

**PRE-CAFE REPORT
FOR
2019 MODEL YEAR
OF
HYUNDAI MOTOR COMPANY**

- Light Trucks -



NOTE : THIS REPORT CONTAINS [REDACTED] INFORMATION.

THE PRODUCTION VOLUME IS [REDACTED] INFORMATION
AND THIS INFORMATION IS DEEMED BY HMC TO BE EXEMPT
FROM DISCLOSURE UNDER 5 U.S.C. 552(B)(4) AND
49 U.S.C 32910(c).

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Note * : These sections contain [REDACTED] information

I. Introduction

As required by 49 CFR Part 537.9, estimated fuel economy values for Santa Fe XL FWD, Santa Fe XL Ultimate FWD, Santa Fe XL AWD, Santa Fe Ultimate XL AWD are included in this report.

The certification emission-data and fuel economy data of the above-mentioned vehicles used to get the following fuel economy values were tested in accordance with applicable exhaust emission test procedures and complied with applicable 2019 exhaust emission standards as defined 40 CFR §86.

II. Projected Average and Required Fuel Economy

1. Projected Average Fuel Economy

- LT : **26.0** MPG (without A/C efficiency & off-cycle credits)

- LT : **26.8** MPG (with A/C efficiency & off-cycle credits)

2. Projected Required Fuel Economy

- LT : **32.8** MPG

At this point in time and based on available best present information, the above projections represent the Hyundai Motor Company (HMC) average and required fuel economy for the 2018 model year for the purpose of the Act.

II. Projected Average and Required Fuel Economy

BUSINESS INFORMATION

- Projected Required Fuel Economy

Projected Required	32.8
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Model Type Description	Carline	Basic Engine (disp)	Drive	T/M class	Base Tire	Projected sales	Track width FR (inch)	Track width RR (inch)	Average Track width (inch)	Wheelbase (inch)	footprint (sqr feet)	Target standard	ETW	IWC
Santa Fe XL FWD 3.3 AT	Santa Fe XL FWD	3.3	FWD	SA6	235/60R18	9,302	64.1	64.5	64.3	110.2	49.2	32.76	4,250	4,000
Santa Fe XL Ultimate FWD 3.3 AT	Santa Fe XL Ultimate FWD	3.3	FWD	SA6	235/55R19 P235/55R19	8,613	64.1	64.5	64.3	110.2	49.2	32.76	4,500	4,500
Santa Fe XL AWD 3.3 AT	Santa Fe XL AWD	3.3	AWD	SA6	235/60R18	6,890	64.1	64.5	64.3	110.2	49.2	32.76	4,500	4,500
Santa Fe XL Ultimate AWD 3.3 AT	Santa Fe XL Ultimate AWD	3.3	AWD	SA6	235/55R19 P235/55R19	9,646	64.1	64.5	64.3	110.2	49.2	32.76	4,750	4,500

Projected Required	32.8
Total Sales Volume	34,451

$$CAFE_{required} = \frac{\sum_i PRODUCTION_i}{\sum_i PRODUCTION_i} \frac{1}{TARGET_i}$$

II. Projected Average and Required Fuel Economy

BUSINESS INFORMATION

- Projected average Fuel Economy

Projected Average		26.0										
Model Type Description	Carline	Basic Engine (disp)	Drive	T/M class	Base Tire	Projected sales	City FE	Hwy FE	Combined FE	IWC	Model Type Comb.FE	Model Type Vol
Santa Fe XL FWD 3.3 AT	Santa Fe XL FWD	3.3	FWD	SA6	235/60R18	9,302	22.3	35.8	26.8575	4,000	26.9	9,302
Santa Fe XL Ultimate FWD 3.3 AT	Santa Fe XL Ultimate FWD	3.3	FWD	SA6	235/55R19 P235/55R19	8,613	22.0	34.0	26.1538	4,500	26.2	8,613
Santa Fe XL AWD 3.3 AT	Santa Fe XL AWD	3.3	AWD	SA6	235/60R18	6,890	22.0	35.1	26.4407	4,500	26.4	6,890
Santa Fe XL Ultimate AWD 3.3 AT	Santa Fe XL Ultimate AWD	3.3	AWD	SA6	235/55R19 P235/55R19	9,646	20.8	32.0	24.6884	4,500	24.7	9,646
Average		26.0										
Total Sales Volume		34,451										

III Vehicle Configuration Information

BUSINESS INFORMATION

Model	Code	MSRP	Year	Make	Model	Price	MPG	MPG City	MPG Highway	MPG Combined	Year	Make	Model	Price	MPG	MPG City	MPG Highway	MPG Combined	Year	Make	Model	Price	MPG	MPG City	MPG Highway	MPG Combined	
Subaru Outback	AWD	3.3	AWD	Subaru	Outback	4,300	4,200	3.3	2.6	200	D-1	AWD	Subaru	Outback	4,300	3.3	2.6	200	D-1	AWD	Subaru	Outback	4,300	3.3	2.6	200	D-1
Subaru Outback	AWD	3.3	AWD	Subaru	Outback	4,300	4,200	3.3	2.6	200	D-1	AWD	Subaru	Outback	4,300	3.3	2.6	200	D-1	AWD	Subaru	Outback	4,300	3.3	2.6	200	D-1
Subaru Outback	AWD	3.3	AWD	Subaru	Outback	4,300	4,200	3.3	2.6	200	D-1	AWD	Subaru	Outback	4,300	3.3	2.6	200	D-1	AWD	Subaru	Outback	4,300	3.3	2.6	200	D-1

IV. A/C Efficiency Credits

BUSINESS INFORMATION

Model Type Description	Carline	Basic Engine (disp)	Drive	TM class (Drive, type, gear)	Base Tire	Refrigerant	A/C Drive System	Projected sales	Reduc'd Reheat with variable displ compressor	Reduced Reheat with fixed displ or pneumatic compressor	Default to Recirc with feedback sensor	Default to Recirc without feedback sensor	Efficient Blower Motor Controls	Internal Heat Exchanger	Improved Condenser and/or Evaporator (requires EPA approval)	Oil Separator (requires EPA approval)	Total Menu based Credits	A/C Efficiency Credit	VLM
Santa Fe XL FWD 3 3 A	Santa Fe XL FWD	3.3	FWD	SA6	235/60R18	R13 a	Belt-Driven	9,302	2.2	0.0	0.0	0.0	1.1	1.	0.0	0.7	5.	11.3	225,865
Santa Fe XL Ultimate FWD 3 3 A	Santa Fe XL Ultimate FWD	3.3	FWD	SA6	235/55R19 P235/55R19	R13 a	Belt-Driven	8,613	2.2	0.0	0.0	0.0	1.1	1.	0.0	0.7	5.	10,505	225,865
Santa Fe XL AWD 3 3 A	Santa Fe XL AWD	3.3	AWD	SA6	235/60R18	R13 a	Belt-Driven	6,890	2.2	0.0	0.0	0.0	1.1	1.	0.0	0.7	5.	8.0	225,865
Santa Fe XL Ultimate AWD 3 3 A	Santa Fe XL Ultimate AWD	3.3	AWD	SA6	235/55R19 P235/55R19	R13 a	Belt-Driven	9,616	2.2	0.0	0.0	0.0	1.1	1.	0.0	0.7	5.	11,765	225,865

ACCredit	42,019	VLM	225,865
LT volume	34,451		
FCV ₂ (Gal/mi)	0.000607631		

$$FCIV_{AC} \text{ (gal/mi)} = \frac{(ACCredit \times 1,000,000)}{(VLM \times Production \times 8887)}$$

V. Off-cycle Credits

BUSINESS INFORMATION

Model Type Description	Carline	Basic Engine (disp)	Drive	T/M class (Drive, type, gear)	Base Tire	Description	Projected sales	Off cycle benefit per vehicle		VLM
								gpm	megagrams	
Santa Fe XL FWD 3 3 A	Santa Fe XL FWD	3.3	FWD	SA6	235/60R18	ATF warmer 3.2 Glazing 1.1	9,302	4.3	9,034	225,865
Santa Fe XL Ultimate FWD 3 3 A	Santa Fe XL Ultimate FWD	3.3	FWD	SA6	235/55R19 P235/55R19	Active seat ventilation 1.3, ATF warmer 3.2, Glazing 1.0	8,613	5.5	10,700	225,865
Santa Fe XL AWD 3 3 A	Santa Fe XL AWD	3.3	AWD	SA6	235/60R18	ATF warmer 3.2 Glazing 1.1	6,890	4.3	6,692	225,865
Santa Fe XL Ultimate AWD 3 3 A	Santa Fe XL Ultimate AWD	3.3	AWD	SA6	235/55R19 P235/55R19	Active seat ventilation 1.3, ATF warmer 3.2, Glazing 1.0	9,616	5.5	11,983	225,865

OCCredit	38,409
Truck volume	34,451
FCV _{oc} (Gal/mi)	0.00055427

VLM 225,865

$$FCV_{oc} \text{ (gal/mi)} = \frac{(OCCredit \times 1,000,000)}{(VLM \times Production \times 8887)}$$

VI. Projected Average Fuel Economy Adjustment

Average MPG	26.8
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P4	MPG	26
P6	FCIV _{AC} (Gal/mi)	0.000607631
P7	FCIV _{OC} (Gal/mi)	0.000555427
N/A	FCIV _{PU} (Gal/mi)	0

$$\text{Average MPG} = \frac{1}{\left[\frac{1}{\text{MPG}} - (\text{FCIV}_{AC} + \text{FCIV}_{OC} + \text{FCIV}_{PU}) \right]}$$