.0342	0.5376	0.010268	0.02853	0.000765
2009	7.290	0.0384	0.4627	0.008819	0.02473	0.000674
2010	3.660	0.0574	0.1200	0.002192	0.00737	0.000262
2011	2.650	0.0627	0.0247	0.000348	0.00254	0.000147
2012	2.654	0.0609	0.0247	0.000334	0.00254	0.000142

**Table B-4: Heavy-Duty On-Road Vehicles  
GVWR 33,001 lbs. and Greater  
2013 Model Years and Newer  
EFs and Emission Rates (ER) in grams per mile (g/mi) and DRs in g/mi-10,000 miles**

Total Activity (miles)	Engine Model Year	Emission Standard (g/bhp-hr)	NO <sub>x</sub> ER <sup>2</sup>	ROG EF	ROG DR	PM EF	PM DR
0 - 49,999	2013 - 2015	0.20 NO <sub>x</sub>	1.537	0.0168	0.000150	0.00411	0.000154
	2016+	0.20 NO <sub>x</sub>	1.537	0.0136	0.000121	0.00293	0.000110
	2016+	0.10 NO <sub>x</sub>	1.149	0.0136	0.000121	0.00293	0.000110
	2016+	0.05 NO <sub>x</sub>	0.999	0.0136	0.000121	0.00293	0.000110
	2016+	0.02 NO <sub>x</sub> and 0.01 PM	0.909	0.0136	0.000121	0.00293	0.000110
	2023+	0.02 NO <sub>x</sub> and 0.005 PM	0.909	0.0136	0.000121	0.00147	0.000055
50,000 - 99,999	2013 - 2015	0.20 NO <sub>x</sub>	2.001	0.0168	0.000150	0.00411	0.000154
	2016+	0.20 NO <sub>x</sub>	2.001	0.0136	0.000121	0.00293	0.000110
	2016+	0.10 NO <sub>x</sub>	1.569	0.0136	0.000121	0.00293	0.000110
	2016+	0.05 NO <sub>x</sub>	1.419	0.0136	0.000121	0.00293	0.000110
	2016+	0.02 NO <sub>x</sub> and 0.01 PM	1.329	0.0136	0.000121	0.00293	0.000110
	2023+	0.02 NO <sub>x</sub> and 0.005 PM	1.329	0.0136	0.000121	0.00147	0.000055
100,000 - 199,999	2013 - 2015	0.20 NO <sub>x</sub>	2.405	0.0168	0.000150	0.00411	0.000154
	2016+	0.20 NO <sub>x</sub>	2.405	0.0136	0.000121	0.00293	0.000110
	2016+	0.10 NO <sub>x</sub>	1.935	0.0136	0.000121	0.00293	0.000110
	2016+	0.05 NO <sub>x</sub>	1.785	0.0136	0.000121	0.00293	0.000110
	2016+	0.02 NO <sub>x</sub> and 0.01 PM	1.695	0.0136	0.000121	0.00293	0.000110
	2023+	0.02 NO <sub>x</sub> and 0.005 PM	1.695	0.0136	0.000121	0.00147	0.000055
200,000 - 399,999	2013 - 2015	0.20 NO <sub>x</sub>	2.926	0.0168	0.000150	0.00411	0.000154
	2016+	0.20 NO <sub>x</sub>	2.926	0.0136	0.000121	0.00293	0.000110
	2016+	0.10 NO <sub>x</sub>	2.407	0.0136	0.000121	0.00293	0.000110
	2016+	0.05 NO <sub>x</sub>	2.257	0.0136	0.000121	0.00293	0.000110

<sup>2</sup> For engine model years 2013 and newer, the NO<sub>x</sub> ER is based on the midpoint of the total activity range, except for the ER for vehicles with a total activity of 400,000+ miles, which is based on 400,000 miles.

Total Activity (miles)	Engine Model Year	Emission Standard (g/bhp-hr)	NO <sub>x</sub> ER <sup>2</sup>	ROG EF	ROG DR	PM EF	PM DR
	2016+	0.02 NO <sub>x</sub> and 0.01 PM	2.167	0.0136	0.000121	0.00293	0.000110
	2023+	0.02 NO <sub>x</sub> and 0.005 PM	2.167	0.0136	0.000121	0.00147	0.000055
400,000+	2013 - 2015	0.20 NO <sub>x</sub>	3.184	0.0168	0.000150	0.00411	0.000154
	2016+	0.20 NO <sub>x</sub>	3.184	0.0136	0.000121	0.00293	0.000110
	2016+	0.10 NO <sub>x</sub>	2.640	0.0136	0.000121	0.00293	0.000110
	2016+	0.05 NO <sub>x</sub>	2.490	0.0136	0.000121	0.00293	0.000110
	2016+	0.02 NO <sub>x</sub> and 0.01 PM	2.400	0.0136	0.000121	0.00293	0.000110
	2023+	0.02 NO <sub>x</sub> and 0.005 PM	2.400	0.0136	0.000121	0.00147	0.000055

**Table B-5: Off-Road Diesel Engine Load Factors**

Category	Equipment Type	Load Factor
Agriculture	Agricultural Tractors	0.48
	Agricultural UTVs	0.40
	Bale Wagons/Balers	0.50
	Chippers/Stump Grinders	0.73
	Combine Harvesters	0.44
	Cotton Pickers	0.44
	Crawler/Backhoe/Loader/Dozer/Grader	0.40
	Forage and Silage Harvesters	0.44
	Forklifts	0.40
	Generator Sets	0.74
	Hay Squeeze/Stack Retrievers	0.42
	Hydro Power Units	0.48
	Irrigation Pumps	0.65
	Nut Harvesters	0.44
	Other Harvesters	0.44
	Other Agricultural Equipment	0.40
	Sprayers/Spray Rigs	0.42
Swathers/Windrowers/Hay Conditioners	0.48	
Forestry	Extraction Equipment <sup>3</sup>	0.52
	Manufacturing Equipment <sup>4</sup>	0.26
	Road Maintenance and Construction Equipment <sup>5</sup>	0.54

<sup>3</sup> For forestry operations, extraction equipment include boom trucks, carriers, chippers, de-limbers, dozer/skidlers, dozer/track skidders, feller bunchers, forwarders, front end loaders, grinders, harvesters, heel booms, heel boom loaders, loaders, log loaders, log processors, masticators, rubber tired skidders, skid steers, skidders, stroke de-limbers, truck mount loaders, wheel loaders, and yarders.

<sup>4</sup> For forestry operations, manufacturing equipment include forklifts, lifts, straddle buggies, telehandlers, and tirk bucket loaders.

<sup>5</sup> For forestry operations, road maintenance and construction equipment include backhoes, cranes, dozers, dump trucks, excavators, graders, loaders/backhoes, Pawling and Harnischfeger (P&H) cranes, rollers, sweepers, sweeper trucks, water tenders, and water trucks.

**Table B-6: Uncontrolled (Tier 0) Off-Road Diesel Engines  
EFs in grams per brake horsepower-hour (g/bhp-hr) and  
DRs in grams per brake horsepower-hour-hour (g/bhp-hr-hr)**

Horsepower (HP)	Engine Model Year	NOx EF	NOx DR	ROG EF	ROG DR	PM EF	PM DR
0 - 24.9	Pre-1988	6.5100	0	2.0038	0.0002559	0.5396	0
	1988+	6.5100	0	1.9284	0.0002464	0.5396	0
25 - 49.9	Pre-1988	6.5100	0.0000977	2.0038	0.0002559	0.5396	0.0000418
	1988+	6.3803	0.0000976	1.9284	0.0002464	0.5148	0.0000399
50 - 119.9	Pre-1988	12.0900	0.0002799	1.5682	0.0000725	0.5964	0.0000434
	1988+	7.7209	0.0001783	1.0781	0.0000499	0.5126	0.0000373
120+	Pre-1980	10.2300	0.0001966	0.9975	0.0000395	0.3820	0.0000233
	1980-1987	10.2300	0.0001966	0.9730	0.0000385	0.3820	0.0000233
	1988+	7.2467	0.0001401	0.7405	0.0000254	0.2726	0.0000133

**Table B-7: Controlled Off-Road Diesel Engines  
EFs in g/bhp-hr and DRs in g/bhp-hr-hr**

HP	Tier	NOx EF	NOx DR	ROG EF	ROG DR	PM EF	PM DR
0 - 24.9	Tier 1	5.1212	0	1.4026	0.0001825	0.2664	0
	Tier 2	3.9071	0	0.3086	0.0000646	0.2314	0
	Tier 4 Final	3.6754	0	0.1089	0.0000436	0.1298	0
25 - 49.9	Tier 1	4.7854	0.0000888	1.5791	0.0002015	0.2362	0.0000183
	Tier 2	4.2185	0.0000824	0.4057	0.0000751	0.1889	0.0000147
	Tier 4 Interim	4.1968	0.0000874	0.1089	0.0000436	0.1437	0.0000110
	Tier 4 Final	2.6363	0.0000549	0.1089	0.0000436	0.0210	0.0000023
50 - 74.9	Tier 1	4.9168	0.0001140	1.0781	0.0000499	0.1989	0.0000145
	Tier 2	4.1666	0.0000669	0.3049	0.0000318	0.1409	0.0000103
	Tier 3	2.7884	0.0000367	0.1089	0.0000272	0.1409	0.0000103
	Tier 4 Interim	2.7884	0.0000367	0.1089	0.0000272	0.1468	0.0000108
	Tier 4 Final	2.6132	0.0000343	0.1089	0.0000272	0.0143	0.0000013



HP	Tier	NOx EF	NOx DR	ROG EF	ROG DR	PM EF	PM DR
75 - 99.9	Tier 1	5.8850	0.0001363	1.0781	0.0000499	0.2659	0.0000194
	Tier 2	4.0499	0.0000651	0.3049	0.0000318	0.1418	0.0000104
	Tier 3	2.7179	0.0000357	0.1089	0.0000272	0.1648	0.0000121
	Tier 4 Interim	2.4825	0.0000327	0.0980	0.0000236	0.1207	0.0000056
	Tier 4 Final	0.4187	0.0000055	0.0545	0.0000127	0.0332	0.0000015
100 - 174.9	Tier 1	5.3454	0.0001240	0.7405	0.0000343	0.1259	0.0000092
	Tier 2	4.0828	0.0000655	0.2369	0.0000287	0.1126	0.0000081
	Tier 3	2.6486	0.0000346	0.1089	0.0000272	0.1257	0.0000090
	Tier 4 Interim	2.0575	0.0000268	0.0980	0.0000236	0.0609	0.0000028
	Tier 4 Final	0.2527	0.0000033	0.0545	0.0000127	0.0103	0.0000005
175 - 299.9	Tier 1	5.3614	0.0001244	0.3485	0.0000161	0.1270	0.0000067
	Tier 2	4.3330	0.0000707	0.1634	0.0000246	0.0972	0.0000052
	Tier 3	2.7596	0.0000369	0.1133	0.0000270	0.0868	0.0000044
	Tier 4 Interim	1.4762	0.0000192	0.0762	0.0000199	0.0453	0.0000017
	Tier 4 Final	0.1717	0.0000023	0.0545	0.0000127	0.0101	0.0000004
300 - 749.9	Tier 1	5.5375	0.0000921	0.3485	0.0000122	0.1054	0.0000056
	Tier 2	4.5226	0.0000645	0.1699	0.0000233	0.0783	0.0000042
	Tier 3	2.7447	0.0000356	0.1089	0.0000272	0.0907	0.0000046
	Tier 4 Interim	1.3879	0.0000181	0.0731	0.0000189	0.0597	0.0000022
	Tier 4 Final	0.2087	0.0000028	0.0545	0.0000127	0.0128	0.0000005
750+	Tier 1	5.4294	0.0000903	0.3485	0.0000122	0.1078	0.0000057
	Tier 2	3.7726	0.0000524	0.1459	0.0000248	0.0912	0.0000048
	Tier 4 Interim	3.0681	0.0000398	0.1089	0.0000272	0.0767	0.0000036
	Tier 4 Final	1.6251	0.0000210	0.0545	0.0000127	0.0202	0.0000011

**Table B-8: Off-Road Spark-Ignition (SI) Engine Load Factors**

<b>Category</b>	<b>Equipment Type</b>	<b>Load Factor</b>
Agriculture	Agricultural Tractors (25 hp or less)	0.38
	Agricultural Tractors (greater than 25 hp)	0.62
	Bale Wagons/Balers	0.55
	Combine Harvesters	0.74
	Chippers/Stump Grinders	0.78
	Generator Sets	0.68
	Forklifts	0.55
	Irrigation Pumps	0.65
	Other Agricultural Equipment	0.55
	Sprayers	0.50
	Swathers	0.52
Forestry	Shredders	0.80

**Table B-9: Off-Road Spark-Ignited Gasoline Engines  
EFs in g/bhp-hr and DRs in g/bhp-hr-hr**

HP	Engine Model Year	NO <sub>x</sub> EF	NO <sub>x</sub> DR	ROG EF	ROG DR	PM EF	PM DR
0 - 25	2-Stroke, All Model Years	0.2919	0	30.6805	0	0.6500	0
	4-Stroke, All Model Years	1.9047	0	4.6391	0	0.0125	0
25.1 - 50	Uncontrolled, pre-2004	8.0100	0.0000406	3.3464	0.0003667	0.0600	0
	Controlled, 2001-2006	1.3300	0.0004710	0.7171	0.0001707	0.0600	0
	Controlled, 2007-2009	0.8867	0.0001190	0.4781	0.0000642	0.0600	0
	Controlled, 2010+	0.2660	0.0000250	0.1434	0.0000135	0.0600	0
50.1 - 75	Uncontrolled, pre-2004	9.9250	0.0000504	2.8436	0.0003115	0.0600	0
	Controlled, 2001-2006	1.5550	0.0003390	0.4899	0.0001263	0.0600	0
	Controlled, 2007-2009	1.0283	0.0000925	0.3047	0.0000695	0.0600	0
	Controlled, 2010+	0.3080	0.0000275	0.0869	0.0000138	0.0600	0
75.1 - 100	Uncontrolled, pre-2004	11.8400	0.0000601	2.3407	0.0002554	0.0600	0
	Controlled, 2001-2006	1.7800	0.0002070	0.2626	0.0000822	0.0600	0
	Controlled, 2007-2009	1.1700	0.0000660	0.1313	0.0000747	0.0600	0
	Controlled, 2010+	0.3500	0.0000300	0.0303	0.0000141	0.0600	0
100.1+	Uncontrolled, pre-2004	12.9400	0.0001270	1.4329	0.0000369	0.0600	0
	Controlled, 2001-2006	1.9400	0.0002780	0.1616	0.0001030	0.0600	0
	Controlled, 2007-2009	1.1700	0.0000660	0.1313	0.0000747	0.0600	0
	Controlled, 2010+	0.3500	0.0000300	0.0303	0.0000141	0.0600	0

**Table B-10: Off-Road Spark-Ignited Alternative-Fueled Engines  
EFs in g/bhp-hr and DRs in g/bhp-hr-hr**

HP	Engine Model Year	NOx EF	NOx DR	ROG EF	ROG DR	PM EF	PM DR
0 - 25	Pre-1995	1.770	0.0004410	0.3564	0.0003708	0.0900	0.0000937
	1995-1998	8.440	0.0004410	0.1404	0.0003708	0.9000	0.0000937
	1999+	2.700	0.0004410	0.0450	0.0003708	0.2500	0.0000937
25.1 - 50	Uncontrolled, pre-2004	13.000	0.0000662	0.1242	0.0000136	0.0600	0
	Controlled, 2001-2006	1.950	0.0002760	0.0126	0.0000095	0.0600	0
	Controlled, 2007-2009	1.300	0.0000011	0.0084	0.0000155	0.0600	0
	Controlled, 2010+	0.390	0.0000002	0.0025	0.0000033	0.0600	0
50.1 - 75	Uncontrolled, pre-2004	11.765	0.0000598	0.1319	0.0000144	0.0600	0
	Controlled, 2001-2006	1.765	0.0003130	0.0135	0.0000095	0.0600	0
	Controlled, 2007-2009	1.170	0.0000068	0.0087	0.0000098	0.0600	0
	Controlled, 2010+	0.350	0.0000191	0.0026	0.0000023	0.0600	0
75.1 - 100	Uncontrolled, pre-2004	10.530	0.0000533	0.1395	0.0000152	0.0600	0
	Controlled, 2001-2006	1.580	0.0003500	0.0144	0.0000093	0.0600	0
	Controlled, 2007-2009	1.040	0.0000125	0.0090	0.0000042	0.0600	0
	Controlled, 2010+	0.310	0.0000380	0.0027	0.0000013	0.0600	0
100.1+	Uncontrolled, pre-2004	10.510	0.0001040	0.1242	0.0000032	0.0600	0
	Controlled, 2001-2006	1.580	0.0002640	0.0126	0.0000095	0.0600	0
	Controlled, 2007-2009	1.040	0.0000125	0.0090	0.0000042	0.0600	0
	Controlled, 2010+	0.310	0.0000380	0.0027	0.0000013	0.0600	0

**Table B-11: Gasoline Agricultural Utility Terrain Vehicle (UTV) Load Factors**

Equipment Type	Load Factor
Agricultural UTVs	0.40

**Table B-12: Gasoline Agricultural UTVs  
EFs in g/bhp-hr and DRs in g/bhp-hr-hr**

Engine	HP	Engine Model Year	NOx EF	NOx DR	ROG EF	ROG DR	PM EF	PM DR
2-Stroke	All	All	0.0559	0	196.230	0	2.3860	0
4-Stroke, Carbureted or Fuel-Injected	All	Pre-1998	3.5799	0	20.598	0.0004183	0.3409	0
4-Stroke, Carbureted	0 - 5	1998+	1.7198	0	3.672	0.0004791	0.3409	0
4-Stroke, Fuel-Injected	0 - 5	1998+	2.5171	0	1.836	0.0004791	0.3409	0
4-Stroke, Carbureted	5.1 - 15	1998+	2.6682	0	3.902	0.0004791	0.3409	0
4-Stroke, Fuel-Injected	5.1 - 15	1998+	4.1050	0	2.410	0.0004791	0.3409	0
4-Stroke, Carbureted	15.1 - 25	1998+	2.6493	0	4.246	0.0004791	0.3409	0
4-Stroke, Fuel-Injected	15.1 - 25	1998+	4.5975	0	4.705	0.0004791	0.3409	0
4-Stroke, Carbureted	25.1+	1998+	4.4605	0	4.131	0.0004791	0.3409	0
4-Stroke, Fuel-Injected	25.1 - 50	1998+	4.9064	0	3.098	0.0004791	0.3409	0
4-Stroke, Fuel-Injected	50.1+	1998+	3.8037	0	3.098	0.0004791	0.3409	0

**Table B-13: Capital Recovery Factors (CRF)**

<b>Project Life</b>	<b>CRF at 1% Discount Rate</b>	<b>CRF at 2% Discount Rate</b>	<b>CRF at 3% Discount Rate</b>	<b>CRF at 4% Discount Rate</b>
1	1.010	1.020	1.030	1.040
2	0.508	0.515	0.523	0.530
3	0.340	0.347	0.354	0.360
4	0.256	0.263	0.269	0.275
5	0.206	0.212	0.218	0.225
6	0.173	0.179	0.185	0.191
7	0.149	0.155	0.161	0.167
8	0.131	0.137	0.142	0.149
9	0.117	0.123	0.128	0.134
10	0.106	0.111	0.117	0.123