

**PRE-CAFE REPORT
FOR
2018 MODEL YEAR
OF
HYUNDAI MOTOR COMPANY**

- Passenger cars -



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 Accent, Elantra, Elantra SE, Elantra GT, Kona FWD, Kona AWD, Ioniq Blue, Ioniq, Ioniq Electric, Ioniq Plug-in Hybrid, Tucson AWD, Tucson FWD, Sonata, Sonata SE, Sonata Hybrid, Sonata Hybrid SE, Sonata Plug-in Hybrid, Santa Fe Sport FWD, Santa FE Sport AWD, Santa FE ULTIMATE FWD, Santa FE ULTIMATE AWD, G80 RWD, G80 AWD, G90 RWD, G90 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 2018 exhaust emission standards as defined 40 CFR §86.

II. Projected Average and Required Fuel Economy

1. Projected Average Fuel Economy

- IP : 37.4 MPG (without A/C efficiency & off-cycle credits)

- IP : 38.2 MPG (with A/C efficiency & off-cycle credits)

- DP : N/A

2. Projected Required Fuel Economy

- IP : 40.1 MPG

- DP : N/A

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	40.1
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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
Accent 1.6 MT	Accent	1.6	FWD	M6	4DR, 185/65R15	726	60.0	60.2	60.1	101.6	42.4	43.83	2,750	2,750
Accent 1.6 AT	Accent	1.6	FWD	SA6	4DR, 185/65R15	21,527	60.0	60.2	60.1	101.6	42.4	43.83	2,875	2,750
	Accent	1.6	FWD	SA6	4DR, 205/45R17	1,957	59.5	59.7	59.6	101.6	42.1	44.12	3,000	3,000
Elantra 1.4T	Elantra	1.4	FWD	AM7	195/65R15	6,975	61.5	61.9	61.7	106.3	45.5	41.06	3,125	3,000
Elantra 2.0 AT SFI	Elantra	2.0	FWD	SA6	205/55R16	62,317	61.2	61.6	61.4	106.3	45.3	41.23	3,125	3,000
	Elantra	2.0	FWD	SA6	225/45R17	17,191	61.0	61.3	61.2	106.3	45.2	41.32	3,250	3,000
	Elantra	2.0	FWD	SA6	205/55R16	25,964	61.2	61.6	61.4	106.3	45.3	41.23	3,125	3,000
	Elantra	2.0	FWD	SA6	225/45R17	7,164	61.0	61.3	61.2	106.3	45.2	41.32	3,250	3,000
Elantra 2.0 MT SFI	Elantra	2.0	FWD	M6	195/65R15	4,649	61.5	61.9	61.7	106.3	45.5	41.06	3,125	3,000
Elantra SE 2.0 SFI	Elantra SE	2.0	FWD	SA6	195/65R15	59,969	61.5	61.9	61.7	106.3	45.5	41.06	3,125	3,000
	Elantra SE	2.0	FWD	SA6	195/65R15	24,986	61.5	61.9	61.7	106.3	45.5	41.06	3,125	3,000
Elantra GT 2.0 AT	Elantra GT	2.0	FWD	SA6	225/45R17	14,943	61.1	61.7	61.4	104.3	44.5	41.92	3,250	3,000
Elantra GT 2.0 MT	Elantra GT	2.0	FWD	M6	225/45R17	935	61.1	61.7	61.4	104.3	44.5	41.92	3,250	3,000
Ioniq Blue	Ioniq Blue	1.6	FWD	AM6	195/65R15	7,290	61.5	62.1	61.8	106.3	45.6	40.98	3,250	3,000
Kona 2.0 FWD	Kona FWD	2.0	FWD	SA6	205/60R16	2,462	62.0	62.4	62.2	102.4	44.2	42.18	3,250	3,000
	Kona FWD	2.0	FWD	SA6	215/55R17	13,538	61.5	61.9	61.7	102.4	43.9	42.45	3,250	3,000
Kona 2.0 AWD	Kona AWD	2.0	AWD	SA6	205/60R16	1,539	62.0	62.4	62.2	102.4	44.2	42.18	3,375	3,500
	Kona AWD	2.0	AWD	SA6	215/55R17	8,463	61.5	61.9	61.7	102.4	43.9	42.45	3,375	3,500
Kona 1.6T AWD	Kona AWD	1.6	AWD	AM7	235/45R18	5,998	61.4	61.7	61.6	102.4	43.8	42.54	3,500	3,500
Kona 1.6T FWD	Kona FWD	1.6	FWD	AM7	235/45R18	8,001	61.4	61.7	61.6	102.4	43.8	42.54	3,375	3,500
Ioniq	Ioniq	1.6	FWD	AM6	195/65R15	7,915	61.5	62.1	61.8	106.3	45.6	40.98	3,375	3,500
	Ioniq	1.6	FWD	AM6	225/45R17	5,624	61.0	61.5	61.2	106.3	45.2	41.32	3,375	3,500
Ioniq Electric	Ioniq Electric	EV	FWD	A1	205/55R16	855	61.2	61.6	61.4	106.3	45.3	41.23	3,500	3,500
Ioniq PHEV	Ioniq Plug-in Hybrid	1.6	FWD	AM6	205/55 R16	4,978	61.2	61.8	61.5	106.3	45.4	41.15	3,625	3,500
Elantra 1.6T DCT	Elantra	1.6	FWD	AM7	225/40R18	11,624	60.8	61.4	61.1	106.3	45.1	41.40	3,375	3,500
Elantra 1.6T MT	Elantra	1.6	FWD	M6	225/40R18	11,624	60.8	61.4	61.1	106.3	45.1	41.40	3,375	3,500
Elantra GT 1.6T DCT	Elantra GT	1.6	FWD	AM7	225/40R18	1,868	61.0	61.5	61.2	104.3	44.3	42.09	3,375	3,500
Elantra GT 1.6T MT	Elantra GT	1.6	FWD	M6	225/40R18	935	61.0	61.5	61.2	104.3	44.3	42.09	3,375	3,500
Tucson 2.0 AWD	Tucson AWD	2.0	AWD	SA6	225/60R17	16,381	63.3	63.8	63.6	105.1	46.4	40.33	3,750	3,500
Tucson 2.0 FWD	Tucson FWD	2.0	FWD	SA6	225/60R17	30,575	63.3	63.8	63.6	105.1	46.4	40.33	3,625	3,500
Tucson 2.4 FWD	Tucson FWD	2.4	FWD	SA6	225/55R18	0	63.1	63.6	63.4	105.1	46.3	40.41	3,750	3,500
	Tucson FWD	2.4	FWD	SA6	245/45R19	12,012	63.1	63.6	63.4	105.1	46.3	40.41	3,750	3,500
Sonata 1.6T	Sonata	1.6	FWD	AM7	205/65R16	3,364	63.5	63.8	63.6	110.4	48.8	38.48	3,500	3,500
Sonata 2.4	Sonata	2.4	FWD	SA6	215/55R17	15,498	63.1	63.4	63.2	110.4	48.5	38.70	3,625	3,500
	Sonata	2.4	FWD	SA6	215/55R17	48,200	63.1	63.4	63.2	110.4	48.5	38.70	3,625	3,500
Sonata SE 2.4	Sonata SE	2.4	FWD	SA6	205/65R16	29,931	63.5	63.8	63.6	110.4	48.8	38.48	3,500	3,500
	Sonata SE	2.4	FWD	SA6	205/65R16	57,799	63.5	63.8	63.6	110.4	48.8	38.48	3,500	3,500
Sonata HEV SE	Sonata Hybrid SE	2.0	FWD	AM6	205/65R16	6,866	63.5	63.8	63.6	110.4	48.8	38.48	3,750	3,500
Sonata HEV	Sonata Hybrid	2.0	FWD	AM6	215/55R17	5,259	63.1	63.3	63.2	110.4	48.5	38.70	4,000	4,000
Sonata PHEV ¹⁾	Sonata plug-in hybrid	2.0	FWD	AM6	215/55 R17	2,000	63.1	63.3	63.2	110.4	48.5	38.70	4,000	4,000

Sonata 2.0T	Sonata	2.0	FWD	SA8	235/45R18	13,460	62.9	63.1	63.0	110.4	48.3	38.85	3,875	4,000
Tucson 1.6T AWD	Tucson AWD	1.6	AWD	AM7	245/45R19	19,657	63.1	63.6	63.4	105.1	46.3	40.41	4,000	4,000
Tucson 1.6T FWD	Tucson FWD	1.6	FWD	AM7	245/45R19	14,193	63.1	63.6	63.4	105.1	46.3	40.41	3,875	4,000
Tucson 2.4 AWD	Tucson AWD	2.4	AWD	SA6	225/55R18	0	63.1	63.6	63.4	105.1	46.3	40.41	3,875	4,000
	Tucson AWD	2.4	AWD	SA6	245/45R19	16,380	63.1	63.6	63.4	105.1	46.3	40.41	3,875	4,000
Santa Fe Sport 2.4 FWD	Santa Fe Sport FWD	2.4	FWD	SA6	235/65R17 P235/65R17	73,411	64.3	64.7	64.5	106.3	47.6	39.38	4,000	4,000
Santa Fe Sport 2.4 AWD	Santa Fe Sport AWD	2.4	AWD	SA6	235/65R17 P235/65R17	43,089	64.3	64.7	64.5	106.3	47.6	39.38	4,250	4,000
Santa Fe Sport 2.0T FWD	Santa Fe Sport FWD	2.0	FWD	SA6	235/60R18	3,192	64.1	64.5	64.3	106.3	47.5	39.46	4,250	4,000
Santa Fe Sport 2.0T AWD	Santa Fe Sport AWD	2.0	AWD	SA6	235/60R18	1,596	64.1	64.5	64.3	106.3	47.5	39.46	4,250	4,000
Santa Fe Sport ULTIMATE 2.0T FWD	Santa Fe Sport ULTIMATE FWD	2.0	FWD	SA6	235/55R19 P235/55R19	20,746	64.1	64.5	64.3	106.3	47.5	39.46	4,250	4,000
Santa Fe Sport ULTIMATE 2.0T AWD	Santa Fe Sport ULTIMATE AWD	2.0	AWD	SA6	235/55R19 P235/55R19	17,555	64.1	64.5	64.3	106.3	47.5	39.46	4,500	4,500
G80 3.3T RWD	G80 RWD	3.3	RWD	SA8	245/40R19(F) 275/35R19(R)	1,831	63.8	64.3	64.0	118.5	52.7	35.82	4,750	4,500
G80 3.8 AWD	G80 AWD	3.8	AWD	SA8	245/45R18	8,606	64.1	65.3	64.7	118.5	53.2	35.50	4,750	4,500
G80 3.8 RWD	G80 RWD	3.8	RWD	SA8	245/45R18	6,043	64.1	65.3	64.7	118.5	53.2	35.50	4,500	4,500
G80 5.0 RWD	G80 RWD	5.0	RWD	SA8	245/40R19(F) 275/35R19(R)	732	63.8	64.3	64.0	118.5	52.7	35.82	4,750	4,500
G80 3.3T AWD	G80 AWD	3.3	AWD	SA8	245/40R19(F) 275/35R19(R)	733	63.8	64.3	64.0	118.5	52.7	35.82	5,000	5,000
G80 5.0 AWD	G80 AWD	5.0	AWD	SA8	245/40R19(F) 275/35R19(R)	366	63.8	64.3	64.0	118.5	52.7	35.82	5,000	5,000
G90 3.3T AWD	G90 AWD	3.3	AWD	SA8	245/45R19(F) 275/40R19(R)	665	64.6	64.5	64.6	124.4	55.8	33.95	5,000	5,000
G90 3.3T RWD	G90 RWD	3.3	RWD	SA8	245/45R19(F) 275/40R19(R)	1,234	64.6	64.5	64.6	124.4	55.8	33.95	5,000	5,000
G90 5.0 AWD	G90 AWD	5.0	AWD	SA8	245/45R19(F) 275/40R19(R)	166	64.6	64.5	64.6	124.4	55.8	33.95	5,250	5,000
G90 5.0 RWD	G90 RWD	5.0	RWD	SA8	245/45R19(F) 275/40R19(R)	308	64.6	64.5	64.6	124.4	55.8	33.95	5,000	5,000

1) There is no data for 18MY Sonata Plug-in Hybrid, since it's still under certification process. Therefore, HMC uses 17MY Sonata Plug-in Hybrid data for this report.

Projected Required	40.1
Total Sales Volume	813,865

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

II. Projected Average and Required Fuel Economy

BUSINESS INFORMATION

- Projected average Fuel Economy

Projected Average	37.4
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Model Type Description	Carline	Basic Engine (disp)	Drive	T/M class (Drive, gear)	Base Tire	Projected sales	City_FE	Hwy_FE	Combined FE	IWC	Model Type Comb.FE	Model Type Vol
Accent 1.6 MT	Accent	1.6	FWD	M6	4DR, 185/65R15	726	36.1	54.9	42.6764	2,750	42.7	726
Accent 1.6 AT	Accent	1.6	FWD	SA6	4DR, 185/65R15	21,527	37.1	57.3	44.0952	2,750	43.8	23,484
Elantra 1.4T	Elantra	1.4	FWD	AM7	195/65R15	1,957	34.6	50.9	40.4256	3,000	47.8	6,975
Elantra 2.0 AT SFI	Elantra	2.0	FWD	SA6	205/55R16	6,231	37.5	54.7	43.8808	3,000	42.9	112,636
Elantra 2.0 MT SFI	Elantra	2.0	FWD	SA6	225/45R17	17,191	36.4	52.4	42.1982	3,000	39.8	4,649
Elantra SE 2.0 SFI	Elantra SE	2.0	FWD	SA6	195/65R15	59,969	38.5	56.5	44.9432	3,000	44.4	84,955
Elantra GT 2.0 AT	Elantra GT	2.0	FWD	SA6	225/45R17	14,943	31.2	28.5	29.9243	3,000	29.9	14,943
Elantra GT 2.0 MT	Elantra GT	2.0	FWD	M6	225/45R17	935	30.1	44.9	35.3423	3,000	35.3	935
Elantra GT 2.0 AWD	Elantra GT	2.0	FWD	SA6	225/45R17	7,164	34.8	53.1	41.1876	3,000	42.9	112,636
Kona 2.0 FWD	Kona FWD	2.0	FWD	SA6	205/60R16	2,462	35.3	48.4	40.1957	3,000	40.6	16,000
Kona 2.0 AWD	Kona AWD	2.0	AWD	SA6	215/55R17	13,538	35.9	48.5	40.6526	3,000	36.9	10,002
Kona 1.6T AWD	Kona AWD	1.6	AWD	AM7	235/45R18	5,998	32.0	42.8	36.0991	3,500	36.1	5,998
Kona 1.6T FWD	Kona FWD	1.6	FWD	AM7	235/45R18	8,001	34.8	48.0	39.7147	3,500	39.7	8,001
IONIQ	IONIQ	1.6	FWD	AM6	195/65R15	7,915	75.7	78.5	76.9349	3,500	73.5	13,539
IONIQ Electric	IONIQ Electric	EV	FWD	A1	205/55R16	855	150.0	184.0	163.6040	3,500	163.6	855
IONIQ PHEV	IONIQ Plug-in Hybrid	1.6	FWD	AM6	205/55 R16	4,978	208.9	109.2	148.0666	3,500	148.1	4,978
Elantra 1.6T DCT	Elantra	1.6	FWD	AM7	225/40R18	11,624	33.2	46.7	38.1647	3,500	38.2	11,624
Elantra 1.6T MT	Elantra	1.6	FWD	M6	225/40R18	11,624	28.0	43.1	33.2406	3,500	33.2	11,624
Elantra GT 1.6T DCT	Elantra GT	1.6	FWD	AM7	225/40R18	1,868	33.3	45.8	37.9624	3,500	38.0	1,868
Elantra GT 1.6T MT	Elantra GT	1.6	FWD	M6	225/40R18	935	27.9	41.2	32.6418	3,500	32.6	935
Tucson 2.0 AWD	Tucson AWD	2.0	AWD	SA6	225/60R17	16,381	27.2	36.3	30.6586	3,500	30.7	16,381
Tucson 2.0 FWD	Tucson FWD	2.0	FWD	SA6	225/60R17	30,575	29.9	43.5	34.7953	3,500	34.8	30,575
Tucson 2.4 FWD	Tucson FWD	2.4	FWD	SA6	225/55R18	0	27.4	40.2	31.9826	3,500	31.7	12,012
Sonata 1.6T	Sonata	1.6	FWD	AM7	205/65R16	12,012	27.2	39.7	31.6901	3,500	31.7	12,012
Sonata 2.4	Sonata	2.4	FWD	SA6	215/55R17	3,364	35.1	53.5	41.5270	3,500	41.5	3,364
Sonata SE 2.4	Sonata SE	2.4	FWD	SA6	205/65R16	15,498	31.0	49.1	37.1652	3,500	38.4	63,698
Sonata HEV SE	Sonata Hybrid SE	2.4	FWD	SA6	215/55R17	48,200	32.2	51.6	38.7572	3,500	39.5	87,730
Sonata HEV	Sonata Hybrid	2.4	FWD	SA6	205/65R16	29,931	31.9	51.9	38.5923	3,500	39.5	87,730
Sonata PHEV ¹⁾	Sonata plug-in hybrid	2.0	FWD	AM6	205/65R16	57,799	32.9	54.1	39.9437	3,500	59.3	6,866
Tucson 1.6T AWD	Tucson AWD	1.6	AWD	AM7	245/45R19	6,866	56.0	64.0	59.3377	3,500	59.3	6,866
Tucson 1.6T FWD	Tucson FWD	1.6	FWD	AM7	245/45R19	5,259	55.9	64.0	59.2760	4,000	59.3	5,259
Tucson 2.4 AWD	Tucson AWD	2.4	AWD	SA6	245/45R19	2,000	145.9	89.5	113.6669	4,000	113.7	2,000
Santa Fe Sport 2.4 FWD	Santa Fe Sport FWD	2.4	FWD	SA6	235/65R17	13,460	29.0	45.5	34.6553	4,000	34.7	13,460
Santa Fe Sport 2.4 AWD	Santa Fe Sport AWD	2.4	AWD	SA6	235/65R17	19,657	30.5	39.1	33.8504	4,000	33.9	19,657
Santa Fe Sport 2.0T FWD	Santa Fe Sport FWD	2.0	FWD	SA6	235/60R18	14,193	32.1	42.6	36.1046	4,000	36.1	14,193
Santa Fe Sport 2.0T AWD	Santa Fe Sport AWD	2.0	AWD	SA6	225/55R18	0	26.8	35.0	29.9585	4,000	29.6	16,380
Santa Fe Sport ULTIMATE 2.0T FWD	Santa Fe Sport ULTIMATE FWD	2.0	FWD	SA6	245/45R19	16,380	26.2	35.2	29.6064	4,000	29.6	16,380
Santa Fe Sport ULTIMATE 2.0T AWD	Santa Fe Sport ULTIMATE AWD	2.0	AWD	SA6	235/65R17	73,411	26.9	38.8	31.2071	4,000	31.2	73,411
G80 3.3T RWD	G80 RWD	3.3	RWD	SA8	245/40R19(F)	43,089	24.7	36.6	28.9333	4,000	28.9	43,089
G80 3.8 AWD	G80 AWD	3.8	AWD	SA8	275/35R19(R)	3,192	25.6	39.7	30.4698	4,000	30.5	3,192
G80 3.8 RWD	G80 RWD	3.8	RWD	SA8	245/45R18	1,596	24.5	36.5	28.7540	4,000	28.8	1,596
G80 5.0 RWD	G80 RWD	5.0	RWD	SA8	245/45R18	20,746	25.4	37.9	29.8268	4,000	29.8	20,746
G80 3.3T AWD	G80 AWD	3.3	AWD	SA8	245/40R19(F)	17,555	23.7	34.4	27.5572	4,500	27.6	17,555
G80 5.0 AWD	G80 AWD	5.0	AWD	SA8	275/35R19(R)	1,831	21.7	35.5	26.3008	4,500	26.3	1,831
G90 3.3T AWD	G90 AWD	3.3	AWD	SA8	245/45R19(F)	8,606	21.9	34.5	26.2071	4,500	26.2	8,606
G90 3.3T RWD	G90 RWD	3.3	RWD	SA8	245/45R18	6,043	23.5	37.6	28.2707	4,500	28.3	6,043
G90 5.0 AWD	G90 AWD	5.0	AWD	SA8	245/40R19(F)	732	19.7	34.1	24.3219	4,500	24.3	732
G90 5.0 RWD	G90 RWD	5.0	RWD	SA8	275/35R19(R)	733	21.3	34.0	25.6037	5,000	25.6	733
G90 5.0 AWD	G90 AWD	5.0	AWD	SA8	245/40R19(F)	366	18.7	31.7	22.9319	5,000	22.9	366
G90 3.3T AWD	G90 AWD	3.3	AWD	SA8	275/35R19(R)	665	21.5	34.0	25.7621	5,000	25.8	665
G90 3.3T RWD	G90 RWD	3.3	RWD	SA8	245/45R19(F)	1,234	21.5	33.4	25.6053	5,000	25.6	1,234
G90 5.0 AWD	G90 AWD	5.0	AWD	SA8	275/40R19(R)	166	19.2	32.1	23.4387	5,000	23.4	166
G90 5.0 RWD	G90 RWD	5.0	RWD	SA8	245/45R19(F)	308	19.5	33.3	23.9701	5,000	24.0	308

1) There is no data for 18MY Sonata Plug-in Hybrid, since it's still under certification process. Therefore, HMC uses 17MY Sonata Plug-in Hybrid data for this report.

Average	37.4
ROUNDED Avg. comb.	37.0470
Multiplied Factor	1.006875855
'a'	1.4543
C' FACTOR	0.0014
IW (Added Factor)	0.108272721
SF3IWC	0.3076
FE3IWC	42.6842
SF4ETW	0.1233
FE4IWC	31.6906

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

V. Off-cycle Credits

BUSINESS INFORMATION

Table with columns: Model Type Description, Carline, Basic Engine (disp), Drive, TM class (Drive, type, year), Base Tire, Description, Projected sales, Off-cycle benefit per vehicle gpm, Off-cycle credits megagrams, VLM. Includes summary rows for OCCredit (240,596), Car volume (813,885), and FCVoc (Gal/mi) (0.000170356).

FCVoc (gal/mi) = (OCCredit x 1,000,000) / (VLM x Production x 8887)

VI. Projected Average Fuel Economy Adjustment

Average MPG	38.2
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P4	MPG	37.4
P6	FCIV _{AC} (Gal/mi)	0.000397136
P7	FCIV _{OC} (Gal/mi)	0.000170356
N/A	FCIV _{PU} (Gal/mi)	0

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