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Barge Carrier Partner 2.0.15 Tool:
Data Collection Overview & Workbook
2015 Data Year - United States Version

United States
Environmental Protection
Agency

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Transportation and Climate Division
Office of Transportation and Air Quality
U.S. Environmental Protection Agency

Introduction to Part 2: DATA COLLECTION OVERVIEW AND WORKBOOK

This guide is **Part 2 of a three-part series** to help barge companies participate in the SmartWay Transport Partnership.

In this guide you will learn about:

1.   The general organization of the SmartWay Barge Tool, and
2.   Data needs for each section of the Tool.

 You will also have the opportunity to collect your data using our data collection worksheets in preparation for the data entry step (Part 3).

Please review this guide carefully BEFORE attempting to use the Tool or enter data. Understanding the data requirements and gathering all data in advance will save considerable time and frustration while completing your tool submission.

If you wish to explore the Barge Tool in preparation for joining the program, please review Part 3: Data Entry Guide and return to this workbook to prepare for gathering your data.

Please note that each fleet that you operate will be characterized separately.

In the event that you have a question about any of the data collection activities, you can contact SmartWay Email Support at smartway_transport@epa.gov and a member of our SmartWay Partner Support Team will assist you.

          WARNING!

        Completing the Barge Tool requires a considerable amount of information about your company and the fleets that are joining SmartWay. There are multiple sections and screens to complete for each fleet that you operate.

While you will have the ability to save your Tool along the way and return to it at any time, **we STRONGLY ENCOURAGE** you to review Part 1 to understand key information about joining the Partnership. Then, use Part 2 of this series to learn about the data requirements and gather your data BEFORE attempting to use Part 3 to complete the Tool.

Overview of Data Collection Requirements

The SmartWay Barge Tool is the data collection and calculation system for barge companies that join the SmartWay Transport Partnership. There are four *required* sections of the SmartWay Barge Tool that require data about your company's operations:

1. **Specify Official Partner Name**
2. **Enter Company Contact Information**
3. **Characterize Your Fleets**
4. **Enter Activity and Fuel Information for Each of Your Fleets**

This guide will explore the data required for completing these four sections. Part 3 of the three-part user guide series explains more about the structure of the Tool and the data entry process; this guide will focus primarily on what you need to do to prepare for completing the Tool.

Section 1: Specify Official Partner Name

To begin, you must specify your company's Partner name, exactly as you want it to appear on the SmartWay website. For example, if your company's name includes "Inc." or "Ltd.", you may choose not to include that in your Partner name. Please also pay special attention to proper capitalization, abbreviations, and punctuation.

Section 2: Enter Company Contact Information

SmartWay needs complete contact information for correspondence, web posting, press releases, and awards and recognition (where applicable). The SmartWay Tool asks for:

- **General company information** (e.g., location, web address, etc.)
- **A Working Contact**[1] for any questions about your company's participation and Tool submissions
- **An Executive Contact**[2] for participation in awards and recognition events - must be different than the Working Contact

Additional Contacts (optional): Additional contacts may include your press/media contact, your fleet manager, etc.—anyone who is not the Working or Executive Contact but may be involved with

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[1] The Working Contact is the individual designated by the Executive Contact to directly interface with SmartWay regarding specific tasks involved in the timely submission of the Tool. The Working Contact is responsible for coordinating the assembly of information to complete/update fleet data; completing and updating the Tool itself; maintaining direct communication with SmartWay; and keeping interested parties within the company apprised of relevant developments with SmartWay.) *NOTE: To ensure that emails from SmartWay/EPA are not blocked, new Working Contacts may need to add SmartWay/EPA to their preferred list of trusted sources.*

[2] The Executive Contact is the company executive who is responsible for agreeing to the requirements in the SmartWay Partnership Agreement, overseeing the Working Contact (as appropriate), and ensuring the timely submission of the Tool to SmartWay. The Executive Contact also represents the company at awards/recognition events. This person should be a Vice President or higher level representative for the company.

SmartWay. Note that you MUST have at least two contacts listed in the contact information section of the Tool, and the Working and Executive Contacts must be different. SmartWay recommends developing an internal succession plan to make sure that your Tool submission schedule is maintained, in the event that a Working Contact is reassigned, or leaves the company for any reason.

Please use Worksheet #1 in this guide to prepare for filling out the Contact Information Screen in the Barge Tool.

Section 3: Characterize Your Fleets

The SmartWay Barge Tool allows you to characterize your freight operations at the fleet level. In the Barge Tool, a fleet is defined as any business unit that a customer has discretion to hire.

NOTE: You may enter multiple fleets into a single Tool submission.

SmartWay highly recommends developing your list of fleets offline using a company organization chart or perhaps a customer interface webpage. The best strategy is to have a clear idea of how to define your fleets before filling out the Tool.

Your company's name and your fleet name(s) will be listed on the SmartWay website to indicate your participation in the SmartWay Transport Partnership. Your shipper and logistics customers can also use the SmartWay Online Database to search for your company by the name you submit in the Tool.

It is <u>critical</u> that you identify your company and fleet(s) in the Tool as you would have them appear on the SmartWay website.

The "**Characterize Your Fleets**" section of the Tool has three subsections:

1. Fleet Characterization
2. Fleet Details
3. Fleet Cargo

The data requirements for each tabbed section are described below.

Please use the Worksheet #2 provided in this guide to prepare for filling out the Characterize Fleets section in the Barge Tool.

NOTE: You may wish to print multiple copies if you have multiple fleets.

Data Requirements for "Identify Fleets" Screen

For each fleet, you will need to specify:

- **Partner Name:** On the SmartWay website, each of your fleet names will begin with the name of your company. This fleet name will be whatever you enter in the **Partner Name** field on the **Fleet Characterization** screen. By default, this field is automatically populated with the first 50 characters of the **Partner Name** that is entered on the **Home** screen. You should specify the name so that it appears EXACTLY as it you want it to show within each fleet name. (For example, if your company's name includes "Inc." or "Ltd.", you may choose not to include that in your fleet names.) Please pay special attention to proper capitalization, abbreviations, and punctuation.

- **Fleet Identifier:** Specify each fleet identifier exactly as you want it displayed on the SmartWay website, including proper capitalization, any abbreviations, and punctuation. Remember that it will automatically be combined with the **Partner Name** field. NOTE: If you have only one fleet, you may leave the Fleet Identifier field blank, in which case your Fleet Name will simply be your Partner Name.

Data Requirements for "Fleet Details" Screen

For each fleet, you will need to specify:

- **Fleet Type:** Fleet Type is defined as the service type for your fleet. There are two options accepted by the Tool—"Open-water Barge" and "River Barge." If your company has only one fleet, your "Fleet Type" selection will reflect your company's operations as a whole. If there are multiple fleets, each will have its fleet type defined separately.

- **Total Number of Barges**: This is the total number of barges used by your fleet in the reporting year. The total number of barges should generally be greater than or equal to the total number of tugs in your fleet.[3]

- **Total Number of Tugs:** This is the total number of tugs used by your fleet in the reporting year. The total number of tugs should generally be less than or equal to the total number of barges.

- **Fleet Contact:** This contact should be one of the contacts you already identified in the **Contact Information** section as the contact for each fleet. **NOTE:** A drop-down menu in the Tool will supply this information; if there is a contact for the fleet that is not already listed in the Contacts worksheet, you will need to go back to that screen to add the required contact information.

Data Requirements for "Fleet Cargo" Screen

For each fleet you will need to specify the amount of cargo shipped per year by commodity category. Specify the amount in short tons for all commodity categories except for "Containers". For containers,

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[3] Only report freight related activity. If a tug is associated with moving freight it should be included with your freight fleet; e.g. the tug puts barge combinations together, serves as a mobile repair vessel, or otherwise supports freight operations. If the fleet operates as a purely separate tug company, e.g. guiding in container ships, etc. , then it should not be reported to SmartWay, although partners are welcome to use the tool offline for analytics.

you may choose to enter the amount in short tons or TEUs.

Section 4: Enter Activity and Fuel Information for Each of Your Fleets

Once you have identified and characterized your fleets you will be asked to provide additional information for EACH fleet separately.

NOTE: If you are a new SmartWay Partner you should enter the most recent 12 months of data into the Tool. If you do not have a full year of operational data, please collect <u>a minimum of three months' data</u> for input into the SmartWay Tool. In your next update year, you will be required to submit a full year's data.

Geographic Operation Areas

Please use the Worksheet #3A provided in this guide to prepare for filling out the Geographic Operation Areas section in the Barge Tool (make one copy for each fleet).

You will need to provide the geographic operation areas about the selected fleet. Areas of Operation are broken out into coastal areas, U.S. navigable waterways, Canadian navigable waterways, and harbors. You are allowed the option of entering "other" areas of operation if necessary.

Tug/Tow Characteristics

Please use the Worksheet #3B provided in this guide to prepare for filling out the Tug/Tow Characteristics section in the Barge Tool (make one copy for each vessel with each fleet).

You will need to provide the vessel-specific information for each tug/tow vessel identified on the **Tug/Tow Characteristics** screen. Specify the vessel type based on the most common type of operation. All fields require an entry except Coast Guard Number and Retrofit Information. If you have a large number of vessels, to enter, you may prefer to use the Import/Export function to bring vessel information into the Tool prepared outside the Tool. Data fields for this screen include:

- **Vessel Name:** Enter the unique vessel name.
- **Vessel Type:** Select the vessel type that best describes the tug. The options are: Linehaul, Locking, Canal, Harbor, Coastwise, and Other. If "Other" is selected, a description must be provided.
- **Coast Guard Number:** Enter the 6 or 7 digit USCG identification number. This data field is optional.
- **Number of Engines**: Specify if the vessel has one, two or three propulsion engines. The Tool assumes multiple engines are identical and used in the same way.
- **Model/Last Rebuild Year:** Enter the engine model year, or if the engine has been rebuilt, the year of the latest rebuild. Model year, or year of last rebuild, ensures that the US EPA engine tier level is correct in emission calculations. If the engine's emission standards reflect an accelerated adoption schedule, you may select the year

corresponding to the standard Tier Level introduction. For example, if a 2013 engine meets Tier 3 standards, you may enter 2014.

- **Power Units:** Enter the units that you are using to specify total rated power. Options are horsepower (HP) or kilowatts (kW).
- **Fuel Type:** Specify the fuel type, including biodiesel blend percentage if applicable. Fuel type is needed to ensure that the correct emission factors are used and the associated sulfur concentration is correct.
- **EPA Engine Category:** The engine category is the US EPA level associated with the vessel's propulsion engine(s). The options are Category 1 (less than 7 liters per cylinder) or Category 2 (7 to 30 liters per cylinder).
- **Total Rated Propulsion Power:** Enter the maximum rated power of the propulsion engine(s). For example, if there are two 2,000 HP engines then enter 4,000 as the total rated propulsion power. The total maximum rating of the propulsion system is needed to calculate horsepower (or kilowatt) hours, which is then applied to the appropriate factors to estimate emissions.
- **Retrofit Information:** If an engine has been retrofit with an emissions control technology, select this box to quantify the estimated NOx and PM emission reduction.

Vessel Operations

Please use the Worksheet #4 provided in this guide to prepare for filling out the Vessel Operations section in the Barge Tool (make one copy for each vessel with each fleet).

You will need to provide vessel-specific operation information, differentiating hours of operation for propulsion engines and auxiliary engines used during the reporting year. Provide the total fuel used across all engines (propulsion and auxiliary). However, for vessels with LNG-powered propulsion engines, you will provide the fuel usage for auxiliary engines separately, as auxiliary engines are assumed to use ultra-low sulfur diesel fuel. Data fields include:

- **Data Source for Fuel and Activity Estimates:** Indicate the source for your vessel operations data.
- **Annual Fuel Usage and Fuel Type:** Provide the total annual fuel use for each vessel, along with the appropriate units (gallons or tons). This information will be used to calculate CO_2. (Note the exception for LNG auxiliary engines above.)
- **Towing Capacity (optional):** Enter the maximum towing capacity per trip for the vessel in short tons. This information is optional and is used to validate the estimated tonnage shipped. Enter the tonnage based on maximum cargo load rather than Bollard Pull – Bollard Pull does not uniquely specify cargo tonnage.
- **Annual Hours of Operation for Propulsion Engines:** For each mode of use, Underway and Maneuvering, enter the annual hours of operation for the main propulsion engines.
- **Auxiliary Engines:** Auxiliary engines are combustion engines used to generate electricity, run winches and cranes, control climate, and run pumps. Engines may be present on either tugs or barges. All auxiliary engines are assumed to be diesel powered. You may enter up to eight (8) auxiliary engines for each vessel. For each auxiliary engine, you must provide the following: Manufacture/Model Year, Annual Hours of Use, and the Total Rated Power (HP).

Barge Operations

Please use the Worksheet #5 provided in this guide to prepare for filling out the Barge Operations section in the Barge Tool (make one copy for each vessel with each fleet).

You will need to provide barge activity information for each barge type/size combination that you operate. The total number of barges in this section must equal the total number of barges entered in the Fleet Characterization section of the Tool. Data fields include:

- **Data Source for Barge Activity:** Indicate the source for your barge operations data.
- **Barge Type:** Barge Type includes the basic barge configurations typically used to move freight, including hoppers, covered barges, tank barges, deck barges, and other specialty barges. Barge types of "Other" will also require a description and the custom volume in 1,000 cubic feet.
- **Barge Size:** Barge lengths typically vary from 150 feet to 300 feet. If a barge is <150 feet, enter its information in the 150 feet category. Barge widths also vary, from 28 to 54 feet, although the tool assumes all barges are a standard 35 feet width in order to simplify calculations. Available barge sizes are 150 feet, 175 feet, 195 to 200 feet, and 250 to 300 feet.
- **Number of Barges:** Provide the total number of barges of a given type/size combination used in the fleet during the reporting year.
- **Average Volume Utilization (Loaded Trips):** Enter the fraction of available cargo volume typically used for each barge type/size combination during loaded trips. For deck barges, estimate the fraction of available surface area utilized.
- **Annual Loaded Miles Per Barge:** Enter the average number of miles a barge of the given type/size combination typically travels per year while loaded. All miles in the Tool refer to nautical miles (not statute miles).
- **Annual Empty Miles Per Barge:** Enter the average number of miles a barge of the given type/size combination typically travels per year while unloaded. All miles in the Tool refer to nautical miles (not statute miles).
- **Average Loaded Payload Per Barge:** Enter the average payload in short tons for a barge of the given type/size combination, for loaded trips.
- **Total Fleet Activity:** Enter the total annual ton-miles, loaded and unloaded barge miles for this fleet. This information will be used to help validate the barge type/size-specific data entries. All miles in the Tool refer to nautical miles (not statute miles).

Worksheets for Data Collection

List of Worksheets

Worksheet #1: Contact Information

Enter your Contact Information:

General Company Contact Information

Company Name							
Headquarters Mailing Address							
City		State/Province		Zip		Country	
Main Phone Number		Toll-free Number		Cell number		Web Address	

Working Contact Information

Working Contact Name						
Working Contact Mailing Address						
City		State/Province		Zip		Country	
Working Contact Phone Number				Email Address		

Executive Contact Information

Executive Contact Name						
Executive Contact Mailing Address						
City		State/Province		Zip		Country	
Executive Contact Phone Number				Email Address		

Other Contact Information

Other Contact Name						
Other Contact Mailing Address						
City		State/Province		Zip		Country	
Other Contact Phone Number				Email Address		
Contact's role in program						

Worksheet #2: Fleet Characterization

Complete this worksheet for <u>each fleet</u> you will be submitting in the Barge Tool.

Specify Fleet Name: This will be a combination of your Partner Name and a Fleet Identifier you create. Use a Fleet Identifier that a company hiring your fleet would recognize. Enter it exactly as it should appear on the SmartWay website):

Partner Name_____

Fleet Identifier_____

FLEET TYPE (check one): ☐ Open-water Barge   ☐ River Barge

Total # Barges:_____

Total # Tugs:_____

Fleet Contact:_____

Fleet Cargo: Enter the amount of cargo shipped per year by commodity category. Containers may be entered in units of short tons or TEUs. All other categories must be entered in short tons.

<u>Commodity</u>	<u>Amount</u>	<u>Unit</u>
Containers (select unit):	_____	☐ Tons or ☐ TEUs
Coal:	_____	Tons
Sand & Gravel:	_____	Tons
Chemicals and Allied Products:	_____	Tons
Farm Products:	_____	Tons
Metallic Ores & Scrap:	_____	Tons
Finished Metals & Products:	_____	Tons
Petroleum:	_____	Tons
Coke:	_____	Tons
Lumber & Wood Products:	_____	Tons
Pulp, Paper & Allied Products:	_____	Tons
Motor Vehicles & Equipment:	_____	Tons
All Other Commodities*:	_____	Tons

*If Other Commodities is selected, please describe type:

_____

Worksheet #3a: Geographic Operation Areas

Complete this worksheet for **each fleet** you will be submitting in the Barge Tool.

<u>Geographic Operations Areas</u>

Check the area(s) that apply:

☐ Atlantic Coast	☐ Pacific Coast
☐ Gulf of Mexico	☐ Great Lakes
☐ Upper Mississippi	☐ Lower Mississippi
☐ Atlantic Intercoastal Waterways	☐ Northwest (including Alaska
☐ Ohio River Basin	☐ Illinois Basin
☐ Tennessee Basin	☐ St. Lawrence Seaway
☐ Gulf of St. Lawrence	☐ Hudson Bay/James Bay/Hudson Strait
☐ Mackenzie River/Great Slave Lake/Great Bear Lake	☐ Georgia Strait/Strait of Juan de Fuca
☐ Harbors	☐ Other*
☐ Gulf Inland Waterway	

*If "Other" is selected, please describe type: _____

Worksheet #3B: Tug/Tow Characteristics

Complete this worksheet for **each vessel** within your fleet.

Select which vessel type:

☐ Linehaul   ☐ Harbor
☐ Locking   ☐ Coastwise
☐ Canal   ☐ Other*

*If "Other" is selected, please describe the vessel:_____

Vessel Coast Guard Number (optional):_____

Number of propulsion engines (select one): ☐ ONE   ☐ TWO   ☐ THREE

Engine model year or the year of the last rebuild:_____

Select which units your total rated power is entered in: ☐ HP   or   ☐ kW

Select the engine fuel type:

☐ Marine Diesel (Low Sulfur)   ☐ Biodiesel*
☐ Marine Diesel (Ultra-Low Sulfur)   ☐ Liquefied Natural Gas

*If Biodiesel was selected, please provide the biodiesel blend: B_____

EPA engine category (select one): ☐ ONE   or   ☐ TWO

Total Rated Propulsion Power (HP or kW): Enter the total rated power for all propulsion engine combined. (Example: Two 2,000 HP engines would have 4,000 HP total rated power.): _____

Is there a retrofit on this engine? ☐ Yes   or   ☐ No

If you answered "Yes" to a retrofit, identify the retrofit (select one):

☐ Fuel Injection Engine Improvements   ☐ Hybrid Engines
☐ SCR   ☐ Diesel Oxidation Catalyst
☐ Common Rail   ☐ Lean NOx Catalyst
☐ Diesel Electric   ☐ Other*
☐ Humid Air Motor (HAM)

*If "Other" was selected, provide the following information:

NOx Reduction %: _____ **Explanation:**_____

PM Reduction %: _____ **Explanation:**_____

Worksheet #4: Vessel Operations

Describe the data source used to provide the fuel and activity estimates for the vessel operations in this fleet: _____

_____

Complete this portion of the worksheet for **each vessel** within your fleet.

Annual Fuel Usage: _____ Units (select one): ☐ Gallons   or   ☐ Tons

Total towing capacity per trip based on maximum cargo load (optional): _____ Tons

Annual hours of operation for propulsion engines while *UNDERWAY*: _____ Hours/Year

Annual hours of operation for propulsion engines while *MANEUVERING*: _____ Hours/Year

Does this vessel have auxiliary engines? ☐ Yes   or   ☐ No

> **If you answered "Yes" to auxiliary engines, enter the following information for each auxiliary engine (allows up to EIGHT (8) auxiliary engines per vessel). If this vessel uses a propulsion engine powered by LNG, you will also need to provide the amount of annual fuel usage for all auxiliary engines for this vessel. All auxiliary engines for LNG-powered vessels are assumed to use ultra-low sulfur diesel fuel:**
>
> **Manufacture / Model Year: _____**
>
> **Annual Hours of Use: _____**
>
> **Total Rated Power (HP): _____**
>
> **Annual Diesel (gallons) (applicable only for LNG-powered vessels): _____**
>
> NOTE: To convert kW to HP: kW / 0.7457 = HP

Worksheet #5: Barge Operations

Complete this worksheet for **each fleet** you will be submitting in the Barge Tool.

Describe the data source used to provide the fuel and activity estimates for the barge operations in this fleet: _____

_____

Use the table below to enter barge activity for each barge type and size combination. The total number of barges must match the number of barges identified in the fleet characterization worksheet. Required data include:

- **Barge Type and Size:** Enter data for the appropriate barge type and length combination. Barge lengths typically vary from 150 feet to 300 feet. If a barge is < 150 feet, enter its information in the 150 foot category.
- **Total Number of Barges:** Enter the total number of barges of a given type & size combination.
- **Average Volume Utilization (Loaded Trips):** Enter the fraction of available cargo volume typically used for each barge type & size combination during loaded trips. For deck barges, estimate the fraction of available surface area utilized.
- **Annual Loaded Miles per Barge:** Enter the average number of <u>nautical</u> miles a barge of the given type & size combination typically travels per year while loaded.
- **Annual Empty Miles per Barge:** Enter the average number of <u>nautical</u> miles a barge of the given type & size combination typically travels per year while unloaded.
- **Average Loaded Payload per Barge:** Enter the average payload in short tons for a barge of the given type & size combination for loaded trips.

Enter the Total Fleet Activity: Once the table for barge activity is complete, enter the total annual ton-miles, loaded and unloaded barge miles for the entire fleet. All miles are in nautical miles.

      Total Ton-Miles: _____

      Loaded Barge Miles: _____

      Unloaded Barge Miles: _____

NOTE: To calculate total ton-miles for this fleet, multiply the average loaded payload per barge by the average loaded annual miles per barge and then by the total number of barges. To check your data, divide total ton-miles by total miles. The result is the fleet-average payload. If this number is not reasonable, check your calculations.

Worksheet #5: Barge Operations (cont.)

Barge Size	Number of Barges	Average Volume Utilization (Loaded Trips)	Annual Loaded Miles per Barge	Annual Empty Miles per Barge	Average Loaded Payload per Barge
Barge Type: HOPPER					
150 Feet		%			
175 Feet		%			
195 to 200 Feet		%			
250 to 300 Feet		%			
Barge Type: COVERED CARGO					
150 Feet		%			
175 Feet		%			
195 to 200 Feet		%			
250 to 300 Feet		%			
Barge Type: TANK					
150 Feet		%			
175 Feet		%			
195 to 200 Feet		%			
250 to 300 Feet		%			
Barge Type: DECK					
150 Feet		%			
175 Feet		%			
195 to 200 Feet		%			
250 to 300 Feet		%			
Barge Type: CONTAINER					
150 Feet		%			
175 Feet		%			
195 to 200 Feet		%			
250 to 300 Feet		%			
Barge Type: OTHER*					
150 Feet		%			
175 Feet		%			
195 to 200 Feet		%			
250 to 300 Feet		%			

***If you entered data for "OTHER" barge type, you must also provide the following information.**

"OTHER" barge type description: _____

Enter the custom barge volume in 1,000 cubic feet for the "OTHER" barges you specified.

Barge Size	Custom Volume in 1,000 Cubic Feet
150 Feet	
175 Feet	
195 to 200 Feet	
250 to 300 Feet	