



ENVIRONMENTAL LEADERSHIP PROGRAM

# Greenhouse Gas Calculation Methodology

Honda's goal is to be carbon neutral by 2050. As part of its annual greenhouse gas (GHG) reporting process, Honda tracks Scope 3 emissions resulting from purchased electricity and on-site natural gas consumption at independently owned and operated dealerships enrolled in the Honda and Acura Environmental Leadership Programs ("Green Dealer Program"). As of June 2021, over 630 Honda, Acura, Powersports and Power Equipment dealerships have enrolled in the program.

## **FY2020 GREENHOUSE GAS ASSERTION**

In FY2020, Honda reduced absolute Scope 3 emissions from dealership operations in the United States by 6,270 metric tons of CO<sub>2</sub>e compared to the FY2018 baseline.

Enrollment is subject to approval by American Honda Motor Co., Inc. ("AHM").

## **GREENHOUSE GAS REPORTING PROTOCOL**

Honda compiles its GHG emissions inventory in accordance with industry standards including the "[The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard \(Revised Edition\)](#)" developed by the World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD) Greenhouse Gas Protocol. Honda periodically adjusts its GHG emission calculation methodology to align with changing GHG reporting protocols and to improve the accuracy of data estimation procedures.

## **REPORTING BOUNDARY**

Each fiscal year, Honda tracks emissions resulting from dealership operations in the United States and Canada as Scope 3 emissions because Honda does not directly own or operate these dealerships.

## **DATA SOURCES**

Honda tracks emissions from purchased electricity and natural gas for enrolled dealerships using the following methods:

### » **METERED DATA**

Honda's automated utility tracking program collects monthly electricity and natural gas bill data for dealerships enrolled in the Honda and Acura Environmental Leadership Programs. Honda collects utility data for all meters serving the primary dealership including the showroom, sales and service building(s), service center, and car wash buildings. Honda stores utility bill data in ENERGY STAR® Portfolio Manager®.

### » **ESTIMATED DATA**

Where utility bills are not available or are incomplete, Honda estimates monthly electricity and natural gas consumption as described in the GHG Calculation Methodologies section.

## **GHG CALCULATION METHODOLOGIES**

Honda calculates GHG emissions by multiplying dealership site energy consumption values by the emission factors described in the Emission Factors section below. Honda computes GHG emissions savings by taking the difference between emissions from the current year and the FY2018 baseline.

Honda periodically makes adjustments to its GHG calculation methodology, which impact Scope 3 emission totals. The following summarizes the GHG reporting methodologies used through the evolution of the program.



Honda currently uses the following GHG reporting methodology:

**CURRENT METHODOLOGY**

Baseline Period	Performance Period
Honda uses a fixed FY2018 (April 2018 – March 2019) baseline period for all dealerships. This baseline aligns with Honda’s goal to be carbon neutral by 2050.	Honda uses its current fiscal year for the performance period.

**Assumptions**

- » Honda uses raw energy consumption data to calculate GHG emissions.
- » Honda measures GHG emissions in metric tons of CO<sub>2</sub>e.
- » Honda reports GHG emission savings from all enrolled dealerships providing energy data to the Green Dealer Program.
- » Honda’s calculations for weather-normalized energy use estimates are consistent with ENERGY STAR® Portfolio Manager® [Technical Reference: Climate and Weather](#).
- » Honda uses location-based emission factors from EPA’s Emissions and Generation Resource Integrated Database (eGRID).
- » Honda calculates annual CO<sub>2</sub>e emissions using the most recently published emission factors at the time of the baseline and performance period dates.
- » Honda uses the emission factors that apply to the majority of the period when a baseline or performance period is spread across two years.
- » Honda accounts for acquisitions and divestments as recommended by the [GHG Protocol Corporate Accounting and Reporting Standard](#). If an acquired dealership was built prior to the base year, the dealership’s emissions are added to each year’s total emissions. If an acquired dealership was built after the base year, their emissions are counted the year the dealership was built, and the previous year’s emissions do not change. When a dealership is sold, their emissions are removed from each year’s total emissions.
- » Dealerships built after the base year are treated as acquired dealership’s that were built after the base year. This results in an increase in emissions.

**Estimations**

For existing facilities with partial-year or incomplete energy data for a specific year, Honda estimates annual energy use based on the following year’s usage.

**Emission Factors**

When new emission factors are available, Honda applies these updates at the beginning of the subsequent fiscal year.

**ELECTRICITY**

Honda uses eGRID emission factors consistent with ENERGY STAR Portfolio Manager [Technical Reference: Greenhouse Gas Emissions](#).

**WATER**

Honda does not currently track GHG emissions from dealership water consumption due to limited data. Honda anticipates tracking these emissions in the future when data become more readily available.

**NATURAL GAS**

Honda uses natural gas emission factors from EPA Final Rule for Mandatory Reporting of Greenhouse Gases, consistent with ENERGY STAR Portfolio Manager [Technical Reference: Greenhouse Gas Emissions](#).

**Global Warming Potentials (GWP)**

Honda uses global warming potential (GWP) values for carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O) to calculate CO<sub>2</sub>e emissions for U.S. dealerships, consistent with ENERGY STAR Portfolio Manager [Technical Reference: Greenhouse Gas Emissions](#).



## Appendix: Past GHG Reporting Methodologies

In FY2019 & FY2020, Honda used the following GHG reporting methodologies:

### FY2019 & FY2020 METHODOLOGY

Baseline Period	Performance Period
<p><b>For existing facilities</b>, Honda defines the dealership baseline as the highest consecutive 12-month period of weather-normalized energy use prior to the most recent year of data. In cases where complete data are not available, the methodology described in the Estimations section below applies.</p> <p><b>For all new construction or major renovations, with or without 12 months of energy data</b>, Honda calculates a baseline by multiplying dealership square footage by the average weather-normalized energy use intensity of all non-awarded dealerships with at least 12 months of energy data. This average is calculated at the beginning of the fiscal year from monthly energy data from all non-awarded dealerships enrolled in the program during the previous fiscal year.</p>	<p><b>For all facilities with 12 months of energy data</b>, Honda characterizes the performance period by the most recent 12 months of weather-normalized energy use.</p> <p><b>For all new construction or major renovations without 12 months of energy data</b>, Honda estimates annual energy use based on a 10%, 30%, or 50% reduction (corresponding to a Silver, Gold or Platinum award level, respectively) from the average weather-normalized energy use intensity of all non-awarded dealerships enrolled in the program. This reduction represents the energy savings from efficiency measures implemented during the design phase.</p> <p>To apply the appropriate emission factors to calculate annual GHG emissions, Honda assumes that roughly 65% of annual estimated energy use is electricity and 35% is natural gas. This fuel mix is based on the average ratio from all awarded dealerships.</p>
<p><b>Assumptions</b></p>	
<p>Same as Current Methodology.</p>	



## Appendix: Past GHG Reporting Methodologies (cont'd)

### FY2019 & FY2020 METHODOLOGY

#### Estimations

For existing facilities with partial-year or incomplete energy data for the baseline period, Honda estimates monthly energy use using second-order polynomial regressions of electricity and natural gas use as a function of average monthly dry bulb temperature as reported by the Department of Energy (DOE) and National Oceanic and Atmospheric Administration (NOAA).

##### STEP 1:

Plot monthly consumption and temperature data.

##### STEP 2:

Derive 2<sup>nd</sup> order polynomial regression fit using actual consumption and temperature data.

Month	Consumption (MMbtu)	Temperature (F)
January	290	38
February	286	40
March	289	58
April	298	62
May	333	71
June	399	77
July	429	86
August	365	78
September	312	70
October	300	57
November	268	49
December	293	38

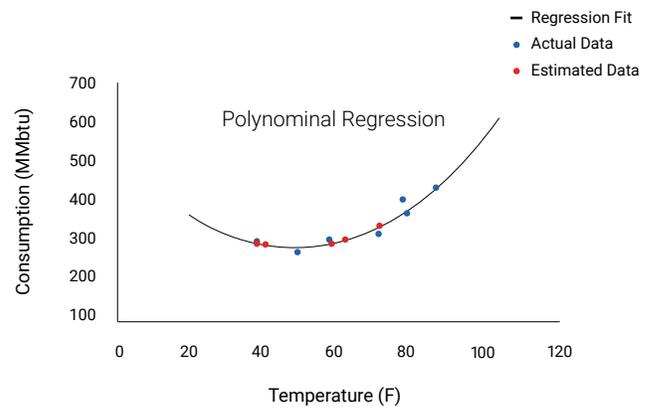
##### STEP 3:

Calculate estimated consumption data by plugging in actual temperature data (x) into regression equation ( $ax^2+bx+c$ ).

##### $ax^2 + bx + c = \text{estimated monthly consumption}$

Where (x) = temperature

a, b, and c are coefficients derived from regression analysis



#### Emission Factors

Same as Current Methodology.

#### Global Warming Potentials (GWP)

Same as Current Methodology.



## Appendix: Past GHG Reporting Methodologies (cont'd)

In FY2018, Honda used the following GHG reporting methodologies:

### FY2018 METHODOLOGY

Baseline Period	Performance Period
Same as FY2019 & FY2020 Methodology.	Same as FY2019 & FY2020 Methodology.
<b>Assumptions</b>	
<ul style="list-style-type: none"> <li>» Honda used the most recent eGRID emission factors available in FY2018 to calculate GHG emissions for baseline and performance period data.</li> <li>» All other assumptions are the same as FY2019 &amp; FY2020 methodology.</li> </ul>	
<b>Estimations</b>	
Same as FY2019 & FY2020 Methodology.	
<b>Emission Factors</b>	
<p><b>ELECTRICITY</b> Same as Current Methodology.</p>	
<p><b>NATURAL GAS</b> Same as Current Methodology.</p>	
<p><b>WATER</b> Same as Current Methodology.</p>	
<b>Global Warming Potentials (GWP)</b>	
Same as Current Methodology.	



## Appendix: Past GHG Reporting Methodologies (cont'd)

In FY2017, Honda used the following GHG reporting methodologies:

### FY2017 METHODOLOGY

Baseline Period	Performance Period
<p><b>For new construction or major renovations without 12 months of energy data,</b> Honda calculated a baseline by multiplying dealership square footage by the average weather-normalized energy use intensity of all non-awarded dealerships. This average was recalculated monthly to account for newly enrolled and unawarded dealerships added during each fiscal year.</p>	<p>Same as FY2019 &amp; FY2020 Methodology.</p>
<p><b>Assumptions</b></p>	
<p>Same as FY2019 &amp; FY2020 Methodology.</p>	
<p><b>Estimations</b></p>	
<p>Same as FY2019 &amp; FY2020 Methodology.</p>	
<p><b>Emission Factors</b></p>	
<p><b>ELECTRICITY</b> Same as Current Methodology.</p>	
<p><b>NATURAL GAS</b> Same as Current Methodology.</p>	
<p><b>WATER</b> Same as Current Methodology.</p>	
<p><b>Global Warming Potentials (GWP)</b></p>	
<p>Same as Current Methodology.</p>	



## Appendix: Past GHG Reporting Methodologies (cont'd)

Prior to FY2017, Honda used the following GHG reporting methodology:

### PRIOR TO FY2017 METHODOLOGY

Baseline Period	Performance Period
<p><b>For new construction or major renovations with 12 months of energy data</b>, Honda calculated a baseline by increasing the dealership's performance period energy use by 10%, 30%, or 50% (corresponding to a Silver, Gold or Platinum award level, respectively) to represent energy savings from efficiency measures implemented during the design phase.</p> <p><b>For new construction or major renovations without 12 months of energy data</b>, Honda calculated a baseline by multiplying dealership square footage by the average weather-normalized energy use intensity of all non-awarded dealerships. This average was recalculated at least once per year.</p>	<p>Same as FY2019 &amp; FY2020 Methodology.</p>
<p><b>Assumptions</b></p>	
<ul style="list-style-type: none"> <li>» Honda reported GHG emission savings only from awarded dealerships.</li> <li>» All other assumptions are the same as FY2018 Methodology.</li> </ul>	
<p><b>Estimations</b></p>	
<p>Same as FY2019 &amp; FY2020 Methodology.</p>	
<p><b>Emission Factors</b></p>	
<p><b>ELECTRICITY</b> Honda used emission factors from eGRID 2012.</p>	
<p><b>NATURAL GAS</b> Honda used the Energy Information Administration (EIA) 2014 emission factor for natural gas.</p>	
<p><b>WATER</b> Same as Current Methodology.</p>	
<p><b>Global Warming Potentials (GWP)</b></p>	
<p>Same as Current Methodology.</p>	