



Volvo Car Corporation

2018 Mid-Model Year Automotive Fuel Economy Report

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Attachment I

Passenger Car Fuel Economy Information



Volvo Car Corporation

CAFE - US Cars Model Type Summary / CAFE Status

Carline Name	Vehicle Class	Engine Name	Transmission Class	IWC	Tire Size	Wheelbase	Front Axle Track Width	Rear Axle Track Width	Average Track Width	Footprint	Projected Sales	City	Highway	MH	MH Rounded
S60	Compact Car	2.0T	S8F	4000	235/40 R18	109,3	62,0	61,7	61,8	46,9	1421	32,2423	51,3180	38,7189	38,7
S60	Compact Car	2.0T	S8F	4000	235/45 R18	109,3	62,0	61,7	61,8	46,9	0	32,2423	51,3180	38,7189	38,7
S60	Compact Car	2.0T	S8F	4000	235/40 R19	109,3	62,0	61,7	61,8	46,9	192	32,2423	51,3180	38,7189	38,7
V60	Small Station Wagon	2.0T	S8F	4000	235/45 R18	109,3	62,0	61,7	61,8	46,9	581	32,2423	51,3180	38,7189	38,7
V60	Small Station Wagon	2.0T	S8F	4000	235/40 R19	109,3	62,0	61,7	61,8	46,9	89	32,2423	51,3180	38,7189	38,7
S60 Inscription	Compact Car	2.0T	S8F	4000	235/45 R18	112,5	62,0	61,7	61,8	48,3	1697	32,2423	51,3180	38,7189	38,7
S60 Inscription	Compact Car	2.0T	S8F	4000	235/40 R19	112,5	62,0	61,7	61,8	48,3	808	32,2423	51,3180	38,7189	38,7
S90 FWD	Midsize Car	2.0T	S8F	4000	245/45 R18	120,5	64,0	64,0	64,0	53,6	1386	30,5082	48,9150	36,7275	36,7
S90 FWD	Midsize Car	2.0T	S8F	4000	255/40 R19	120,5	63,6	63,6	63,6	53,2	1307	30,5082	48,9150	36,7275	36,7
S90 FWD	Midsize Car	2.0T	S8F	4000	255/35 R20	120,5	63,6	63,6	63,6	53,2	0	30,5082	48,9150	36,7275	36,7
V90 FWD	Midsize Station Wagon	2.0T	S8F	4000	245/45 R18	115,8	64,0	64,0	64,0	51,5	0	30,5082	48,9150	36,7275	36,7
V90 FWD	Midsize Station Wagon	2.0T	S8F	4000	255/40 R19	115,8	63,6	63,6	63,6	51,1	117	30,5082	48,9150	36,7275	36,7
V90 FWD	Midsize Station Wagon	2.0T	S8F	4000	255/35 R20	115,8	63,6	63,6	63,6	51,1	128	30,5082	48,9150	36,7275	36,7
S60 AWD	Compact Car	2.0T	S8A	4000	235/40 R18	109,3	62,0	61,7	61,8	46,9	1794	28,7000	45,6926	34,4682	34,5
S60 AWD	Compact Car	2.0T	S8A	4000	235/40 R19	109,3	62,0	61,7	61,8	46,9	118	28,7000	45,6926	34,4682	34,5
V60 AWD	Small Station Wagon	2.0T	S8A	4000	235/40 R18	109,3	62,0	61,7	61,8	46,9	399	28,7000	45,6926	34,4682	34,5
V60 AWD	Small Station Wagon	2.0T	S8A	4000	235/40 R19	109,3	62,0	61,7	61,8	46,9	15	28,7000	45,6926	34,4682	34,5
S60 Inscription AWD	Compact Car	2.0T	S8A	4000	235/45 R18	112,5	62,0	61,7	61,8	48,3	3045	28,7000	45,6926	34,4682	34,5
S60 Inscription AWD	Compact Car	2.0T	S8A	4000	235/40 R19	112,5	62,0	61,7	61,8	48,3	405	28,7000	45,6926	34,4682	34,5
S90 AWD	Midsize Car	2.0T	S8A	4000	245/45 R18	120,5	64,0	64,0	64,0	53,6	2123	30,0000	46,0000	35,5670	35,6
S90 AWD	Midsize Car	2.0T	S8A	4000	255/40 R19	120,5	63,6	63,6	63,6	53,2	2151	30,0000	46,0000	35,5670	35,6
S90 AWD	Midsize Car	2.0T	S8A	4000	255/35 R20	120,5	63,6	63,6	63,6	53,2	0	30,0000	46,0000	35,5670	35,6
S60 AWD	Compact Car	2.0TS	S8A	4000	235/40R19	109,3	62,0	61,7	61,8	46,9	12	27,4365	43,8662	32,9981	33,0
V60 AWD	Small Station Wagon	2.0TS	S8A	4000	235/40R19	109,3	62,0	61,7	61,8	46,9	18	27,4365	43,8662	32,9981	33,0
S60 Polestar	Compact Car	2.0TS	S8A	4000	245/35 R20	109,3	62,0	61,7	61,8	46,9	54	24,8584	38,4594	29,5631	29,6
V60 Polestar	Small Station Wagon	2.0TS	S8A	4000	245/35 R20	109,3	62,0	61,7	61,8	46,9	147	24,8584	38,4594	29,5631	29,6
S90 AWD	Midsize Car	2.0TS	S8A	4500	245/45 R18	120,5	64,0	64,0	64,0	53,6	496	27,4096	44,5167	33,1406	33,1
S90 AWD	Midsize Car	2.0TS	S8A	4500	255/40 R19	120,5	63,6	63,6	63,6	53,2	1788	27,4096	44,5167	33,1406	33,1
S90 AWD	Midsize Car	2.0TS	S8A	4500	255/35 R20	120,5	63,6	63,6	63,6	53,2	739	27,4096	44,5167	33,1406	33,1
V90 AWD	Midsize Station Wagon	2.0TS	S8A	4500	245/45 R18	115,8	64,0	64,0	64,0	51,5	0	27,4096	44,5167	33,1406	33,1
V90 AWD	Midsize Station Wagon	2.0TS	S8A	4500	255/40 R19	115,8	63,6	63,6	63,6	51,1	171	27,4096	44,5167	33,1406	33,1
V90 AWD	Midsize Station Wagon	2.0TS	S8A	4500	255/35 R20	115,8	63,6	63,6	63,6	51,1	162	27,4096	44,5167	33,1406	33,1
S90 AWD	Midsize Car	2.0TSH	S8A	5000	255/40 R19	120,5	63,6	63,6	63,6	53,2	248	80,4920	67,4137	74,0292	74,0
S90 AWD	Midsize Car	2.0TSH	S8A	5000	255/35 R20	120,5	63,6	63,6	63,6	53,2	340	80,4920	67,4137	74,0292	74,0
Total Volume											21951				

CAFE Status excluding Fuel Consumption Improvement values
The current estimate of Volvo's Passenger Car CAFE, based on a model year production forecast of 21,951 units, is projected to be **36,3**. This estimate uses minimum CAFE data requirements

CAFE Status including Fuel Consumption Improvement values
According to §600.510-12(c) and as calculated in Exhibit II, is projected to be **37,5**

CAFE Requirement.
The current estimate of Volvo's Passenger Car CAFE Requirement, based on a model year production forecast of 21,951 units and calculated according to 49 CFR 531.5(b), is projected to be **37,3**.



Volvo Car Corporation

Fuel Consumption Improvement Information

Vehicle Lifetime Miles | 195264

Model Type Information				Projected production volume	A/C Efficiency Credits [gpm]	A/C Efficiency Credit [megagram]	FCIV _{AC} [gal/mile]	Off Cycle Credits Stop/Start & Exterior Lights		Off Cycle Credits Ventilated Seats			FCIV _{OC} [gal/mile]	Final CAFE including Credits
Carline Name	Drive	Engine	Trans					[gpm]	[megagram]	[gpm]	Volume	[megagram]		
S60 FWD	2WD	2.0T	S8	1 613	3,8	1197	0,0004703	3,3	1039			0,00038254	37,5	
V60 FWD	2WD	2.0T	S8	670	3,8	497		3,3	432					
S60 Inscription FWD	2WD	2.0T	S8	2 505	3,8	1859		3,3	1614					
S90 FWD	2WD	2.0T	S8	2 693	4,8	2524		3,4	1788					
V90 FWD	2WD	2.0T	S8	245	4,8	230		3,4	163	1,0	150			29
S60 AWD	4WD	2.0T	S8	1 912	3,8	1419		3,3	1232					
V60 AWD	4WD	2.0T	S8	414	3,8	307		3,3	267					
S60 Inscription AWD	4WD	2.0T	S8	3 450	3,8	2560		3,3	2223					
S90 AWD	4WD	2.0T	S8	4 274	4,8	4006		3,4	2837					
S90 AWD	4WD	2.0TS	S8	3 023	4,8	2833		3,4	2007	1,0	151			29
V90 AWD	4WD	2.0TS	S8	333	4,8	312		3,4	221	1,0	190			37
S60 AWD	4WD	2.0TS	S8	12	3,8	9		3,3	8					
V60 AWD	4WD	2.0TS	S8	18	3,8	13		3,3	12					
S60 Polestar AWD	4WD	2.0TS	S8	54	3,8	40		3,3	35					
V60 Polestar AWD	4WD	2.0TS	S8	147	3,8	109		3,3	95					
S90 AWD	4WD	2.0TSH	S8	588	0	0		3,4	390	1,0	581			113
Sum				21951		17915		14362		209				

Notes

- 1) A/C Efficiency Credits for all vehicles includes reduced reheat with variable displacement compressor, default to recirculation without feedback sensor and oil separator
- 2) A/C Efficiency Credits for S/V90 vehicles also includes internal heat exchanger.
- 3) Off Cycle Credits for all vehicles includes stop/start with electric heater circulation system and exterior lights credits
- 4) Off Cycle Credits for S/V90 vehicles also includes ventilated seats credits for applicable vehicles.



Attachment II

Light Duty Truck Fuel Economy Information



Volvo Car Corporation
CAFE - US Trucks Model Type Summary / CAFE Status

Truckline Name	Vehicle Class	Engine Name	Transmission Class	IWC	Base Tire	Wheelbase	Front Axle Track Width	Rear Axle Track Width	Average Track Width	Footprint	Projected Sales	City	Highway	MH	MH Rounded
XC90 AWD	Standard SUV 4WD	2.0T	S8A	5000	235/60 R18	117,5	65,5	65,6	65,6	53,5	904	27,4000	40,5000	32,0676	32,1
XC90 AWD	Standard SUV 4WD	2.0T	S8A	5000	235/55 R19	117,5	65,5	65,6	65,6	53,5	1464	27,4000	40,5000	32,0676	32,1
XC90 AWD	Standard SUV 4WD	2.0T	S8A	5000	275/45 R20	117,5	65,8	65,9	65,8	53,7	3687	27,4000	40,5000	32,0676	32,1
XC90 AWD	Standard SUV 4WD	2.0T	S8A	5000	275/40 R21	117,5	65,8	65,9	65,8	53,7	0	27,4000	40,5000	32,0676	32,1
XC90 AWD	Standard SUV 4WD	2.0T	S8A	5000	275/35 R22	117,5	65,8	65,9	65,8	53,7	20	27,4000	40,5000	32,0676	32,1
XC90 FWD	Standard SUV 2WD	2.0T	S8F	4500	235/60 R18	117,5	65,5	65,6	65,6	53,5	0	28,6000	41,9000	33,3660	33,4
XC90 FWD	Standard SUV 2WD	2.0T	S8F	4500	235/55 R19	117,5	65,5	65,6	65,6	53,5	384	28,6000	41,9000	33,3660	33,4
XC90 FWD	Standard SUV 2WD	2.0T	S8F	4500	275/45 R20	117,5	65,8	65,9	65,8	53,7	911	28,6000	41,9000	33,3660	33,4
XC90 FWD	Standard SUV 2WD	2.0T	S8F	4500	275/40 R21	117,5	65,8	65,9	65,8	53,7	1177	28,6000	41,9000	33,3660	33,4
XC90 FWD	Standard SUV 2WD	2.0T	S8F	4500	275/35 R22	117,5	65,8	65,9	65,8	53,7	80	28,6000	41,9000	33,3660	33,4
XC60 AWD	Small SUV 4WD	2.0T	S8A	4500	235/60R18	112,8	64,9	65,1	65,0	50,9	2252	27,9000	39,1000	32,0285	32,0
XC60 AWD	Small SUV 4WD	2.0T	S8A	4500	235/55R19	112,8	64,9	65,1	65,0	50,9	2946	27,9000	39,1000	32,0285	32,0
XC60 AWD	Small SUV 4WD	2.0T	S8A	4500	255/45R20	112,8	64,8	65,0	64,9	50,8	9129	27,9000	39,1000	32,0285	32,0
XC60 AWD	Small SUV 4WD	2.0T	S8A	4500	255/40R21	112,8	65,0	65,2	65,1	51,0	229	27,9000	39,1000	32,0285	32,0
XC60 AWD	Small SUV 4WD	2.0T	S8A	4500	265/35R22	112,8	65,5	65,7	65,6	51,4	0	27,9000	39,1000	32,0285	32,0
V60 CC AWD	Compact Car	2.0T	S8A	4000	235/50 R18	109,2	63,3	61,7	62,5	47,4	2233	27,8000	43,5000	33,1906	33,2
V60 CC AWD	Compact Car	2.0T	S8A	4000	235/45 R19	109,2	63,3	61,7	62,5	47,4	132	27,8000	43,5000	33,1906	33,2
S60 CC AWD	Small Station Wagon	2.0T	S8A	4000	235/50 R18	109,2	63,3	61,7	62,5	47,4	271	27,8000	43,5000	33,1906	33,2
S60 CC AWD	Small Station Wagon	2.0T	S8A	4000	235/45 R19	109,2	63,3	61,7	62,5	47,4	21	27,8000	43,5000	33,1906	33,2
V90CC AWD	Midsize Station Wagon	2.0T	S8A	4500	235/55 R18	115,8	64,9	64,6	64,8	52,1	272	28,9000	44,1000	34,2053	34,2
V90CC AWD	Midsize Station Wagon	2.0T	S8A	4500	235/50 R19	115,8	64,9	64,6	64,8	52,1	1363	28,9000	44,1000	34,2053	34,2
XC90 AWD	Standard SUV 4WD	2.0TS	S8A	5000	235/55 R19	117,5	65,5	65,6	65,6	53,5	4507	25,7955	37,6855	30,0639	30,1
XC90 AWD	Standard SUV 4WD	2.0TS	S8A	5000	275/45 R20	117,5	65,8	65,9	65,8	53,7	11219	25,7955	37,6855	30,0639	30,1
XC90 AWD	Standard SUV 4WD	2.0TS	S8A	5000	275/40 R21	117,5	65,8	65,9	65,8	53,7	9213	25,7955	37,6855	30,0639	30,1
XC90 AWD	Standard SUV 4WD	2.0TS	S8A	5000	275/35 R22	117,5	65,8	65,9	65,8	53,7	243	25,7955	37,6855	30,0639	30,1
XC60 AWD	Small SUV 4WD	2.0TS	S8A	4500	235/55R19	112,8	64,9	65,1	65,0	50,9	2689	26,1000	38,2000	30,4387	30,4
XC60 AWD	Small SUV 4WD	2.0TS	S8A	4500	255/45R20	112,8	64,8	65,0	64,9	50,8	9915	26,1000	38,2000	30,4387	30,4
XC60 AWD	Small SUV 4WD	2.0TS	S8A	4500	255/40R21	112,8	65,0	65,2	65,1	51,0	329	26,1000	38,2000	30,4387	30,4
V90 CC AWD	Midsize Station Wagon	2.0TS	S8A	4500	235/50 R19	115,8	64,9	64,6	64,8	52,1	440	27,5495	42,3988	32,7037	32,7
V90 CC AWD	Midsize Station Wagon	2.0TS	S8A	4500	245/45 R20	115,8	65,0	64,7	64,8	52,1	1312	27,5495	42,3988	32,7037	32,7
V90 CC AWD	Midsize Station Wagon	2.0TS	S8A	4500	245/40 R21	115,8	65,0	64,7	64,8	52,1	0	27,5495	42,3988	32,7037	32,7
XC60 AWD	Small SUV 4WD	2.0TSH	S8A	5000	235/55R19	112,8	64,9	65,1	65,0	50,9	452	57,5000	66,5000	61,2290	61,2
XC60 AWD	Small SUV 4WD	2.0TSH	S8A	5000	255/45R20	112,8	64,8	65,0	64,9	50,8	1473	57,5000	66,5000	61,2290	61,2
XC60 AWD	Small SUV 4WD	2.0TSH	S8A	5000	255/40R21	112,8	65,0	65,2	65,1	51,0	100	57,5000	66,5000	61,2290	61,2
XC90 AWD	Standard SUV 4WD	2.0TSH	S8A	5500	235/55 R19	117,5	65,5	65,6	65,6	53,5	70	71,5000	56,4000	63,8120	63,8
XC90 AWD	Standard SUV 4WD	2.0TSH	S8A	5500	275/45 R20	117,5	65,8	65,9	65,8	53,7	467	71,5000	56,4000	63,8120	63,8
XC90 AWD	Standard SUV 4WD	2.0TSH	S8A	5500	275/40 R21	117,5	65,8	65,9	65,8	53,7	915	71,5000	56,4000	63,8120	63,8
XC90 AWD	Standard SUV 4WD	2.0TSH	S8A	5500	275/35 R22	117,5	65,8	65,9	65,8	53,7	56	71,5000	56,4000	63,8120	63,8
Total Volume											70875				

CAFE Status excluding Fuel Consumption Improvement values

The current estimate of Volvo's Truck CAFE, based on a model year production forecast of 70.875 units, is projected to be **31,9**. This estimate uses minimum CAFE data requirements.

CAFE Status including Fuel Consumption Improvement values

According to §600.510-12(c) and as calculated in Exhibit II, is projected to be **33,3**.

CAFE Requirement

The current estimate of Volvo's Truck CAFE Requirement, based on a model year production forecast of 70.875 units and calculated according to 49 CFR 531.5(b), is projected to be **30,5**.



Volvo Car Corporation

Vehicle Lifetime Miles	225865
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Fuel Consumption Improvement Information

Model Type Information				Projected production volume	A/C Efficiency Credits [gpm]	A/C Efficiency Credit [megagram]	FCIV _{AC} [gal/mile]	Off Cycle Credits Stop/Start & Exterior Lights		Off Cycle Credits Ventilated Seats			FCIV _{OC} [gal/mile]	Final CAFE including Credits
Carline Name	Drive	Engine	Trans					[gpm]	[megagram]	[gpm]	Volume	[megagram]		
XC90 AWD (7-Seater)	4WD	2.0T	S8	5 486	6,8	8426	0,0007211	5,4	6691			0,0006228	33,3	
XC90 AWD (5-Seater)	4WD	2.0T	S8	589	6,8	905		5,4	718					
XC90 FWD (7-Seater)	2WD	2.0T	S8	2 040	6,8	3133		5,4	2488					
XC90 FWD (5-Seater)	2WD	2.0T	S8	512	6,8	786		5,4	624					
XC60 AWD	4WD	2.0T	S8	14 556	6,8	22356		5,3	17425					
V60 CC AWD	4WD	2.0T	S8	2 365	5,4	2885		5,2	2778					
S60 CC AWD	4WD	2.0T	S8	292	5,4	356		5,2	343					
V90 CC AWD	4WD	2.0T	S8	1 635	6,8	2511		5,3	1957					
XC90 AWD	4WD	2.0TS	S8	25 182	6,8	38677		5,4	30714	1,3	9178			2695
XC60 AWD	4WD	2.0TS	S8	12 933	6,8	19864		5,3	15482					
V90 CC AWD	4WD	2.0TS	S8	1 752	6,8	2691		5,3	2097					
XC90 AWD	4WD	2.0TSH	S8	1 508	0	0		5,4	1839	1,3	1116			328
XC60 AWD	4WD	2.0TSH	S8	2 025	0	0		5,3	2424					
Sum				70875		102590		85581			3023			

Notes

- 1) A/C Efficiency Credits for all vehicles includes reduced reheat with variable displacement compressor, default to recirculation without feedback sensor and oil separator
- 2) A/C Efficiency Credits for XC60, V90CC and XC90 vehicles also includes internal heat exchanger.
- 3) Off Cycle Credits for all vehicles includes stop/start with electric heater circulation system and exterior lights credits
- 4) Off Cycle Credits for XC90 vehicles also includes ventilated seats credits for applicable vehicles.



Volvo Car Corporation

Light Truck Vehicle Information

Truckline Name	4-Wheel Drive	Truck Criteria						3-Row Seating
		not<28 deg	not<14 deg	not<20 deg	not<20 cm	not<18 cm		
		Approach Angle	Breakover Angle	Departure Angle	Running Clearance	Front Axle Clearance	Rear Axle Clearance	
S60CC AWD	Yes	19,4	20,7	25,7	20,1	20,1	23,1	No
V60CC AWD	Yes	19,4	20,7	25,7	20,1	20,1	23,1	No
V90CC AWD	Yes	18,9	17,7	20,7	20,1	21,0	25,2	No
XC60 AWD	Yes	23,1	20,8	25,5	21,6	22,5	23,2	No
XC90 FWD	No	23,8	21,3	23,3	23,8	23,8	24,4	Yes
XC90 AWD	Yes	23,8	21,3	23,3	23,8	23,8	24,4	Yes

All values in the above table are determined at EPA Curb Weight



Attachment IV

Fuel Economy Methodology Used in Projecting CAFE Values

Derived Fuel Economy Values

As provided by 49 CFR §537.9(a)(3), Volvo has used analytically derived fuel economy values, data substitutions and best internal estimates where no EPA approved or Volvo tests results exist at the appropriate sub configuration level for minimum test requirements. These values are derived from a base configuration (ETW), axle ratio, road load horsepower, and engineering judgment.



Attachment V

Report Addendum

The information contained in this report is, to the best of Volvo's knowledge, accurate and complete. This report is filed subject to the following provisions.

- 49 CFR §537.7(b)(5) requires that a manufacturer state whether the projected average fuel economy submitted herein, sufficiently represent the manufacturer's average and target fuel economy for the current model year for purposes of the act. Volvo hereby represents that, to the best of its present knowledge and belief, it has followed the testing procedures and calculation methods required by EPA in computing fuel economy values for its passenger cars and light trucks. Without waiving its right to later challenge any of the fuel economy testing procedures and methods, Volvo further represents that projected CAFE values contained in the attachments are as sufficiently representative as practicable of Volvo's passenger cars and light truck CAFE values for the purpose of the act., based on the projected sales volumes in the attachments and the relevant EPA test procedures and methods specified in 40 CFR, part 600 subpart F.
- Additional test data and/or analytical data may be substituted for data supplied herewith if warranted after further review and analysis. Such substitutions will be done in accordance with EPA guidelines and requirements