

Honda and Acura

Environmental Leadership Programs



GREEN DEALER GREENHOUSE GAS CALCULATION SUMMARY

Honda's 2050 target is to reduce total CO₂e (carbon dioxide equivalent) emissions from products and operations by 50% from 2000 levels. 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. As of March 31, 2017, over 600 Honda, Acura, Powersports and Power Equipment dealerships enrolled in the program.

FY2016 GREENHOUSE GAS ASSERTION

In FY2016, Honda reduced absolute emissions from dealership operations in the United States by 16,000 metric tons of CO₂e.

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

Honda does not own or directly operate dealerships located in the United States; therefore, all emissions resulting from dealership operations in the United States are Scope 3 emissions for American Honda Motor Co., Inc.

DATA SOURCES

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

1. 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, body shop, and car wash buildings. Honda stores utility bill data in ENERGY STAR® Portfolio Manager.®

2. 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.

GHG CALCULATION METHODOLOGIES

Honda calculates GHG emissions by multiplying dealership site energy consumption values by the emissions factors described in the Emission Factors section below. Honda computes GHG emissions savings by taking the difference between emissions from a dealership's current performance period and an established baseline period.

At the beginning of fiscal year 2017 (FY2017), Honda made minor adjustments to its GHG calculation methodology, which impacted Scope 3 emission totals. The following summarizes the GHG reporting methodologies used before and after the start of FY2017.

Honda and Acura

Environmental Leadership Programs



Honda used the following GHG reporting methodology prior to FY2017:

Prior to FY2017	
Baseline Period	Current Performance Period
<p>Existing facilities – Starting from the most recent change in building footprint, facility design, or ownership, Honda defines the dealership baseline using the highest consecutive 12-month period of weather-normalized energy usage. In cases where complete data are not available, the methodology described in the “Estimations” section below applies.</p> <p>For new construction or major renovations with 12 months of energy data, Honda calculates a baseline by increasing the dealership’s performance period energy usage 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>For new construction or major renovations without 12 months of energy data, Honda calculates a baseline by multiplying dealership square footage by the current average weather-normalized energy use intensity of all non-awarded dealerships with at least 12 months of energy data.</p>	<p>For all facilities with 12 months of energy data, Honda characterizes the current performance period by the most recent 12 months of weather-normalized energy usage. This period represents the current demonstrated energy usage profile of electricity and natural gas consumption as a function of average monthly dry bulb temperature, and may also incorporate monthly energy use estimates per the “Estimations” section below.</p> <p>For all facilities without 12 months of energy data, 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 representative of the energy use from all awarded dealerships nationwide.</p>
Metrics	
<ul style="list-style-type: none"> » Honda measures GHG emissions in metric tons of CO₂e. » Honda only reports GHG emission savings from awarded dealerships in the Honda and Acura Environmental Leadership Programs. » All baseline and performance period energy use estimates are weather-normalized using methodology consistent with ENERGY STAR® Portfolio Manager® Technical Reference: Climate and Weather. 	

Honda and Acura

Environmental Leadership Programs



Prior to FY2017 continued

Estimations

For existing facilities with partial-year or incomplete energy data for the baseline or current performance period, Honda estimates monthly energy usage 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). Example below.

STEP 1:

Plot monthly consumption and temperature data

STEP 2:

Derive 2nd order polynomial regression fit using actual consumption and temperature data

STEP 3:

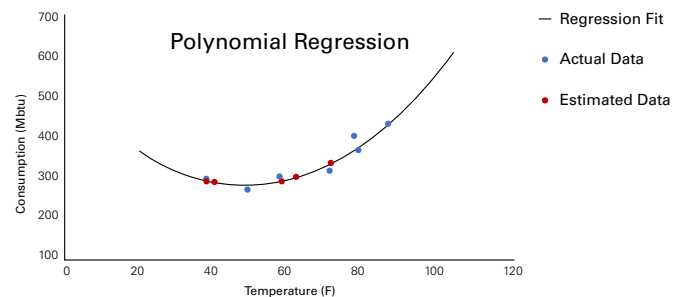
Calculate estimated consumption data by plugging in actual temperature data (x) into regression equation (ax^2+bx+c)

Month	Consumption (Mbtu)	Temperature (F)
Jan	290	38.1
Feb	286	40.1
Mar	289	58.3
Apr	298	62.1
May	333	71.1
Jun	399	77.5
Jul	429	86.7
Aug	365	78.6
Sep	312	70.9
Oct	300	57.6
Nov	268	49.1
Dec	293	38.1

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

Where (x) = temperature

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



Emission Factors

1. ELECTRICITY

Honda sources location-based emission factors from the EPA's Emissions and Generation Resource Integrated Database (eGRID). Prior to FY2017, Honda used eGRID 2012.

2. NATURAL GAS

Prior to FY2017, Honda used the Energy Information Administration (EIA) 2014 emission factor for natural gas (53.02 kg CO₂/Mbtu).

3. WATER

Due to limited data availability, the Honda and Acura Environmental Leadership Programs do not currently track GHG emissions from dealership water consumption. Honda anticipates tracking these emissions in the future when data become more readily available.

Global Warming Potentials (GWP)

The Honda Environmental Leadership Program uses global warming potential (GWP) values for carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O) to derive a CO₂e value for U.S. dealership emissions, consistent with ENERGY STAR Portfolio Manager [Technical Reference: Greenhouse Gas Emissions](#).

Honda and Acura

Environmental Leadership Programs



Honda made the following changes to its GHG reporting methodology in FY2017.

All other calculation methodologies not listed in this section are the same as those used prior to FY2017.

Changes Beginning in FY2017	
<p>Baseline Period</p> <p>For all new construction or major renovations, with or without 12 months of energy data, Honda calculates a baseline by multiplying dealership square footage by the current average weather-normalized energy use intensity of all non-awarded dealerships with at least 12 months of energy data.</p>	<p>Current Performance Period</p> <p>No changes from prior year.</p>
<p>Metrics</p> <ul style="list-style-type: none"> » Honda reports GHG emission savings from all enrolled dealerships providing energy data to the Honda and Acura Environmental Leadership Programs. » Honda uses raw energy consumption data to calculate GHG emissions. 	
<p>Estimations</p> <p>No changes from prior year.</p>	
<p>Emission Factors</p> <p>1. ELECTRICITY For FY2017, Honda uses eGRID emission factors consistent with ENERGY STAR® Portfolio Manager® Technical Reference: Greenhouse Gas Emissions.</p> <p>2. NATURAL GAS In FY2017, 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.</p> <p>3. WATER No changes from prior year.</p>	
<p>Global Warming Potentials (GWP)</p> <p>No changes from prior year.</p>	