

**PRE-CAFE REPORT
FOR
2020 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 * : These sections contain [REDACTED] information

I. Introduction

As required by 49 CFR Part 537.9, estimated fuel economy values for Palisade AWD, Palisade FWD 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 2020 exhaust emission standards as defined 40 CFR §86.

II. Projected Average and Required Fuel Economy

1. Projected Average Fuel Economy

- LT : **28.2** MPG (without A/C efficiency & off-cycle credits)

- LT : **29.2** MPG (with A/C efficiency & off-cycle credits)

2. Projected Required Fuel Economy

- LT : **31.3** 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 2020 model year for the purpose of the Act.

II. Projected Average and Required Fuel Economy

- Projected Required Fuel Economy



Projected Required	31.3
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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
LX2 3.8 AWD AT	Palisade AWD	3.8	AWD	SA8	245/50R20	26,483	67.2	67.6	67.4	114.2	53.5	31.26	4,750	4,500
LX2 3.8 AWD AT	Palisade AWD	3.8	AWD	SA8	245/60R18	5,813	67.2	67.6	67.4	114.2	53.5	31.26	4,750	4,500
LX2 3.8 FWD AT	Palisade FWD	3.8	FWD	SA8	245/50R20	24,546	67.2	67.6	67.4	114.2	53.5	31.26	4,750	4,500
LX2 3.8 FWD AT	Palisade FWD	3.8	FWD	SA8	245/60R18	7,751	67.2	67.6	67.4	114.2	53.5	31.26	4,500	4,500

Projected Required	31.3
Total Sales Volume	64,592

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

II. Projected Average and Required Fuel Economy

- Projected average Fuel Economy

Projected Average	28.2
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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
LX2 3.8 AWD AT	Palisade AWD	3.8	AWD	SA8	245/50R20	26,483	24.0	34.3	27.7499	4,500	27.7	32,296
	Palisade AWD	3.8	AWD	SA8	245/60R18	6,813	24.0	34.3	27.7499	4,500		
LX2 3.8 FWD AT	Palisade FWD	3.8	FWD	SA8	245/50R20	24,545	24.1	37.3	28.6649	4,500	28.8	32,296
	Palisade FWD	3.8	FWD	SA8	245/60R18	7,751	24.9	37.9	29.4449	4,500		

Average	28.2
Total Sales Volume	64,592



IV. A/C Efficiency Credits



Model Type Description	Carline	Basic Engine (displ)	Drive	T/M class (Drive, type, gear)	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 Condensor and/or Evaporator (requires EPA approval)	Oil Separator (requires EPA approval)	Total Menu based Credits	A/C Efficiency Credit	VLM
								gpm	gpm	gpm	gpm	gpm	gpm	gpm	gpm	gpm	gpm	
LX238 AWD A	Pal sade AWD	3.8	AWD	SAS	R13 a	Belt-Driven	26,83	2.2	0.0	0.0	0.0	1.1	1.	0.0	0.7	5.	32,351	225,865
	Pal sade AWD	3.8	AWD	SAS	R13 a	Belt-Driven	5,813	2.2	0.0	0.0	0.0	1.1	1.	0.0	0.7	5.	7,050	225,865
LX238 FWD A	Pal sade FWD	3.8	FWD	SAS	R13 a	Belt-Driven	2,55	2.2	0.0	0.0	0.0	1.1	1.	0.0	0.7	5.	29,937	225,865
	Pal sade FWD	3.8	FWD	SAS	R13 a	Belt-Driven	7,751	2.2	0.0	0.0	0.0	1.1	1.	0.0	0.7	5.	9,5	225,865

ACCredit	78,782	VLM	225,865
LT Volume	64,522		
FCV _{acc} (Gal/ml)	0.000607637		

$$FCV_{acc} \text{ (gal/ml)} = \frac{(ACCredit \times 1,000,000)}{(VLM \times Production \times 8867)}$$

V. Off-cycle Credits



Model Type Description	Carline	Basic Engine (disp)	Drive	T/M class (Drive, type, gear)	Description	Projected sales	Off cycle benefit per vehicle		VLM
							gpm	megagrams	
LX2 3.8 AWD AT	Palisade AWD	3.8	AWD	SA8	ATF Warmer 3.2, Glazing 1.7	12,625	4.9	13,973	225,865
	Palisade AWD	3.8	AWD	SA8	ATF Warmer 3.2, Glazing 1.4, Active seat ventilation 1.3	5,652	5.9	7,532	225,865
	Palisade AWD	3.8	AWD	SA8	ATF Warmer 3.2, Glazing 1.4, Active seat ventilation 1.3, Lamp 0.06	8,206	6.0	11,121	225,865
	Palisade AWD	3.8	AWD	SA8	ATF Warmer 3.2, Glazing 1.7	2,771	4.9	3,067	225,865
	Palisade AWD	3.8	AWD	SA8	ATF Warmer 3.2, Glazing 1.4, Active seat ventilation 1.3	1,241	5.9	1,854	225,865
	Palisade AWD	3.8	AWD	SA8	ATF Warmer 3.2, Glazing 1.4, Active seat ventilation 1.3, Lamp 0.06	1,801	6.0	2,441	225,865
LX2 3.8 FWD AT	Palisade FWD	3.8	FWD	SA8	ATF Warmer 3.2, Glazing 1.7	11,701	4.9	12,950	225,865
	Palisade FWD	3.8	FWD	SA8	ATF Warmer 3.2, Glazing 1.4, Active seat ventilation 1.3	5,238	5.9	6,980	225,865
	Palisade FWD	3.8	FWD	SA8	ATF Warmer 3.2, Glazing 1.4, Active seat ventilation 1.3, Lamp 0.06	7,606	6.0	10,308	225,865
	Palisade FWD	3.8	FWD	SA8	ATF Warmer 3.2, Glazing 1.7	3,695	4.9	4,089	225,865
	Palisade FWD	3.8	FWD	SA8	ATF Warmer 3.2, Glazing 1.4, Active seat ventilation 1.3	1,654	5.9	2,204	225,865
	Palisade FWD	3.8	FWD	SA8	ATF Warmer 3.2, Glazing 1.4, Active seat ventilation 1.3, Lamp 0.06	2,402	6.0	3,255	225,865

* Credits are estimated based on 2016MY data. Exact credits will be calculated when submitting 2020MY Final Report.
 * Off-cycle technologies under EPA review have not been reflected yet.

OCcredit	79,574
Truck volume	64,592
FCV _{oc} (Gal/mi)	0.000613746

VLM	225,865
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$$FCV_{oc} \text{ (gal/mi)} = \frac{(OCcredit \times 1,000,000)}{(VLM \times Production \times 9867)}$$

IV. Projected Average Fuel Economy Adjustment

1. FCIV_{AC}

AC Efficiency Credit	78,782
CAFE Truck Volume	64,592
FCIV _{AC} (Gal/mi) ²⁾	0.000607637

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

2. FCIV_{OC}

OC Credit ¹⁾	79,574
CAFE Truck Volume	64,592
FCIV _{OC} (Gal/mi) ²⁾	0.000613746

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

3. FCIV_{PU}

PU Credit	0
CAFE Truck Volume	64,592
FCIV _{PU} (Gal/mi) ²⁾	0.000000000

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

4. Average MPG

Average MPG	29.2
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P4	MPG	28.2	
P6	FCIV _{AC} (Gal/mi)	0.000607637	
P6	FCIV _{OC} (Gal/mi)	0.000613746	
P6	FCIV _{PU} (Gal/mi)	0.000000000	

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

VLM	225,865
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1) Credits are estimated based on 2018MY data. Exact credits will be calculated when submitting 2020MY Final Report.

2) Not rounded, only shown in 9 decimal places.