

**PRE-CAFE REPORT
FOR
2017 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).

TABLE OF CONTENTS

<u>Section</u>	<u>Title</u>	<u>Page</u>
I	Introduction	1
II	Projected Average and Required Fuel Economy	2 ~ 4
III*	Vehicle Configuration Information	5
IV*	A/C Efficiency Credits	6
V*	Off-cycle Credits	7
VI	Projected Average Fuel Economy Adjustment	8

Note * : This section contains [REDACTED] information

I. Introduction

As required by 49 CFR Part 537.9, estimated fuel economy values for Santa Fe FWD, Santa Fe Ultimate FWD, Santa Fe AWD, Santa Fe Ultimate 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 2017 exhaust emission standards as defined 40 CFR §86.

II. Projected Average and Required Fuel Economy

1. Projected Average Fuel Economy

- LT : **26.7** MPG (without A/C efficiency & off-cycle credits)

- LT : **27.4** MPG (with A/C efficiency & off-cycle credits)

2. Projected Required Fuel Economy

- LT : **31.2** 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 2017 model year for the purpose of the Act.

II. Projected Average and Required Fuel Economy

- Projected Required Fuel Economy

Projected Required	31.2
--------------------	------

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 FWD 3.3 AT	Santa Fe FWD	3.3	FWD	SA6	235/60R18	17,543	64.1	64.5	64.3	110.2	49.2	31.17	4,250	4,000
Santa Fe Ultimate FWD 3.3 AT	Santa Fe Ultimate FWD	3.3	FWD	SA6	235/55R19 P235/55R19	5,540	64.1	64.5	64.3	110.2	49.2	31.17	4,250	4,000
Santa Fe AWD 3.3 AT	Santa Fe AWD	3.3	AWD	SA6	235/60R18	16,620	64.1	64.5	64.3	110.2	49.2	31.17	4,500	4,500
Santa Fe Ultimate AWD 3.3 AT	Santa Fe Ultimate AWD	3.3	AWD	SA6	235/55R19 P235/55R19	6,463	64.1	64.5	64.3	110.2	49.2	31.17	4,500	4,500

Projected Required	31.2
Total Sales Volume	46,166

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

II. Projected Average and Required Fuel Economy

- Projected average Fuel Economy

Projected Average		26.7										
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 FWD 3.3 AT	Santa Fe FWD	3.3	FWD	SA6	235/60R18	17,543	22.8	35.8	27.2534	4,000	27.3	17,543
Santa Fe Ultimate FWD 3.3 AT	Santa Fe Ultimate FWD	3.3	FWD	SA6	235/55R19 P235/55R19	5,540	21.7	34.0	25.9196	4,000	25.9	5,540
Santa Fe AWD 3.3 AT	Santa Fe AWD	3.3	AWD	SA6	235/60R18	16,620	22.7	35.1	26.9909	4,500	27.0	16,620
Santa Fe Ultimate AWD 3.3 AT	Santa Fe Ultimate AWD	3.3	AWD	SA6	235/55R19 P235/55R19	6,463	21.1	32.0	24.9197	4,500	24.9	6,463
Average		26.7										

III. Vehicle Configuration Information

Model Type Description	Class	Basic Engine (liters)	Drive	TRB Class	Base Trx	Engine Code	LVIN	ETW	Eng. Disp.	Net rated power (kW)	Net horsepower	Fuel system	Emission control system	T/M class	Number of forward gears	OD	NV	Asile rate	Combined PE	Projected sales	Passenger-carrying volume	Cargo-carrying volume	Body style	Road load power (at 50 mph)	Safety at least one of items in 2013.2017	Safety 2013.2017	Approach angle	Breakover angle	Departure angle	Rear overhang	FRON clearance	WC		
Santa Fe FWD 3.3 AT	Santa Fe FWD	3.3	FWD	S46	255,000.16	G6CH-A2	4.332	4.200	3.3	216	293	DI	TWC	S46	6	Yes	28.2	3.04	27.2534	17,543		Small SUV 2WD	14.2	Yes - 8 (2013) or 2013/2017/2018	No							4000		
Santa Fe Ultimate FWD 3.3 AT	Santa Fe Ultimate FWD	3.3	FWD	S46	255,000.19	G6CH-A2	4.332	4.200	3.3	216	293	DI	TWC	S46	6	Yes	28.0	3.04	25.9196	5,540	111,453(19)	40,950(19)	Small SUV 2WD	15.0	Additional equipment, such as blind spot detection or parking sensors are allowed. There is a flat, unobstructed cargo surface that allows for expanded cargo-carrying capacity.	No								4000
Santa Fe AWD 3.3 AT	Santa Fe AWD	3.3	AWD	S46	255,000.19	G6CH-A2	4.332	4.200	3.3	216	293	DI	TWC	S46	6	Yes	28.2	3.04	25.9309	16,620	146,571(19)	13,417(19)	Small SUV 4WD	13.3		4000							4000	
Santa Fe Ultimate AWD 3.3 AT	Santa Fe Ultimate AWD	3.3	AWD	S46	255,000.19	G6CH-A2	4.332	4.200	3.3	216	293	DI	TWC	S46	6	Yes	28.0	3.04	24.9797	6,400			Small SUV 4WD	16.0		4000	17.1	19.2	20.5	18.5	Yes (21.9+1.0)		4000	

IV. A/C Efficiency Credits

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 compres-sor	Reduced Reheat with fixed displ or pneumatic compres-sor	Default to Recirc with feedback sensor	Default to Recirc without feedback sensor	Efficient Blower Motor Controls	Internal Heat Exchanger	Improved Condensor and/or Evaporator (requires EPA approval)	Oil Separ-ator (requires EPA approval)	Total Menu-based Credits	A/C Efficiency Credit	VLM
									2.2 gpm	1.4 gpm	2.2 gpm	1.4 gpm	1.1 gpm	1.4 gpm	1.4 gpm	0.7 gpm	gpm	megagrams	
Santa Fe FWD 3.3 AT	Santa Fe FWD	3.3	FWD	SA6	235/60R18 235/55R19	R134a	V-Belt Driven	17,543	2.2	0.0	0.0	0.0	0.0	1.4	0.0	0.7	4.3	17,038	225,865
Santa Fe Ultimate FWD 3.3 AT	Santa Fe Ultimate FWD	3.3	FWD	SA6	235/60R18 P235/55R19	R134a	V-Belt Driven	5,540	2.2	0.0	0.0	0.0	0.0	1.4	0.0	0.7	4.3	5,381	225,865
Santa Fe AWD 3.3 AT	Santa Fe AWD	3.3	AWD	SA6	235/60R18	R134a	V-Belt Driven	16,620	2.2	0.0	0.0	0.0	0.0	1.4	0.0	0.7	4.3	16,142	225,865
Santa Fe Ultimate AWD 3.3 AT	Santa Fe Ultimate AWD	3.3	AWD	SA6	235/55R19 P235/55R19	R134a	V-Belt Driven	6,463	2.2	0.0	0.0	0.0	0.0	1.4	0.0	0.7	4.3	6,277	225,865

ACCredit	44,538
LT volume	46,166
FCIV _{acc} (Gal/mi)	0.00046386

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

V. Off-cycle Credits

Model Type Description	Carline	Basic Engine (disp)	Drive	T/M class (Drive, type, gear)	Base Tire	Description	Projected sales	Off-cycle benefit per vehicle	Off-cycle credits	VLM
								gpm	megagrams	
Santa Fe FWD 3.3 AT	Santa Fe FWD	3.3	FWD	SA6	235/60R18	Exterior Lights(0.47), ATF warm-up(3.2), Glazing(0.7)	17,543	4.4	17,434	225,865
Santa Fe Ultimate FWD 3.3 AT	Santa Fe Ultimate FWD	3.3	FWD	SA6	235/55R19 P235/55R19	Exterior Lights(0.47), ATF warm-up(3.2), Glazing(0.7)	5,540	4.4	5,506	225,865
Santa Fe AWD 3.3 AT	Santa Fe AWD	3.3	AWD	SA6	235/60R18	Exterior Lights(0.47), ATF warm-up(3.2), Glazing(0.7)	16,620	4.4	16,517	225,865
Santa Fe Ultimate AWD 3.3 AT	Santa Fe Ultimate AWD	3.3	AWD	SA6	235/55R19 P235/55R19	Exterior Lights(0.47), ATF warm-up(3.2), Glazing(0.7)	6,463	4.4	6,423	225,865

OCCredit	45,880
Truck volume	46,166
FCIV _{oc} (Gal/mi)	0.000495105

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

VI. Projected Average Fuel Economy Adjustment

Average MPG	27.4
-------------	------

P4	MPG	26.7
P6	FCIV _{AC} (Gal/mi)	0.00048386
P7	FCIV _{OC} (Gal/mi)	0.000495105
N/A	FCIV _{PU} (Gal/mi)	0

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