

**PRE-CAFE REPORT
FOR
2019 MODEL YEAR
OF
KIA MOTORS CORPORATION**

- Light Trucks -



NOTE : THIS REPORT CONTAINS [REDACTED] INFORMATION.

THE PRODUCTION VOLUME IS [REDACTED] INFORMATION
AND THIS INFORMATION IS DEEMED BY KMC 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 Sportage AWD, Sportage FE AWD, Sorento AWD, Sorento FWD, Sedona 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 : **29.5** MPG (without A/C efficiency & off-cycle credits)

- LT : **30.4** 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 KIA MOTORS CORPORATION (KMC) average and required fuel economy for the 2019 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
Sportage FE 2.4 AWD	Sportage FE AWD	2.4	AWD	SA6	225/60R17	14,737	63.5	64.0	63.8	105.1	46.6	34.30	3.875	4.000
	Sportage FE AWD	2.4	AWD	SA6	225/60R17	6,346	63.5	64.0	63.8	105.1	46.6	34.30	3.875	4.000
Sportage 2.4 AWD	Sportage AWD	2.4	AWD	SA6	225/55R18	8,324	63.5	64.0	63.8	105.1	46.6	34.30	3.875	4.000
	Sportage AWD	2.4	AWD	SA6	225/55R18	3,547	63.5	64.0	63.8	105.1	46.6	34.30	3.875	4.000
Sportage 2.0T AWD	Sportage AWD	2.0T	AWD	SA6	245/45R19	2,131	63.3	63.8	63.6	105.1	46.4	34.42	4.000	4.000
Sorento 2.4 FWD	Sorento FWD	2.4	FWD	SA6	235/65R17	47,273	64.3	64.7	64.5	109.4	49.0	32.87	4.250	4.000
Sorento 2.4 AWD	Sorento AWD	2.4	AWD	SA6	235/65R17	20,648	64.3	64.7	64.5	109.4	49.0	32.87	4.250	4.000
	Sorento FWD	3.3	FWD	SA8	235/65R17	5,217	64.3	64.7	64.5	109.4	49.0	32.87	4.250	4.000
Sorento 3.3 FWD	Sorento FWD	3.3	FWD	SA8	235/60R18	17,378	64.1	64.5	64.3	109.4	48.9	32.93	4.500	4.500
	Sorento FWD	3.3	FWD	SA8	235/55R19	13,906	64.1	64.5	64.3	109.4	48.9	32.93	4.500	4.500
Sorento 3.3 AWD	Sorento AWD	3.3	AWD	SA8	235/65R17	5,759	64.3	64.7	64.5	109.4	49.0	32.87	4.500	4.500
	Sorento AWD	3.3	AWD	SA8	235/60R18	26,852	64.1	64.5	64.3	109.4	48.9	32.93	4.500	4.500
Sorento 3.3 AWD	Sorento AWD	3.3	AWD	SA8	235/55R19	19,185	64.1	64.5	64.3	109.4	48.9	32.93	4.750	4.500
	Sedona	3.3	FWD	SA6	235/65R17	3,475	68.7	69.0	68.8	120.5	57.6	28.51	4.750	4.500
Sedona 3.3	Sedona	3.3	FWD	SA8	235/60R18	9,846	68.5	68.8	68.6	120.5	57.4	28.70	5.000	5.000
	Sedona	3.3	FWD	SA8	235/55R19	579	68.3	68.6	68.4	120.5	57.2	28.79	5.000	5.000

Projected Required	32.8
Total Sales Volume	205,203

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

III. Projected Average and Required Fuel Economy

BUSINESS INFORMATION

- Projected Average Fuel Economy (without A/C efficiency & off-cycle credits)

Projected Average	29.5
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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
Sportage FE 2.4 AWD	Sportage FE AWD	2.4	AWD	SA6	225/60R17	14,737	26.2	35.1	29.5745	4,000	29.5	21,083
	Sportage FE AWD	2.4	AWD	SA6	225/60R17	6,346	25.8	35.0	29.2612	4,000		
Sportage 2.4 AWD	Sportage AWD	2.4	AWD	SA6	225/55R18	8,324	26.5	34.9	29.7189	4,000	29.8	11,871
	Sportage AWD	2.4	AWD	SA6	225/55R18	3,547	26.5	35.6	29.9445	4,000		
Sportage 2.0T AWD	Sportage AWD	2.0T	AWD	SA6	245/45R19	2,131	24.9	35.1	28.6460	4,000	28.6	2,131
Sorento 2.4 FWD	Sorento FWD	2.4	FWD	SA6	235/65R17	47,273	28.0	40.7	32.5740	4,000	32.6	47,273
	Sorento AWD	2.4	AWD	SA6	235/65R17	20,648	26.6	37.1	30.4822	4,000		
Sorento 3.3 FWD	Sorento FWD	3.3	FWD	SA8	235/65R17	5,217	24.6	39.5	29.6295	4,000	28.6	36,501
	Sorento FWD	3.3	FWD	SA8	235/60R18	17,378	23.8	37.8	28.5600	4,500		
Sorento 3.3 AWD	Sorento FWD	3.3	FWD	SA8	235/55R19	13,906	23.7	37.2	28.3258	4,500	27.8	51,796
	Sorento AWD	3.3	AWD	SA8	235/65R17	5,759	24.2	36.5	28.5258	4,500		
Sorento 3.3 AWD	Sorento AWD	3.3	AWD	SA8	235/60R18	26,852	24.2	36.5	28.5258	4,500	27.8	51,796
	Sorento AWD	3.3	AWD	SA8	235/55R19	19,185	22.6	34.4	26.7253	4,500		
Sedona 3.3	Sedona	3.3	FWD	SA8	235/65R17	3,475	23.2	34.9	27.3217	4,500	27.4	13,900
	Sedona	3.3	FWD	SA8	235/60R18	9,846	23.2	35.3	27.4313	5,000		
	Sedona	3.3	FWD	SA8	235/55R19	579	23.1	33.7	26.9087	5,000		

Average	29.5
Total Sales Volume	205,203

IV. Projected A/C Efficiency Credits

BUSINESS INFORMATION

Model Type Description	Carline	Basic Engine (disp)	Drive	T/M class (Drive, type, gear)	Refrigerant	A/C Drive System	Projected sales	Reduc'd Reheat with variable displ	Reduced Reheat with fixed displ or pneumatic	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
								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	
Sportage FE 2.4 AWD	Sportage FE AWD	2.4	AWD	SA6	R-1234yf	Belt Driven	21,083	2.2	0.0	0.0	0.0	1.1	1.4	0.0	0.7	5.4	25,714	225,865
Sportage 2.4 AWD	Sportage AWD	2.4	AWD	SA6	R-1234yf	Belt Driven	11,871	2.2	0.0	0.0	0.0	1.1	1.4	0.0	0.7	5.4	14,479	225,865
Sportage 2.0T AWD	Sportage AWD	2.0T	AWD	SA6	R-1234yf	Belt Driven	2,131	2.2	0.0	0.0	0.0	1.1	1.4	0.0	0.7	5.4	2,599	225,865
Sorento 2.4 FWD	Sorento FWD	2.4	AWD	SA6	R-1234yf	Belt Driven	47,273	2.2	0.0	0.0	0.0	0.0	1.4	0.0	0.7	4.3	45,912	225,865
Sorento 2.4 AWD	Sorento AWD	2.4	FWD	SA6	R-1234yf	Belt Driven	20,648	2.2	0.0	0.0	0.0	0.0	1.4	0.0	0.7	4.3	20,054	225,865
Sorento 3.3 FWD	Sorento FWD	3.3	FWD	SA6	R-1234yf	Belt Driven	36,501	2.2	0.0	0.0	0.0	0.0	1.4	0.0	0.7	4.3	35,450	225,865
Sorento 3.3 AWD	Sorento AWD	3.3	AWD	SA6	R-1234yf	Belt Driven	51,796	2.2	0.0	0.0	0.0	0.0	1.4	0.0	0.7	4.3	50,305	225,865
Sedona 3.3	Sedona	3.3	FWD	SA6	R-1234yf	Belt Driven	13,900	2.2	0.0	0.0	0.0	0.0	1.4	0.0	0.7	4.3	13,500	225,865

ACCredit	208,013
Truck volume	205,203
FCIV _{AC} (Gal/mi)	0.000505013

VLM	225,865
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$$FCIV_{AC} \text{ (gal/mi)} = \frac{(ACCredit \times 1,000,000)}{(VLM \times Production \times 8887)}$$

V. Projected Off-cycle Credits

BUSINESS INFORMATION

Model Type Description	Carline	Basic Engine (disp)	Drive	T/M class (Drive, tune)	Description	Projected sales	Off cycle benefit per vehicle		VLM
							gpm	megagrams	
Sportage FE 2.4 AWD	Sportage FE AWD	2.4	AWD	SA6	Glazing 1.4, Lamp 0.06	4,281	1.5	1,450	225,865
					Glazing 1.4, Lamp 0.06, Solar reflective surface coating 0.5	720	2.0	325	225,865
					Glazing 1.2, Lamp 0.06	13,763	1.3	4,041	225,865
Sportage 2.4 AWD	Sportage AWD	2.4	AWD	SA6	Glazing 1.2, Lamp 0.06, Solar reflective surface coating 0.5	2,319	1.8	943	225,865
					Glazing 1.4, Lamp 0.06	2,764	1.5	936	225,865
					Glazing 1.4, Lamp 0.06, Solar reflective surface coating 0.5	404	2.0	182	225,865
					Glazing 1.3, Lamp 0.06	4,396	1.4	1,390	225,865
					Glazing 1.3, Lamp 0.06, Solar reflective surface coating 0.5	641	1.9	275	225,865
					Glazing 1.3, Lamp 0.06, Active seat ventilation 1.3	3,199	2.7	1,951	225,865
					Glazing 1.3, Lamp 0.06, Active seat ventilation 1.3, Solar reflective surface coating 0.5	467	3.2	338	225,865
					Glazing 1.3, Lamp 0.12, Active seat ventilation 1.3	1,831	2.7	1,117	225,865
Sportage 2.0T AWD	Sportage AWD	2.0T	AWD	SA6	Glazing 1.3, Lamp 0.12, Active seat ventilation 1.3, Solar reflective surface coating 0.5	300	3.2	217	225,865
					Glazing 1.3, Lamp 0.12, Active seat ventilation 1.3	1,831	2.7	1,117	225,865
Sorento 2.4 FWD	Sorento FWD	2.4	FWD	SA6	Glazing 1.4, Lamp 0.06, Active transmission warm-up 3.2	37,710	4.7	40,032	225,865
					Glazing 1.4, Lamp 0.06, Active transmission warm-up 3.2, Solar reflective surface coating 0.5	9,563	5.2	11,232	225,865
Sorento 2.4 AWD	Sorento AWD	2.4	AWD	SA6	Glazing 1.4, Lamp 0.06, Active transmission warm-up 3.2	17,183	4.7	18,241	225,865
					Glazing 1.4, Lamp 0.06, Active transmission warm-up 3.2, Solar reflective surface coating 0.5	3,465	5.2	4,070	225,865
Sorento 3.3 FWD	Sorento FWD	3.3	FWD	SA6	Glazing 1.4, Lamp 0.06, Active transmission warm-up 3.2	19,704	4.7	20,917	225,865
					Glazing 1.4, Lamp 0.06, Active transmission warm-up 3.2, Solar reflective surface coating 0.5	6,677	5.2	7,842	225,865
					Glazing 1.3, Lamp 0.12, Active transmission warm-up 3.2	2,741	4.6	2,848	225,865
					Glazing 1.3, Lamp 0.12, Active transmission warm-up 3.2, Solar reflective surface coating 0.5	1,595	5.1	1,837	225,865
					Glazing 1.3, Lamp 0.12, Active seat ventilation 1.3, Active transmission warm-up 3.2	3,658	5.9	4,875	225,865
					Glazing 1.3, Lamp 0.12, Active seat ventilation 1.3, Active transmission warm-up 3.2, Solar reflective surface coating 0.5	2,126	6.4	3,073	225,865
					Glazing 1.3, Lamp 0.12, Active transmission warm-up 3.2	37,816	4.6	39,290	225,865
Sorento 3.3 AWD	Sorento AWD	3.3	AWD	SA6	Glazing 1.3, Lamp 0.12, Active transmission warm-up 3.2, Solar reflective surface coating 0.5	10,355	5.1	11,928	225,865
					Glazing 1.3, Lamp 0.12, Active seat ventilation 1.3, Active transmission warm-up 3.2	2,681	5.9	3,573	225,865
					Glazing 1.3, Lamp 0.12, Active seat ventilation 1.3, Active transmission warm-up 3.2, Solar reflective surface coating 0.5	944	6.4	1,365	225,865
					Glazing 1.8	9,126	1.8	3,710	225,865
Sedona 3.3	Sedona	3.3	FWD	SA6	Glazing 1.8, Solar reflective surface coating 0.5	1,848	2.3	960	225,865
					Glazing 1.9	1,194	1.9	512	225,865
					Glazing 1.9, Solar reflective surface coating 0.5	201	2.4	109	225,865
					Glazing 1.7, Lamp 0.06, Active seat ventilation 1.3	420	3.1	294	225,865
					Glazing 1.7, Lamp 0.06, Active seat ventilation 1.3, Solar reflective surface coating 0.5	120	3.6	98	225,865
					Glazing 1.9, Lamp 0.06, Active seat ventilation 1.3	770	3.3	574	225,865
					Glazing 1.9, Lamp 0.06, Active seat ventilation 1.3, Solar reflective surface coating 0.5	221	3.8	190	225,865

OCCredit	190,735	VLM	225,865
Car volume	205,203		
FCIV _{oc} (Gal/mi)	0.000463066		

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

BUSINESS INFORMATION

VI. Projected Average Fuel Economy Adjustment

Average MPG	30.4
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P4	MPG	29.5
P6	FCIV _{AC} (Gal/mi)	0.000505013
P7	FCIV _{OC} (Gal/mi)	0.000463066
N/A	FCIV _{PU} (Gal/mi)	0

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