ENERGY STAR Data Center Infrastructure Rating Development
Data Collection Form

Data Collection Guidelines

- The data collection effort will focus on stand-alone data centers and data centers in larger buildings (e.g. office buildings) that have submetering capability to isolate data center operations.
- Report values that were valid for at least 12 consecutive months within a period from March 20, 2008 to June 1, 2009.
- The facility must have been in normal operation for at least 12 months.
- If data elements change over time (e.g. the number of racks, UPS utilization), provide the average of that element over the 12 month data collection period.
- If you have any specific questions about the items listed below, or difficulty assessing data during this data collection period, please send an email to ENERGYSTARdatacenters@icfi.com.

Data Elements List

The following table outlines the data elements of interest; each section of the table corresponds to a tab in this MS Excel Data Template. ***This data template was created for your convenience, but we will accept the data in any form, provided all of the listed information is included.***

Data Element Name	Description/Question
Tab 1 – Building Information	
Data Center Name or ID	Please provide a unique name (or number) for each data center in your sample.
Zip Code	Please provide the five-digit zip code for each data center's location.
Type of Data Center	Please select among the following: 1 = Traditional Enterprise; 2 = On-Demand Enterprise; 3 = Telecom; 4 = High Performance Computing Center (Scientific); 5 = Hosting; 6 = Internet; 7 = Hybrid
Type of Building	Please select between the following: 1 = Stand-alone, 2 = Enclosed in a larger building (i.e. office building or other space type). **NOTE: If the data center is enclosed within another building space, it must be completely submetered in order to proceed with this data collection.**
Building Square Footage	Provide the gross or total square footage of the building.
Data Center Square Footage	Provide the square footage of the data center space that includes the rack equipment, service clearance and circulation, control console area, power distribution, and local air conditioning that is encapsulated by the proper protective walls. Exclude administrative offices, storage, loading docks, and other non-essential space that does not directly support the operation of the data center.
Building Earned the ENERGY STAR?	Has the building earned the ENERGY STAR? (Yes or No)
Building LEED Certified?	Has the building received the US Green Building Council LEED certification? (Yes or No)
Tab 2 – Data Center Operations	
For any element that may change over the course of the data collection period (e.g. number of racks, UPS utilization), please provide an average figure for the 12 months of data.	
Reliability (Tier Level)	Using the Uptime Institute's classification of four tiers of reliability (Tier I, II, III, IV), please provide the level of the data center's reliability that describes the amount of required, active, redundant infrastructure. When multiple tier levels exist, the reliability tier level should represent the majority, or the highest percentage, of the data center's total load. When estimating tier levels, the fractional estimates (i.e. 3+ or 3.5) should be rounded DOWN to the whole number for purposes of the data input. (See Uptime's Web site for more information on the tier classifications: http://www.upsite.com/TUIpages/whitepapers/tuitiers.html)
Number of Racks	Please provide the number of racks in the data center that are typically in operation.
UPS Utilization	Based on your data center's tier level and corresponding UPS configuration, please enter the percent utilization of your UPS, which is the amount of critical load compared with the redundant capacity of the system. Please use the examples in the FAQs to see the calculations associated with each tier level and UPS configuration. If you have multiple systems and multiple configurations, please use the pro-rated average of all systems weighted by load and their individual system utilizations.
Total Capacity for Cooling	To help determine the Chiller Utilization, provide the data center's total capacity for cooling in tons.
Annual Chiller Runtime	To help determine the Chiller Utilization, please provide the annual runtime for the chillers in hours.
Average Chiller Demand	To help determine the Chiller Utilization, enter the average demand for the chillers in KW.

Data Element Name	Description/Question
Tab 3 – IT Measurement	
Total IT Plug Energy from UPS Meter in KWh	Please enter the annual total IT plug energy, as measured in KWh, from the output of a UPS meter, for energy going into the computer room (not crac units, etc.). This can be entered as one value for the year or as a series of meter/energy readings (i.e. monthly or periodic) that cover the entire calendar year. It is preferable that these measurements are read at approximately the same period and frequency as the utility meter for the building.
Start Date	For each energy use value, enter a start and end date. You can provide an entry for each meter/energy reading or one entry for the entire year.
End Date	
Total IT Plug Energy from PDU Meter in KWh (*If Available)*	Please enter the annual total IT plug energy, as measured in KWh, from the input of a PDU meter, for energy going into the computer room (not crac units, etc.). This can be entered as one value for the year or as a series of meter/energy readings (i.e. monthly or periodic) that cover the entire calendar year. It is preferrable that these measurements are read at approximately the same period and frequency as the utility meter for the building. If both the UPS and PDU meters are provided, an estimate of the difference between the total UPS and the sum of the PDU's will be estimated as the non-critical UPS load that might be serving the office, mechanical and non-data center loads.
Start Date	For each energy use value, enter a start and end date. You can provide an entry for each meter/energy reading or one entry for the entire year.
End Date	
Tab 4 – Electricity Data	
Provide the annual electricity consumption for the building (if a stand-alone data center) or the submetered data center. You can provide this as one value for the year or as a series of meter/energy bill entries that cover the entire year.	
Meter ID	Enter a distinguishing name or number for each meter.
Start Date	For each energy use value, enter a start and end date. You can provide an entry for each bill or one entry for the entire year.
End Date	
Electricity Consumption in KWh	Enter the electricity consumption in KWh corresponding to the start and end date.

Data Element Name	Description/Question
Tab 5 – Natural Gas Data	
Provide the annual natural gas consumption for the building (if a stand-alone data center) or the submetered data center. You can provide this as one value for the year or as a series of meter/energy bill entries that cover the entire year.	
Meter ID	Enter a distinguishing name or number for each meter.
Start Date	For each energy use value, enter a start and end date. You can provide an entry for each bill or one entry for the entire year.
End Date	
Natural Gas Consumption	Enter the natural gas consumption corresponding to the start and end date.
Energy Units	Please enter the corresponding units for the natural gas consumption figure (i.e. therms, ccf, Mcf).
Tab 6 – Other Energy Sources	
For each fuel type and other sources of energy (i.e. diesel fuel, steam, chilled water, solar) provide the annual energy consumption for the building (if a stand-alone data center) or the submetered data center. You can provide this as one value for the year or as a series of meter/energy bill entries that cover the entire year. **NOTE: Stand-by generator diesel fuel used less than 200 hours per year should not be included.**	
Fuel Type/Other Energy Source	Please enter the type of energy that the following data represents.
Meter ID	Enter a distinguishing name or number for each meter.
Start Date	For each energy use value, enter a start and end date. You can provide an entry for each bill or one entry for the entire year.
End Date	
Energy Consumption	Enter the energy consumption corresponding to the start and end date.
Energy Units	Please enter the corresponding units for the energy consumption figure (i.e. gallons, therms, Kbtu, Mbtu, lbs, ton hours).

Data Element Name	Description/Question
Tab 7 – Optional Elements (To be used for future study purposes)	
Year Constructed	Enter the 4 digit year the building was built.
HVAC "Economizer Cycle" Control Strategy	Does the building utilize an HVAC "economizer cycle" control strategy? Yes or no?
Water-side or Air-side Economizer Cycle?	If yes on "economizer cycle" is this on the water-side or air-side? Please select between the following: 1 = water-side, 2 = air-side
Does the building incorporate peak shaving, demand response, thermal storage or co-generation in its operations?	Does the building incorporate peak shaving, demand response, thermal storage or co-generation in its operations? Please select all operations/strategies that apply.
Percentage of Average IT Utilization	What is the current "average" IT processing load as a percentage of the total server processor capacity? Enter this percentage as one average calculation for the entire year.
Percentage of Peak IT Utilization	What is the current "peak" IT processing load as a percentage of the total server processor capacity? Enter this percentage as one average calculation for the entire year.
Mechanical System Type	Please select the type of mechanical system used for cooling the data center: 1 = Direct Expansion; 2 = Chilled Water; 3 = Condenser; 4 = Other
Liquid-Cooled IT Equipment/Racks	Please check the box if the data center employs liquid cooling for IT equipment and/or racks.
Air Management Techniques	Please check off all of the following air management techniques that are in operation at the data center: Blanking Plates in Racks Hot Aisle/Cold Aisle Equipment CFD Modeling High Delta "T" Cooling Air Separation Chambers Racks with Air Management Control Static Pressure Control Static Pressure Boundaries Dynamically Managed Air-Flow
Operating Set Points	Please check off all of the following operational practices employed at the data center: New ASHRAE Humidity Set Points; Dynamic Temperature Change; Automatic Chiller Water Reset