الهيئة السعودية للمواصفات و المقاييس و الجودة

Saudi Standards, Metrology and Quality Org(SASO)

DRAFT: FINAL

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FUEL ECONOMY LABELING REQUIREMENTS FOR NEW LIGHT DUTY VEHICLES

ICS : 43.060.40

FUEL ECONOMY LABELING REQUIREMENTS FOR INCOMING LIGHT DUTY VEHICLES

AMENDMENT (1)

Page 3, 1- SCOPE AND FIELD OF APPLICATION

Amend to read:

This technical regulation is concerned with the fuel economy labeling requirements of all new incoming light duty vehicles (including Battery Electric Vehicle (BEV) and Plug-in Battery Electric Vehicle (PHEV)).

Page 3, 2- DEFINITIONS

Insert a new items 2.9, 2.10, 2.11 and 2.12 to read:

2.9 Electric Vehicle (EV)
An electric vehicle, also called an electric drive vehicle, uses one or more electric motors or traction motors for propulsion. EVs can be Battery Electric Vehicles (BEV) or Plug-in Hybrid Electric Vehicles (PHEV).

2.10 Battery Electric Vehicle (BEV)
A battery electric vehicle (BEV), battery-only electric vehicle, full electric vehicle, or all-electric vehicle is a type of electric vehicle (EV) that uses chemical energy stored in rechargeable battery packs. BEVs use electric motors and motor controllers instead of internal combustion engines (ICEs) for propulsion.

2.11 Plug-in Battery Electric Vehicle (PHEV)
A plug-in hybrid electric vehicle (PHEV) is a hybrid electric vehicle that is equipped with an internal combustion engine along with an electric motor that can be recharged by plugging it in to an external source of electric power as well by its on-board engine and generator.

2.12 Fuel Economy Equivalency (FEe)
Fuel Economy Equivalency (FEe) is a measure of the average distance traveled per liter of gasoline equivalent. FEe is used to compare energy consumption EVs with the energy consumption of conventional ICE rated in kilometer per liter.

Note: to calculate Fuel Economy Equivalency (FEe) refer to annex (1)

Page 9, 5- LABEL DESIGN AND APPEARANCE

Amend to read:

5.4. The fields (A), (B), (C), (D), (E), (F), (G), (H), (I), (J), (K) and (L) of figures 4 ,5 and 7 shall comply with the following requirements (field L for BEV, PHEV only) :

5.4.3 Field (C): Shall include the vehicle engine size in liters or battery capacity in kWh for BEV or both engine size in L and battery capacity in kWh for PHEV.

5.4.8 Field (H): Shall contain a black pentagon pointing at the fuel economy bracket that corresponds to the vehicle's declared fuel economy (or fuel economy equivalency FEe for BEV, PHEV) on the MTA. The black pentagon shall include the fuel economy value declared on the MTA to one decimal point (e.g. 18.3).

5.4.10 Field (J): Shall include the vehicle's type of fuel; i.e. (Gasoline 91, Gasoline 95, Diesel, etc.) or the electric vehicle's type; i.e. (BEV, PHEV).

Insert a new items 5.4.12 to read:

5.4.12 Field (L): Shall include the vehicle's electric motor power consumption and if applicable, the ICE fuel economy (for BEV, PHEV only)

Insert new figures (5), (6), (7) and (8):

Figure (5): Clarification of Information Fields for the BEV Fuel Economy Label

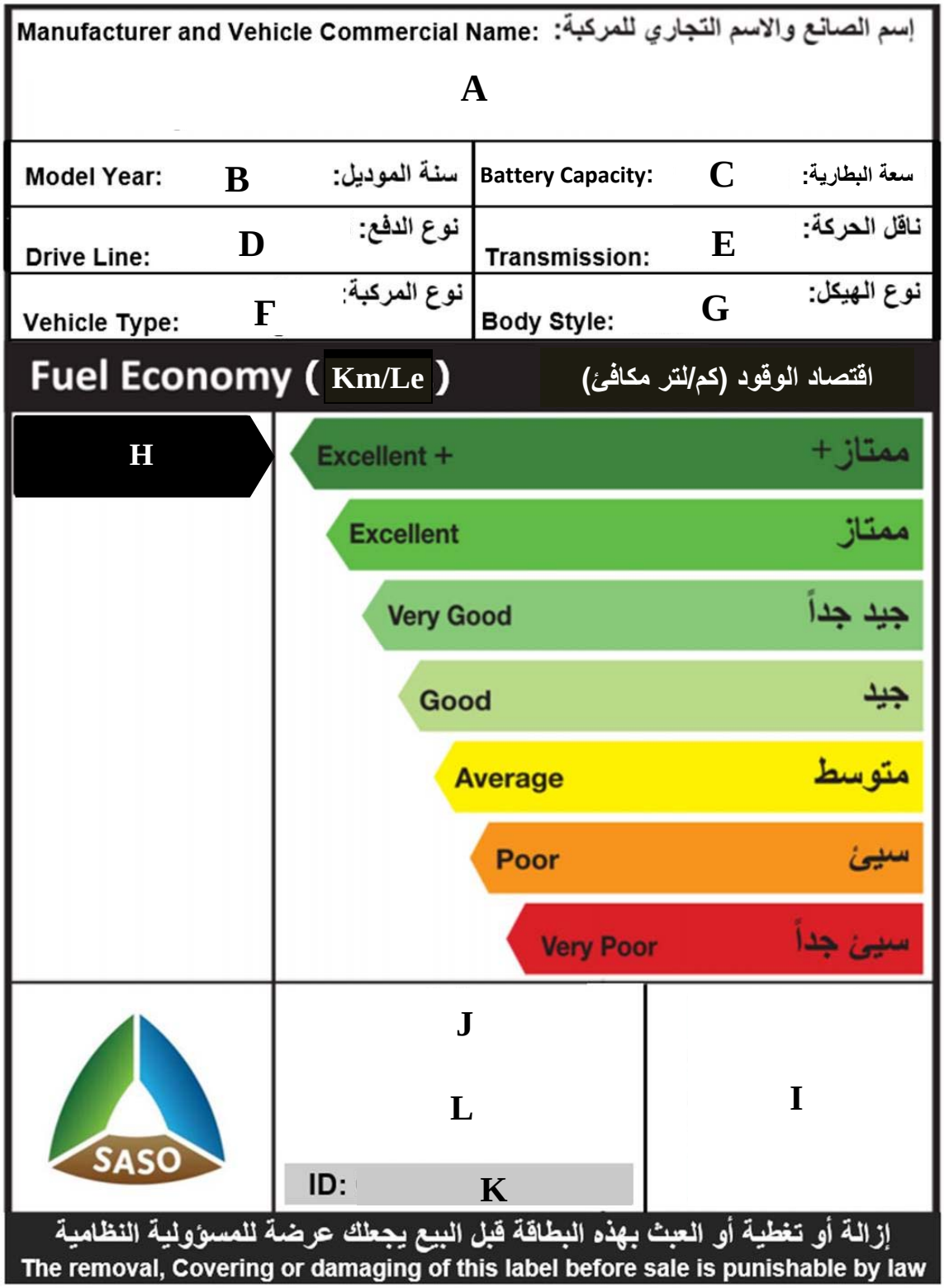


Figure (6): Example of BEV Fuel Economy Label

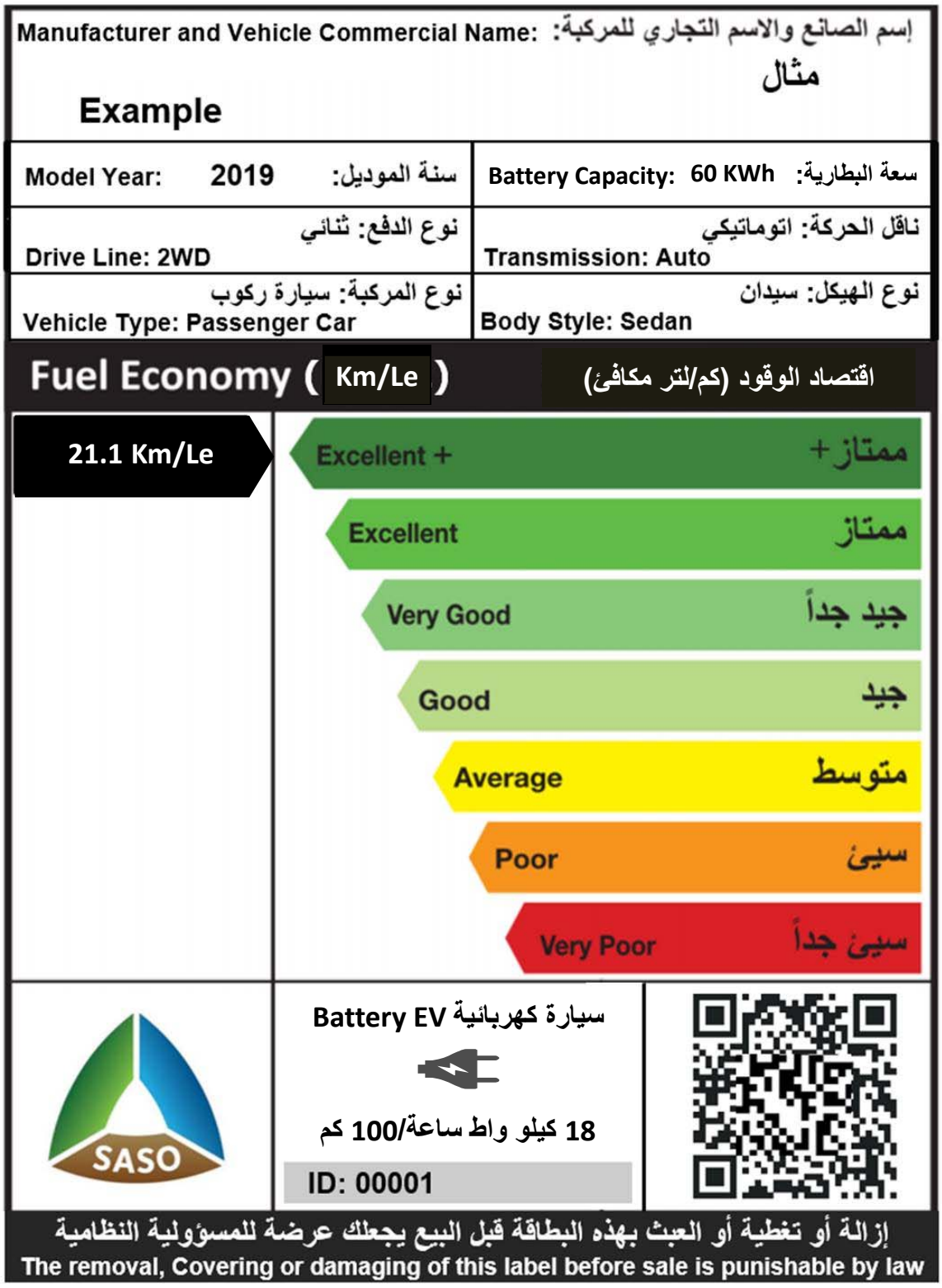


Figure (7): Clarification of Information Fields for the PHEV Fuel Economy Label

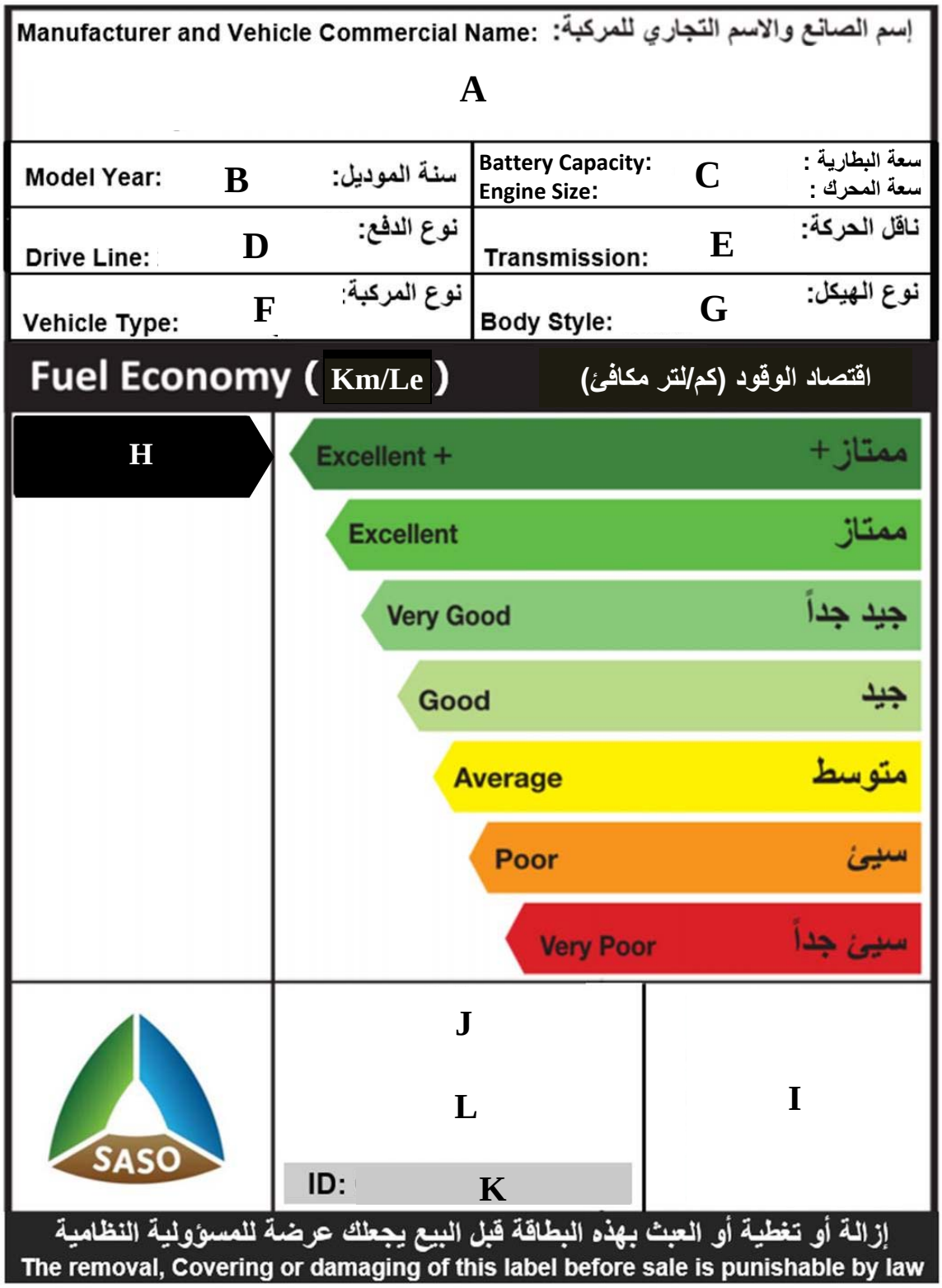
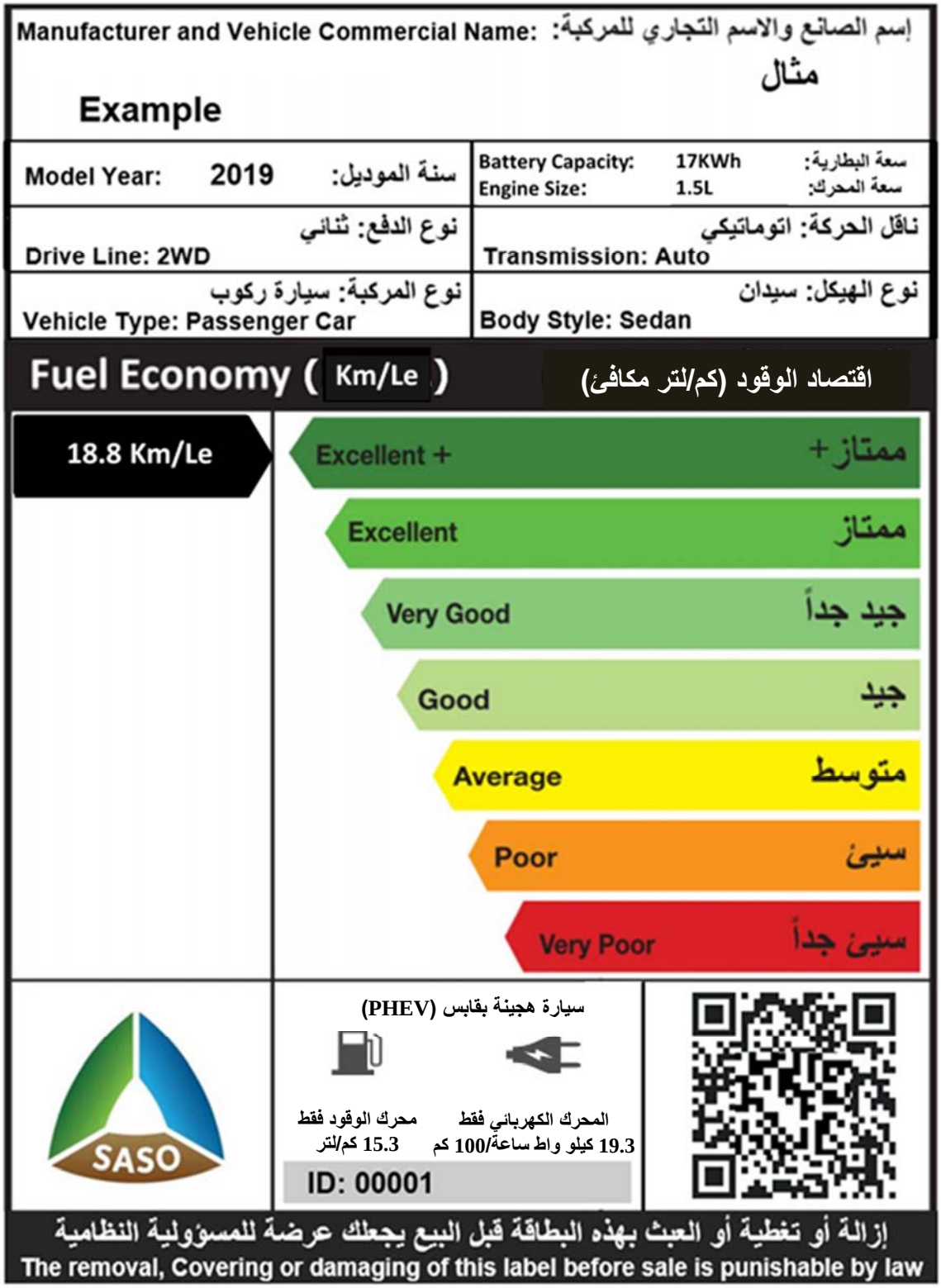


Figure (8): Example of PHEV Fuel Economy Label



Insert a new Annex (1) to read:

Annex (1)
Calculation of Fuel Economy Equivalency (FEe)

A.1 Battery Electric Vehicle (BEV)

$$(\mathbf{FEe})_{\mathbf{EV}} = \frac{\mathbf{2348}}{\mathbf{GHG_{Elec.}} - \mathbf{GHG_{Upstr.}}}$$

$GHG_{Elec.}$: is the carbon-related exhaust emission equivalent from EVs as a result of electricity generation and transmission.

$GHG_{Upstr.}$: is the carbon-related exhaust emission value from upstream gasoline refining intended for consumption by a target internal combustion engine.

$$\mathbf{GHG_{Elec.}} = \frac{\mathbf{EC}}{\mathbf{GRIDLOSS}} * \mathbf{AVGSUP}$$

$$\mathbf{GHG_{Upstr.}} = \frac{\mathbf{279}}{\mathbf{Target\ FE}}$$

EC: is the vehicle energy consumption in kilowatt-hours per kilometer**.**
GRIDLOSS: accounts for grid transmission losses and is equal to 0.93.
AVGSUP: is the nationwide average electricity greenhouse gas emission rate at the power. plant, in grams per kilowatt-hour and is equal to 588.
279: is the estimated grams of upstream greenhouse gas emissions per liter of gasoline.
2348: is the estimated content of greenhouse gas emissions per liters of gasoline in grams of CO_2**.**
Target FE: is the fuel economy target value, of an internal combustion engine vehicle with a similar footprint to the required EV, as per Section 4 in the standard SASO 2864.

A.2 Plug-in Battery Electric Vehicle (PHEV)

$$(\mathbf{FEe})_{\mathbf{PHEV}} = \mathbf{0.5} * \mathbf{FE} + \mathbf{0.5} * (\mathbf{FEe})_{\mathbf{EV}}$$

FE: is the fuel economy of the internal combustion engine part of the PHEV and is calculated as per SASO 2864 Section 4.
0.5: is the coefficient determining the daily distance covered by each type of fuel source (i.e. gasoline fuel source vs battery fuel source).