

**PRE-CAFE REPORT
FOR
2018 MODEL YEAR
OF
KIA MOTORS CORPORATION**

- Passenger Cars -



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).

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 * : These sections contain [REDACTED] information

I. Introduction

As required by 49 CFR Part 537.9, estimated fuel economy values for Sorent AWD, Sorent FWD, Optima, Optima FE, Sportage FWD, Sportage FE FWD, K900, Soul, Soul Electric, Rio, Forte, Forte5, Stinger AWD, Stinger RWD, Niro, Niro FE, Niro Touring, Niro Plug-in Hybrid, Optima Plug-in Hybrid, Optima Hybrid, Cadenza 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 2018 exhaust emission standards as defined 40 CFR §86.

II. Projected Average and Required Fuel Economy

1. Projected Average Fuel Economy

- IP : 38.5 MPG (without A/C efficiency & off-cycle credits)

- IP : 39.3 MPG (with A/C efficiency & off-cycle credits)

- DP : N/A

2. Projected Required Fuel Economy

- IP : 40.4 MPG

- DP : N/A

At this point in time and based on available best present information, the above projections represent the Kia Motors Coporation (KMC) 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	40.4
--------------------	------

Model Type Description	Carline	Basic Engine (disp)	Drive	T/M class	Base Tire	Doors	Projected sales	Track width FR (inch)	Track width RR (inch)	Average Track width (inch)	Wheelbase (inch)	footprint (sqr feet)	Target standard	ETW	IWC
Rio 1.6 AT	Rio	1.6	FWD	SA6	P185/65R15	4	19,436	60.0	60.2	60.1	101.6	42.4	43.83	2,875	2,750
Rio 1.6 MT	Rio	1.6	FWD	SA6	P185/65R15	5	3,432	60.0	60.2	60.1	101.6	42.4	43.83	2,875	2,750
	Rio	1.6	FWD	M6	P185/65R15	4	4,867	60.0	60.2	60.1	101.6	42.4	43.83	2,750	2,750
	Rio	1.6	FWD	M6	P185/65R15	5	850	60.0	60.2	60.1	101.6	42.4	43.83	2,750	2,750
Forte 2.0 AT SFI	Forte	2.0	FWD	SA6	195/65R15	4	39,748	61.5	62.0	61.8	106.3	45.6	40.98	3,125	3,000
	Forte	2.0	FWD	SA6	205/55R16	4	9,272	61.5	62.0	61.8	106.3	45.6	40.98	3,125	3,000
	Forte	2.0	FWD	SA6	195/65R15	4	24,529	61.5	62.0	61.8	106.3	45.6	40.98	3,125	3,000
	Forte	2.0	FWD	SA6	205/55R16	4	8,176	61.5	62.0	61.8	106.3	45.6	40.98	3,125	3,000
Forte 2.0 MT SFI	Forte	2.0	FWD	M6	195/65R15	4	2,988	61.5	62.0	61.8	106.3	45.6	40.98	3,125	3,000
	Forte	2.0	FWD	SA6	P215/45R17	4	8,969	61.5	62.0	61.8	106.3	45.6	40.98	3,250	3,000
Forte 2.0 AT	Forte	2.0	FWD	SA6	P215/45R17	4	5,975	61.5	62.0	61.8	106.3	45.6	40.98	3,250	3,000
Fortes 2.0 AT	Fortes	2.0	FWD	SA6	P215/45R17	5	4,175	61.5	62.0	61.8	106.3	45.6	40.98	3,250	3,000
	Fortes	2.0	FWD	SA6	205/55R16, 195/65R15	5	12,137	61.5	62.0	61.8	106.3	45.6	40.98	3,250	3,000
Niro FE	Niro FE	1.6	FWD	AM6	205/55R16	5	1,575	61.6	62.2	61.9	106.3	45.7	40.90	3,250	3,000
Soul 1.6 AT	Soul	1.6	FWD	SA6	205/60R16	4	51,413	62.0	62.5	62.2	101.2	43.7	42.63	3,125	3,000
Soul 1.6 MT	Soul	1.6	FWD	M6	205/60R16	4	5,141	62.0	62.5	62.2	101.2	43.7	42.63	3,125	3,000
	Soul	2.0	FWD	SA6	215/55R17	4	35,599	61.7	62.2	62.0	101.2	43.6	42.72	3,250	3,000
	Soul	2.0	FWD	SA6	215/55R17	4	10,708	61.7	62.2	62.0	101.2	43.6	42.72	3,250	3,000
	Soul	2.0	FWD	SA6	235/45R18	4	10,672	61.4	62.0	61.7	101.2	43.4	42.90	3,375	3,500
	Soul	2.0	FWD	SA6	235/45R18	4	2,144	61.4	62.0	61.7	101.2	43.4	42.90	3,375	3,500
Soul 1.6T DCT	Soul	1.6	FWD	AM7	235/45R18	4	12,852	61.4	61.9	61.6	101.2	43.3	42.99	3,375	3,500
Soul Electric	Soul Electric	EV	N/A	OT	205/60R16	5	3,750	62.0	62.5	62.2	101.2	43.7	42.63	3,625	3,500
Fortes 1.6T DCT	Fortes	1.6	FWD	AM7	P225/40R18	5	887	61.5	62.0	61.8	106.3	45.6	40.98	3,375	3,500
Fortes 1.6T MT	Fortes	1.6	FWD	M6	P225/40R18	5	533	61.5	62.0	61.8	106.3	45.6	40.98	3,375	3,500
Niro	Niro	1.6	FWD	AM6	205/55R16	5	22,364	61.6	62.2	61.9	106.3	45.7	40.90	3,500	3,500
Niro Touring	Niro Touring	1.6	FWD	AM6	225/45R18	5	2,646	61.2	61.8	61.5	106.3	45.4	41.15	3,625	3,500
Niro PHEV	Niro Plug-in Hybrid	1.6	FWD	AM6	205/60R16	5	4,450	61.6	62.2	61.9	106.3	45.7	40.90	3,750	3,500
Optima 1.6T	Optima	1.6	FWD	AM7	205/65R16	4	5,376	63.5	63.8	63.6	110.4	48.8	38.48	3,500	3,500
Optima 2.4	Optima	2.4	FWD	SA6	215/55R17	4	22,383	63.1	63.3	63.2	110.4	48.5	38.70	3,625	3,500
	Optima	2.4	FWD	SA6	215/55R17	4	14,923	63.1	63.3	63.2	110.4	48.5	38.70	3,625	3,500
Optima FE 2.4	Optima FE	2.4	FWD	SA6	P205/55R16	4	26,903	63.5	63.8	63.6	110.4	48.8	38.48	3,500	3,500
	Optima FE	2.4	FWD	SA6	P205/55R16	4	17,334	63.5	63.8	63.6	110.4	48.8	38.48	3,500	3,500
Sportage 2.4 FWD	Sportage FWD	2.4	FWD	SA6	225/55R18	SUV	12,424	63.5	64.0	63.8	105.1	46.6	40.17	3,750	3,500
	Sportage FWD	2.4	FWD	SA6	225/55R18	SUV	4,076	63.5	64.0	63.8	105.1	46.6	40.17	3,750	3,500
Sportage FE 2.4 FWD	Sportage FE FWD	2.4	FWD	SA6	225/60R17	SUV	28,117	63.5	64.0	63.8	105.1	46.6	40.17	3,625	3,500
	Sportage FE FWD	2.4	FWD	SA6	225/60R17	SUV	2,413	63.5	64.0	63.8	105.1	46.6	40.17	3,625	3,500
	Optima Hybrid	2.0	FWD	AM6	P205/65R16	4	4,237	63.5	63.8	63.6	110.4	48.8	38.48	3,750	3,500
Optima HEV	Optima Hybrid	2.0	FWD	AM6	P215/55R17	4	3,513	63.1	63.3	63.2	110.4	48.5	38.70	3,875	4,000
Optima 2.0T	Optima	2.0	FWD	SA6	235/45R18	4	21,504	62.9	63.1	63.0	110.4	48.3	38.85	3,875	4,000
Optima PHEV	Optima Plug-in Hybrid	2.0	AM6	AM6	215/55 R17	4	2,501	63.1	63.1	63.1	110.4	48.4	38.78	4,000	4,000
Sportage 2.0T FWD	Sportage FWD	2.0	FWD	SA6	245/45R19	SUV	4,953	63.3	63.8	63.6	105.1	46.4	40.33	4,000	4,000
Sorento 2.4 AWD	Sorento AWD	2.4	AWD	SA6	235/65R17	SUV	5,917	64.3	64.7	64.5	109.5	49.0	38.34	4,250	4,000
Sorento 2.4 FWD	Sorento FWD	2.4	FWD	SA6	235/65R17	SUV	24,888	64.3	64.7	64.5	109.5	49.0	38.34	4,000	4,000
Sorento 2.0T AWD	Sorento AWD	2.0	AWD	SA6	235/60R18	SUV	1,848	64.1	64.5	64.3	109.5	48.9	38.41	4,250	4,000
Sorento 2.0T FWD	Sorento FWD	2.0	FWD	SA6	235/60R18	SUV	3,301	64.1	64.5	64.3	109.5	48.9	38.41	4,250	4,000
Cadenza 3.3 AT	Cadenza	3.3	FWD	SA8	245/45R18	4	7,259	63.3	63.4	63.4	110.4	48.6	38.63	4,000	4,000
	Cadenza	3.3	FWD	SA8	245/40R19	4	3,909	63.1	63.4	63.2	110.4	48.5	38.70	4,000	4,000
Stinger 2.0T AWD	Stinger AWD	2.0	AWD	SA8	225/45R18	4	6,764	62.8	64.8	63.8	114.4	50.7	37.14	4,250	4,000
Stinger 2.0T RWD	Stinger RWD	2.0	RWD	SA8	225/45R18	4	18,037	62.8	64.8	63.8	114.4	50.7	37.14	4,000	4,000
Stinger 3.3T RWD	Stinger RWD	3.3	RWD	SA8	225/40R19	4	4,270	62.8	63.7	63.2	114.4	50.2	37.48	4,250	4,000
	Stinger AWD	3.3	AWD	SA8	255/35R19	4	964	62.8	64.8	63.8	114.4	50.7	37.14	4,500	4,500
Stinger 3.3T AWD	Stinger AWD	3.3	AWD	SA8	225/40R19	4	964	62.8	63.7	63.2	114.4	50.2	37.48	4,500	4,500
	Stinger AWD	3.3	AWD	SA8	255/35R19	4	964	62.8	63.7	63.2	114.4	50.2	37.48	4,500	4,500
K900 3.8 RWD	K900	3.8	RWD	SA8	P245/50R18	4	1,123	63.6	63.6	63.6	120.0	53.0	35.63	4,750	4,500
K900 5.0 RWD	K900	5.0	RWD	SA8	P235/45R19(HANKOOK)	4	546	63.6	63.6	63.6	120.0	53.0	35.63	5,000	5,000
	K900	5.0	RWD	SA8	P235/45R19(CONTINENTAL)	4	373	63.6	63.6	63.6	120.0	53.0	35.63	5,000	5,000

Projected Required	40.4
Total Sales Volume	558,108

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

III. Projected Average and Required Fuel Economy

BUSINESS INFORMATION

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

Projected Average	38.5
-------------------	------

Model Type Description	Carline	Basic Engine (disp)	Drive	T/M class	Base Tire	Doors	Projected sales	City_FE	Hwy_FE	Combined FE	IWC	Model Type Comb.FE	Model Type Vol
Rio 1.6 AT	Rio	1.6	FWD	SA6	P185/65R15	4	19,436	37.0	55.0	43.902	2,750	43.3	22,868
	Rio	1.6	FWD	SA6	P185/65R15	5	3,432	36.5	54.3	42.8159	2,750		
Rio 1.6 MT	Rio	1.6	FWD	M6	P185/65R15	4	4,867	37.5	55.1	43.7950	2,750	43.7	5,717
	Rio	1.6	FWD	M6	P185/65R15	5	850	37.6	53.7	43.4640	2,750		
Forte 2.0 AT SFI	Forte	2.0	FWD	SA6	195/65R15	4	39,748	39.2	54.5	44.8682	3,000	43.6	81,725
	Forte	2.0	FWD	SA6	205/55R16	4	9,272	39.0	56.6	45.3451	3,000		
	Forte	2.0	FWD	SA6	195/65R15	4	24,529	34.8	54.6	41.5863	3,000		
	Forte	2.0	FWD	SA6	205/55R16	4	8,176	35.4	54.4	42.0013	3,000		
Forte 2.0 MT SFI	Forte	2.0	FWD	M6	195/65R15	4	2,988	32.3	50.0	38.4204	3,000	38.4	2,988
Forte 2.0 AT	Forte	2.0	FWD	SA6	P215/45R17	4	8,969	32.3	48.5	38.0138	3,000	38.0	14,944
	Forte	2.0	FWD	SA6	P215/45R17	4	5,975	32.2	48.3	37.8824	3,000		
Forte5 2.0 AT	Forte5	2.0	FWD	SA6	P215/45R17	5	4,175	32.1	47.3	37.5267	3,000	38.0	16,312
	Forte5	2.0	FWD	SA6	205/55R16, 195/65R15	5	12,137	32.2	49.1	38.1015	3,000		
Niro FE	Niro FE	1.6	FWD	AM6	205/55R16	5	1,575	71.0	68.9	70.0394	3,000	70.0	1,575
Soul 1.6 AT	Soul	1.6	FWD	SA6	205/60R16	4	51,413	32.2	43.0	36.3031	3,000	36.3	51,413
Soul 1.6 MT	Soul	1.6	FWD	M6	205/60R16	4	5,141	31.4	43.0	35.7385	3,000	35.7	5,141
Soul 2.0 AT	Soul	2.0	FWD	SA6	215/55R17	4	35,599	32.2	43.5	36.4623	3,000	36.1	59,123
	Soul	2.0	FWD	SA6	215/55R17	4	10,708	31.0	42.8	35.3908	3,000		
	Soul	2.0	FWD	SA6	235/45R18	4	10,672	31.5	42.8	35.7471	3,500		
	Soul	2.0	FWD	SA6	235/45R18	4	2,144	30.4	42.6	34.8973	3,500		
Soul 1.6T DCT	Soul	1.6	FWD	AM7	235/45R18	4	12,852	33.4	43.9	37.4285	3,500	37.4	12,852
Soul Electric	Soul Electric	EV	N/A	OT	205/60R16	5	3,750	429.6	325.6	375.6116	3,500	375.6	3,750
Forte5 1.6T DCT	Forte5	1.6	FWD	AM7	P225/40R18	5	887	32.2	42.6	36.1741	3,500	36.2	887
Forte5 1.6T MT	Forte5	1.6	FWD	M6	P225/40R18	5	533	29.3	41.4	33.7372	3,500	33.7	533
Niro	Niro	1.6	FWD	AM6	205/55R16	5	22,364	66.2	65.3	65.7919	3,500	65.8	22,364
Niro Touring	Niro Touring	1.6	FWD	AM6	225/45R18	5	2,646	60.0	58.4	59.2693	3,500	59.3	2,646
Niro PHEV	Niro Plug-in Hyb	1.6	FWD	AM6	205/60R16	5	4,450	174.6	89.5	122.2794	3,500	122.3	4,450
Optima 1.6T	Optima	1.6	FWD	AM7	205/65R16	4	5,376	36.3	54.8	42.8024	3,500	42.8	5,376
Optima 2.4	Optima	2.4	FWD	SA6	215/55R17	4	22,383	31.6	50.1	37.8973	3,500	37.4	37,306
	Optima	2.4	FWD	SA6	215/55R17	4	14,923	30.3	49.3	36.6574	3,500		
Optima FE 2.4	Optima FE	2.4	FWD	SA6	P205/55R16	4	26,003	32.9	52.5	39.5433	3,500	39.0	43,337
	Optima FE	2.4	FWD	SA6	P205/55R16	4	17,334	31.7	51.3	38.2818	3,500		
Sportage 2.4 FWD	Sportage FWD	2.4	FWD	SA6	225/55R18	SUV	12,424	28.4	41.1	32.9869	3,500	33.2	16,500
	Sportage FWD	2.4	FWD	SA6	225/55R18	SUV	4,076	29.1	41.8	33.7087	3,500		
Sportage FE 2.4 FWD	Sportage FE FW	2.4	FWD	SA6	225/60R17	SUV	28,117	29.2	43.0	34.1288	3,500	34.0	30,530
	Sportage FE FW	2.4	FWD	SA6	225/60R17	SUV	2,413	28.7	40.8	33.1201	3,500		
Optima HEV	Optima Hybrid	2.0	FWD	AM6	P205/65R16	4	4,237	54.3	63.0	57.8979	3,500	57.6	7,750
	Optima Hybrid	2.0	FWD	AM6	P215/55R17	4	3,513	53.6	62.5	57.2699	4,000		
Optima 2.0T	Optima	2.0	FWD	SA6	235/45R18	4	21,504	27.4	44.5	33.1287	4,000	33.1	21,504
Optima PHEV	Optima Plug-in H	2.0	AM6	AM6	215/55 R17	4	2,501	156.1	95.5	121.4267	4,000	121.4	2,501
Sportage 2.0T FWD	Sportage FWD	2.0	FWD	SA6	245/45R19	SUV	4,053	26.2	39.0	30.7401	4,000	30.7	4,053
Sorento 2.4 AWD	Sorento AWD	2.4	AWD	SA6	235/65R17	SUV	5,917	26.0	35.6	29.5908	4,000	29.6	5,917
Sorento 2.4 FWD	Sorento FWD	2.4	FWD	SA6	235/65R17	SUV	24,888	26.8	40.4	31.5846	4,000	31.6	24,888
Sorento 2.0T AWD	Sorento AWD	2.0	AWD	SA6	235/60R18	SUV	1,648	24.3	35.9	28.4345	4,000	28.4	1,648
Sorento 2.0T FWD	Sorento FWD	2.0	FWD	SA6	235/60R18	SUV	3,301	25.3	38.3	29.8610	4,000	29.9	3,301
Cadenza 3.3 AT	Cadenza	3.3	FWD	SA8	245/45R18	4	7,259	25.9	39.4	30.6215	4,000	30.4	11,168
	Cadenza	3.3	FWD	SA8	245/40R19	4	3,909	25.4	38.7	30.0468	4,000		
Stinger 2.0T AWD	Stinger AWD	2.0	AWD	SA8	225/45R18	4	6,764	27.0	41.3	31.9834	4,000	32.0	6,764
Stinger 2.0T RWD	Stinger RWD	2.0	RWD	SA8	225/45R18	4	18,037	27.6	41.5	32.4982	4,000	32.5	18,037
Stinger 3.3T RWD	Stinger RWD	3.3	RWD	SA8	225/40R19 255/35R19	4	4,270	23.6	35.5	27.7923	4,000	27.8	4,270
Stinger 3.3T AWD	Stinger AWD	3.3	AWD	SA8	225/45R18	4	964	23.7	36.8	28.2207	4,500	27.7	1,928
	Stinger AWD	3.3	AWD	SA8	225/40R19 255/35R19	4	964	23.2	34.6	27.2385	4,500		
K900 3.8 RWD	K900	3.8	RWD	SA8	P245/50R18	4	1,123	21.2	35.7	25.9414	4,500	25.9	1,123
K900 5.0 RWD	K900	5.0	RWD	SA8	P235/45R19(HANKOOK)	4	546	18.1	32.2	22.5419	5,000	22.6	919
	K900	5.0	RWD	SA8	P235/45R19(CONTINENTAL)	4	373	18.7	30.8	22.7158	5,000		

Average	38.5
ROUNDED Avg. comb.	38.1428
Multiplied Factor	1.006852756
'a'	1.4432
C' FACTOR	0.0014
IW (Added Factor)	0.131068862
SF _{3IWC}	0.3949
FE _{3IWC}	39.1048
SF _{4ETW}	0.1087
FE _{4IWC}	32.5262

$$§600.510-12 : AFE_{adj} = AFE[(0.55 \times a \times c) + (0.45 \times c) + (0.5556 \times a) + 0.4487] / [(0.55 \times a) + 0.45] + IW$$

Car volume	558,108
FCIV _{oc} (Gal/mi)	0.000171466

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

VI. Projected Average Fuel Economy Adjustment

Average MPG	39.3
-------------	------

P4	MPG	38.5
P6	FCIV _{AC} (Gal/mi)	0.000371547
P7	FCIV _{OC} (Gal/mi)	0.000171466
N/A	FCIV _{PU} (Gal/mi)	0

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