Honda Greenhouse Gas (GHG) Common Calculation Standard for N.A. Suppliers (Product Lifecycle Viewpoint Version)

April 15, 2014

Issue: Honda North America, Inc. North American Purchasing Supply Chain Sustainability Unit
Honda North America suppliers will use this calculation standard to gather their greenhouse gas (GHG) emissions for their corporate activities and report to Honda Purchasing.

<Purpose of preparing and sharing this document>
Goal is to share GHG emissions data in a transparent manner between suppliers and Honda, utilizing optimum man-hours to obtain the data.

<Reference documents>
WRI: GHG Product Life Cycle Accounting and Reporting Standard

<Note>
Use the contents of the Standard to convey and disclose information to Honda only.
Viewpoint for Obtaining GHG Emissions Data

- Greenhouse gases (GHG) covered by this standard are the following 6 gases:
  - CO2 (Carbon dioxide), CH4 (Methane), N2O (Nitrous oxide), HFC (Hydrofluorocarbon),
  - PFC (Perfluorocarbon), and SF6 (Sulfur hexafluoride)

- The emissions data should be obtained (calculated) from the “product lifecycle viewpoint”.

Obtain data from the product lifecycle viewpoint (for each region)
This standard applies to all suppliers that send product/parts to the following Honda facilities in North America:

- Marysville Auto Plant (HAM)
- East Liberty Plant (HAM)
- Anna Engine Plant (HAM)
- Performance Manufacturing Center (HAM)
- Honda of Canada, Mfg
- Honda Manufacturing of Alabama, LLC
- Honda Manufacturing of Indiana, LLC
- Honda of South Carolina Mfg., Inc.
- Honda de Mexico S.A. de C.V. Guadalajara
- Honda de Mexico S.A. de C.V. Celaya
- Honda Transmission Mfg., Inc.
- Honda Precision Parts of Georgia, LLC
Establishing the Scope of Data Acquisition

Overall product life cycle

Supplier corporate activities

Honda 

Customer

Company’s own area
(each company set target entities incl. group companies globally)

Scope 3

Outsourced parts, components

Targeted Suppliers

Energy purchased (Electricity etc.)

Transportation (Logistics for procurement)

Supply chain area

Scope 2

Development

Purchasing

Administration

Production

Scope 1

Company cars

Business trips

Commuting

Scope 3

Logistics area

Scrapping and recycling

Targeted Suppliers

<a part of cat. 1>

Honda 1st tier supplier viewpoint

Reference: Relevance with WRI GHG protocol

(Honda 1st tier supplier viewpoint)

(It is for reference only, and does not guarantee the identity of the definition of the GHG Protocol)
Identify and calculate GHG emissions referring to the following procedures in coordination with related departments and suppliers.

**Establishing the Scope of Data Acquisition**

**Identifying and Selecting the Data Acquisition Categories**

- **Pattern 1**
  - Acquisition of Activity Data in sources
  - Honda Portion of Each Energy Sources
  - Selection of Emissions Coefficients
  - GHG Calculation \( \text{(Activity Data} \times \text{Coefficient} = \text{GHG}) \)
  - Estimation of Unobtainable Area
  - Divided for Honda business
  - Summary of GHG Emission for Honda

- **Pattern 2**
  - Acquisition of Activity Data in sources
  - Selection of Emissions Coefficients
  - GHG Calculation \( \text{(Activity Data} \times \text{Coefficient} = \text{GHG}) \)
  - Estimation of Unobtainable Area
  - Honda Portion of GHG Emission
  - Divided for Honda business
  - Summary of GHG Emission for Honda

※Refer to page12 as necessary
Items covered

- Regardless of ownership or lease (rental) contract, any company, operation base or facility, etc., managed by your company implies possible involvement by your company in increasing or decreasing their GHG emissions.

Items not covered

- Any facility owned by your company but not directly related to business activities (facility leased to another company, residential facility such as a dormitory for employees, temporary facility such as construction work office, etc.)
- Any operation base, R&D facility, sales office or office building, etc. owned, but not managed, by your company (leased to another party)
- Another company’s facility existing within your company’s plant
- Any gas byproduct due to a chemical reaction in manufacturing processes, etc.
- Energy purchased and fuel consumed for commuting
**Targets for Data Acquisition: Scope 3 Cat.1**

**Items covered**

- Energy purchased and fuel consumed by any supplier of components for your company’s products for Honda, any supplier to which your company outsources manufacturing processes, or any supplier of each second-tier supplier.
- The operation facilities, activities and sources of emissions covered should be similar to those in your company’s own area. At each level of the supply chain, the purchasing or commissioning side should be responsible for requesting and collecting data.

**Items not covered**

- Any supplier of raw materials, indirect materials, equipment, dies or warehouse, etc.
- Procurement and logistics operations of your company and of each second-tier supplier and beyond.
Acquisition of Activity Data

Acquire activity data for the item or target area, according to the following definition and approach.

Activity data \( \times \) Emissions coefficient \( = \) GHG emissions

**Scale of emitting activity related to GHG emissions**
(Amount of purchased energy used, etc.)

**<Principles>**

- Actual data needs to be acquired in order to accurately calculate Greenhouse Gas emissions.
- For any item or area for which actual data cannot be acquired, estimates should be made.

**<What is actual data?>**

- Data that can be confirmed by measurements, billing records, etc. (electricity consumption, gas usage, etc.)

**<What does the inability to acquire actual data for an item or area mean?>**

- Actual data is not available for an item or area.
## Acquisition of Activity Data

<table>
<thead>
<tr>
<th>Scope</th>
<th>Sources</th>
<th>Metrics</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-house/Supply Chain Areas</td>
<td>Electricity</td>
<td>kWh</td>
</tr>
<tr>
<td></td>
<td>Natural Gas</td>
<td>1000ft³</td>
</tr>
<tr>
<td></td>
<td>LNG</td>
<td>1000ft³</td>
</tr>
<tr>
<td></td>
<td>Propane Gas (LPG)</td>
<td>Gallon</td>
</tr>
<tr>
<td></td>
<td>Gasoline</td>
<td>Gallon</td>
</tr>
<tr>
<td></td>
<td>Kerosene</td>
<td>Gallon</td>
</tr>
<tr>
<td></td>
<td>Residual Fuel Oil (No.5, No. 6 fuel oil)</td>
<td>Gallon</td>
</tr>
<tr>
<td></td>
<td>Distillate Fuel (No. 1)</td>
<td>Gallon</td>
</tr>
<tr>
<td></td>
<td>Distillate Fuel (No.2 and diesel)</td>
<td>Gallon</td>
</tr>
<tr>
<td></td>
<td>Distillate Fuel (No. 4)</td>
<td>Gallon</td>
</tr>
<tr>
<td></td>
<td>Biodiesel</td>
<td>Gallon</td>
</tr>
<tr>
<td></td>
<td>Petroleum Coke</td>
<td>Ton (US)</td>
</tr>
<tr>
<td></td>
<td>Anthracite</td>
<td>Ton (US)</td>
</tr>
<tr>
<td></td>
<td>Bituminous Coal</td>
<td>Ton (US)</td>
</tr>
<tr>
<td></td>
<td>Sub-bituminous Coal</td>
<td>Ton (US)</td>
</tr>
<tr>
<td></td>
<td>Lignite</td>
<td>Ton (US)</td>
</tr>
<tr>
<td></td>
<td>Peat</td>
<td>Ton (US)</td>
</tr>
<tr>
<td></td>
<td>Solar Photovoltaics</td>
<td>kWh</td>
</tr>
<tr>
<td></td>
<td>Wind Electricity</td>
<td>kWh</td>
</tr>
<tr>
<td></td>
<td>Steam for Industry (from others)</td>
<td>MMbtu</td>
</tr>
<tr>
<td></td>
<td>Heated Water (from others)</td>
<td>MMbtu</td>
</tr>
</tbody>
</table>

<NOTE>
These metrics are for reference only. The metric which captures energy consumption must be the same as the coefficient factors chosen.
**Estimation**

### <Approach>

- For any item or area for which actual data cannot be obtained, use of estimates for the following items and areas are allowed.
  - Areas accounting for 5% or less (based on GHG emissions) within each Scope1-2 (your own company.)
  - Scope3 (Supply chain area / Logistics area) may have estimation up to 100%.
- Calculate each estimated value by using the ratios for the volume of business and amount of work done (such as monetary amount, weight, no. of shots, no. of articles, floor area, no. of workers, etc.), which are values considered to be proportional to total activity. (While continuing the calculations with estimate values, apply the same calculation method.)

### <Scope1・2 (Company’s own area): Estimate Example>

#### Acquisition of actual data

<table>
<thead>
<tr>
<th>In-house production</th>
<th>R&amp;D</th>
<th>Admin</th>
<th>Sales</th>
</tr>
</thead>
</table>

**Data That Cannot be Acquired**

Small sales offices, etc.

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### <Scope3 (Supply chain area): Estimate Example>

#### Acquisition of actual data

<table>
<thead>
<tr>
<th>Parts manufacturer A</th>
<th>Parts manufacturer B</th>
</tr>
</thead>
</table>

**Cannot be acquired**

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<table>
<thead>
<tr>
<th>In-house</th>
<th>Outsourced</th>
</tr>
</thead>
</table>

**Estimation**

Example: Estimation based on a comparison of office floor areas

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<table>
<thead>
<tr>
<th>In-house</th>
<th>Outsourced</th>
</tr>
</thead>
</table>

**Estimation**

Example: Estimation based on a comparison between in-house and outsourced production output
Data Allocation for Honda

<Approach>
- Divide Honda portion from total GHG emission amount based on sales ratio to Honda of your total sales amount and amount of work done (such as monetary amount, weight, no. of shots, no. of articles, floor area, no. of workers, etc.).
- Apply to this method to calculate GHG emission from your supply chain as same as above. (Apply the same method continuously.)

Ex) Divided by sales ratio

Pattern 1

How to divide Honda portion from each energy sources?

Sales ratio of your company
<table>
<thead>
<tr>
<th></th>
<th>to company A</th>
<th>30%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>to company B</td>
<td>30%</td>
</tr>
<tr>
<td></td>
<td>To Honda</td>
<td>40%</td>
</tr>
</tbody>
</table>

Consumed energy in your company
- ○× electricity
- × LPG
- × SF6

Sales ratio to Honda
- 40%

Activity data Reported to Honda
= divided consumed energy sources easily based on sales ration to each customer.

Pattern 2

<Honda Portion of Total GHG Emission>
How to divide Honda portion from total GHG emission?

Sales ratio of your company
<table>
<thead>
<tr>
<th></th>
<th>to company A</th>
<th>30%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>to company B</td>
<td>30%</td>
</tr>
<tr>
<td></td>
<td>To Honda</td>
<td>40%</td>
</tr>
</tbody>
</table>

GHG emission amt. of your company
<table>
<thead>
<tr>
<th></th>
<th>to company A</th>
<th>30%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>to company B</td>
<td>30%</td>
</tr>
<tr>
<td></td>
<td>To Honda</td>
<td>40%</td>
</tr>
</tbody>
</table>
Select an emissions coefficient according to the following definitions and approaches.

\[
\text{Activity data} \times \text{Emissions coefficient} = \text{GHG emissions}
\]

**Emission per activity unit**
(Select the CO2 emissions coefficient suitable for each activity.)

**<Principles>**
- Supplier is to choose the emissions coefficient
- Apply a CO2 emissions coefficient
- Apply a coefficient suitable for the place where energy and fuel were consumed
- For energy in the same country and region, and from the same power company and energy source:
  The companies, operation bases and facilities, etc., using this energy should apply the same coefficient value.

**<Latest coefficient>**
Apply the latest emissions coefficient at the time of data collection.
- Inquire with the power company, gas company, or company from which fuel is purchased. Otherwise, use the coefficient provided by administrative organizations as stated in national or regional regulations.
- For the CO2 emissions coefficient for electric power, choose the coefficient that does not take into account any transmission losses.
- The data source for the coefficient should be clearly stated and shared with the Honda purchasing department in each region.

**<CH4, N2O, HFC, PFC and SF6>**
- Use GWP (Global Warming Potential, see the 1995 IPCC Second Assessment Report), and convert to CO2-equivalent values.
Convert activity data into GHG using an emissions coefficient.

<table>
<thead>
<tr>
<th>Activity Data</th>
<th>Emissions Coefficient</th>
<th>GHG Emissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>The amount of activities related to GHG emissions (The energy purchased etc.)</td>
<td>Emission per activity unit (Select the CO2 emissions coefficient suitable for each activity.)</td>
<td>GHG emissions converted into CO2 (CH4, N2O, HFC, PFC, SF6 etc.)</td>
</tr>
</tbody>
</table>

**<Sample Calculation>**

<table>
<thead>
<tr>
<th>Actual activity Data (e.g.)</th>
<th>Emission coefficient (e.g.)</th>
<th>GHG emission (e.g.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity 100,000 MWH/Year</td>
<td>0.378 Ton(CO2)/MWH</td>
<td>37,800 Ton(CO2)</td>
</tr>
<tr>
<td>Propane Gas 10,000 KG/Year</td>
<td>0.003 Ton(CO2)/KG</td>
<td>30 Ton(CO2)</td>
</tr>
<tr>
<td>Heating Oil 10KL/Year</td>
<td>2.489 Ton(CO2)/KL</td>
<td>25 Ton(CO2)</td>
</tr>
<tr>
<td>SF6 1 Ton/Year</td>
<td>23,900 Ton(CO2)/Ton(SF6)</td>
<td>23,900 Ton(CO2)</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>61,755 Ton(CO2)</td>
</tr>
</tbody>
</table>
Data Verification

<Principles>
- The following checks should be conducted to ensure accuracy.
- In the overall calculation flow, establish multiple checkpoints to ensure quality throughout the processes.
- Obtain approval from your company executive responsible for environmental activities.

<Options to compare data with other sources>
- If your company issues an annual Environmental Report, then compare the calculated data with your other locations to verify the results of your data.
- Compare the data with data disclosed by other companies in the industry.

<Comparison with previous data>
- Compare data collected from Quarter to Quarter
- Compare current quarterly data to last year’s quarterly data
- Check changes in total GHG emissions and GHG emissions per sales volume.
- Check the correlation between changes in sales and changes in GHG emissions.
- Check data for “zero” or “abnormally high” volumes.

Look for unusual jump or drop in data from one year to another for the same QTR
<Principles>
• Data should be submitted in the specified format to the N.A. Purchasing – Supply Chain Sustainability Unit contact person
• It is recommended the GHG data be compiled every quarter at a minimum, but reported to Honda annually.
• For other questions, please contact N.A. Purchasing – Supply Chain Sustainability Unit contact person

<Reporting Format>
• The Honda Environmental Data Management System (HEDMS) Form must be used to report to GHG emissions to Honda.
• The HEDMS must be used to send the data to Honda North America, Inc.
  • This system requires 2 personnel from each supplier
    • Reporting Associate to gather the information and complete the HEDMS Form
    • Approval Associate to confirm data accuracy prior to submission to Honda

<Reporting Timing>
• Honda North American Purchasing encourages the supplier to collect data quarterly at a minimum.
• The HEDMS Form must be submitted to the N.A. Purchasing – Supply Chain Sustainability Unit contact person annually
• Honda North America will establish a due date for which the data must be submitted
• Time period for the reporting of GHG data is Honda’s fiscal year (ki) which is April through March.
## Changes (old version vs new version)

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<th>Revision</th>
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<td><strong>Content</strong></td>
<td><strong>Page</strong></td>
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<td>Cover Sheet</td>
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<td>16</td>
</tr>
<tr>
<td>18 Revision History</td>
<td>17 Added this page to summarize change points</td>
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## Revision History

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<tr>
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<tbody>
<tr>
<td>January 13, 2011</td>
<td>First Edition</td>
</tr>
<tr>
<td>December 20, 2013</td>
<td>Revision 1</td>
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<tr>
<td>April 15, 2014</td>
<td>Revision 2</td>
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