HOTEL BENCHMARKING REPORT TUTORIAL

This guide is designed to help hotel teams understand their individual **CHSB2025 Hotel Benchmarking Reports**, produced as part of the **Cornell Hotel Sustainability Benchmarking (CHSB) Index**. The report includes a variety of data points and benchmarks. This guide breaks down each section of the report in simple terms to help you make sense of your property's performance and identify areas for improvement.

HOW TO USE THIS DOCUMENT

You can use this document in one of two ways:

- **Navigate by Section**: Use the table of contents to jump directly to the section of the report you want help with.
- **Follow Along Visually**: Each page includes a screenshot of a section from the CHSB report, followed by a numbered list that explains the meaning of each labeled element.

For any additional questions, feel free to contact us at data@greenview.sg.

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HOTEL ATTRIBUTES

IDENTIFIERS/SEGMENTATION INFORMATION

"Identifiers/Segmentation Information" shows the profile information for the hotel.

1. **Participant Code** is a combination of your brand name and the unique identifier that you have provided.

2. On your property's location:
   - **Market Area** is defined as a metropolitan statistical area, a greater national capital area, a tourist destination or a greater metropolitan region designated by postal code or by city.
   - **CHSB Region** is an internal indicator that we use for benchmarking properties in the public report.

3. On the coded information based on your property's location:
   - **Climate Zone 1** is based on the Koeppen-Geiger classification system, which is the most commonly used system based on temperature and precipitation.
   - **Climate Zone 2** is based on "Bailey's Ecoregions of the World" if your hotel is located in the US, or "WWF Terrestrial Ecoregions of the World" if your hotel is **not** located in the US.
   - **Hotel Type** refers to how your hotel is categorized, either by "Resort" or "Non-resort"
   - **Hotel Type: Sub-group** further characterizes your hotel based on its specific hotel type.
   - **Operational Type** refers to the category that describes your hotel's operating period throughout the year, e.g.:
     i. "Year-round", if your hotel operates throughout the entire year.
     ii. "Summer seasonal", if your hotel operates less than 12 months a year, primarily throughout the warmer months.
     iii. "Winter seasonal", if your hotel operates primarily throughout the colder months.
   - **Stars** are based on Expedia if available or estimated to the best match.

- **Asset Class** is either full service or limited service.
  i. A full-service hotel generally has a restaurant, meeting space and other amenities while a limited-service hotel does not.
- **STR Market Segment** classifies hotels into luxury, upper upscale, upscale, upper midscale, midscale, or economy.
- **Laundry** indicates whether laundry wash was included in the submitted data. This is important when comparing properties, because laundry washes consume a significant amount of energy and water.
  i. "Onsite", if laundry washes are within the hotel, and the energy and water use for laundry are included in the hotel's utilities consumption.
  ii. "Offsite", if laundry washes are not within the hotel's property.
- **Location Type** refers to the type of environment that the hotel is in. This is only applicable to hotels in the United States.

PROPERTY DETAILS

Property Details

#			#			#		
1	✓ Number of Rooms	126	3	✓ Floor Area in Square Meters	6,456	5	✓ HCMI Ratio	94%
2	✓ Room Tier	Large (Room Count)		✓ Floor Area in Square Feet	69,492		✓ HWMI Ratio	94%
	✓ Floor Area Tier	Large (Area)	4	✓ Total Occupied Rooms	35,455	6	✓ Occupancy Rate	83%

"Property Details" includes information related to your hotel's size, occupancy, and footprint allocation for benchmarking calculations.

A **green checkmark (✓)** indicates that the data point submitted passes validity tests. Data points may not pass validity tests when the figures are unusually high or low, or if there are missing data detected.

1. **Number of Rooms** indicates the total number of guestrooms in your hotel.

2. **Room Tier** and **Floor Area Tier** categorize your hotel by its number of rooms and total floor area. For details on how these tiers are defined, refer to the Legend table on the same page of the report.

3. **Floor Area** shows the size of your hotel in both square meters and square feet.

4. **Total Occupied Rooms** represent the total number of rooms occupied or total guest nights at your hotel during the reporting year (2023).

5. **HCMI** and **HWMI** Ratios show how your hotel's floor area is divided between guestroom and meeting space usage for footprint calculations.
   - HCMI stands for the Hotel Carbon Measurement Initiative.
   - HWMI stands for the Hotel Water Measurement Initiative.
   - These are industry-recognized methodologies used to calculate the carbon or water footprint per guest night and per interval of meeting space.

- For example, if 94% of your floor area is allocated to guestrooms, the remaining 6% is allocated to meeting space. This ensures consistency in benchmarking across different hotel types.

6. **Occupancy Rate** reflects the proportion of guest rooms that were occupied during the year, expressed as a percentage.

VALIDITY TESTING

Validity Testing	
✔ Major Renovation or Not Open All 12 Months	✔ Water Data Completeness
✔ Energy Fences Per OCRM	✔ Water Fences Per OCRM
✔ Energy Fences Per Floor Area (SqM or SqFt)	✔ Water Fences Per Floor Area (SqM or SqFt)
✔ Electricity Data Completeness	✔ Gross Average Room Size
✔ Energy Data Completeness	✔ Net Average Room Size
✔ Number of Sources of Energy	✔ HCMI Ratio
✔ Occupancy Data Completeness	✔ Overall Variance Test
✔ Occupancy Level Fences	*Refer to page 12 for the description of each validity test.*

✔ PASS	✘ FAIL	▲ FAIL-HIGH	▼ FAIL-LOW	? MISSING	■ No Data Submitted	⚑ FLAG

"Validity Testing" shows whether your submitted data passed CHSB's quality control checks. These 15 quality checks identify potential issues with data integrity and ensure only reliable data is used for benchmarking.

What happens if a test is failed?

- If a particular test fails (e.g., floor area), then intensity metrics based on that parameter (e.g., energy or water per square meter) will not be generated.
- However, if another metric (e.g., occupied rooms) passes, then associated intensity metrics (e.g., energy or water per occupied room) will still be provided.

Fences are upper and lower threshold limits derived from historical CHSB datasets. They are used to identify outliers that are likely errors (e.g., unusually high or low values). Data that falls outside of these fences are flagged as invalid.

This **Legend** table describes each validity test performed.

Type of Test	Test Name	Description	Benchmark Impact
Operations & Occupancy	Major Renovation or Not Open All 12 Months	This test checks if a property (a) underwent significant renovation, or (b) closed all or significant part of its floor area for a portion of the year. Only properties that are open for all 12 months or seasonal properties are benchmarked.	Affects all benchmarks
	Occupancy Data Completeness	This test checks if data is reported for the full 12 months. NO DATA if occupied rooms data was not submitted, MISSING if there is at least 1 month of missing data.	Affects per OCRM benchmarks
	Occupancy Level Fences	This test checks if a property's occupancy rate is too high or too low. The thresholds are determined based on CHSB data from the prior year.	Affects per OCRM benchmarks
Energy	Energy Fences Per OCRM	This test checks if a property's energy usage per occupied room is either higher or lower than the upper or lower threshold. The thresholds are determined based on CHSB data from the prior year.	Affects energy, carbon, and HCMI per OCRM benchmarks
	Energy Fences Per Floor Area (SqM or SqFt)	This test checks if a property's energy usage per floor area is either higher or lower than the upper or lower threshold. The thresholds are determined based on CHSB data from the prior year.	Affects energy per unit floor area benchmarks
	Electricity Data Completeness	This test checks if electricity data is reported for the full 12 months. NO DATA if there is no electricity data, MISSING if there is less than 12 months of electricity data.	Affects all energy, carbon, and HCMI benchmarks
	Energy Data Completeness	This test checks if 12 months of data for all energy types is submitted. NO DATA if no energy data is submitted, MISSING if there are energy types with <12	Does not affect benchmark

		months of data. Zeros are not considered missing.	
	Number of Sources of Energy	This test checks the number of energy sources that the hotel has submitted data for. PASS if there are 2 to 5 energy sources and flagged if otherwise.	Does not affect benchmark
Water	Water Data Completeness	This test checks if data is reported for the full 12 months. NO DATA if there is no water data submitted, MISSING if there are water types with less than 12 months of data.	Affects all water benchmarks
	Water Fences Per OCRM	This test checks if a property's water usage per occupied room is either higher or lower than the upper or lower threshold. The thresholds are determined based on CHSB data from the prior year.	Affects water per OCRM benchmarks
	Water Fences Per Floor Area (SqM or SqFt)	This test checks if a property's water usage per floor area is either higher or lower than the upper or lower threshold. The thresholds are determined based on CHSB data from the prior year.	Affects water per unit floor area benchmarks
Rooms and Floor Area	Gross Average Room Size	This test checks if a property's gross average room size is too high or too low. The thresholds are determined based on…	Affects all per unit floor area benchmarks
	Net Average Room Size	This test checks if a property's net average room size is too high or too low. The thresholds are determined based on…	Affects HCMI benchmarks
	HCMI Ratio	This test checks if the percentage of floor area attributed to guestrooms is too high or too low. The thresholds are determined based on…	Affects HCMI benchmarks

Variance	Overall Variance Test	This test checks if the month-on-month fluctuations are extremely large, meaning there might be errors. "FLAG" if the property's month-on-month variance was greater than 80%, or an overall variance of 400% between the highest and lowest month, for at least one energy/water/operations data point.	Does not affect benchmark

BENCHMARKS

HOW TO READ PERFORMANCE METRICS
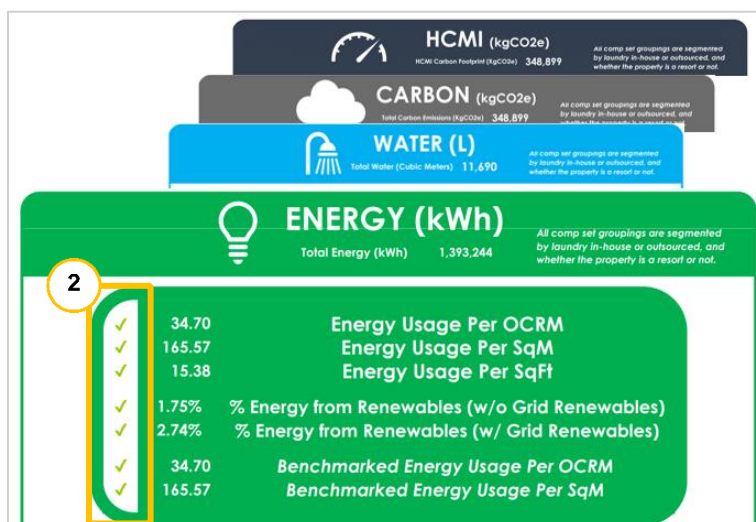
The "Performance Metrics" summary provides the calculated values for energy, water, and carbon, based on hotel data submitted. These metrics are only shown if the data passed the relevant validity tests.

1. **Metric Categories** include performance values for **Energy**, **Water**, and **Carbon**.

2. **Checkbox Indicators** help you interpret the status of your data submission:
   - A **green checkmark (✓)** means the metric passed all required validity tests and the benchmark is provided.
   - A **red cross (X)** means the data failed one or more validity tests, and therefore the metric is not benchmarked.
   - A **question mark (?)** means that the necessary data to calculate the metric is missing or incomplete.

3. **Energy Values** are presented in kilowatt-hours (kWh). All energy data are standardized to this unit for consistency across properties.

4. **Water Values** are converted to cubic meters (m³) for consistency. However, intensity values are presented in liters to reflect typical reporting standards in the hotel industry.

5. **Carbon Values** are calculated from energy data using standardized emission factors and are presented in kilograms of CO_2 equivalent ($kgCO_2e$).
   - Emission factors used in CHSB may differ from those used internally by your company.
   - The full list of emission factor sources used in CHSB2025 will be published alongside the public dataset on the Greenview website.
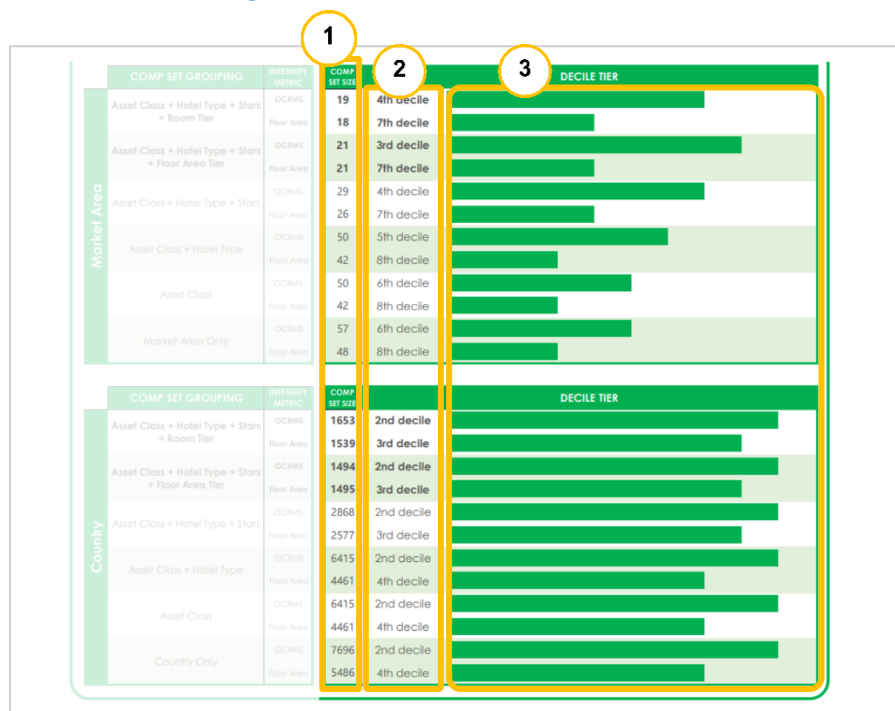
HOW TO READ SEGMENTATION AND GROUPINGS

1. **Segmentation Types** are listed in the first column of the table. Your property is benchmarked under four different segmentation contexts:
   - **Market Area** – Compares your hotel with others in the same defined market area (e.g., metropolitan statistical area, national capital region, or major tourist destination).
   - **Country** – Compares your hotel with others within the same country.

- **Climate Zone 1** – Uses the Koeppen-Geiger climate classification to group properties by broad climatic region.
- **Climate Zone 2** – Uses Bailey's Ecoregions (for US properties) or WWF Terrestrial Ecoregions (for non-US properties) for an alternative climatic grouping.

2. **Competitive Set Groupings** are displayed in the second column. For each segmentation type, your hotel is benchmarked against six competitive set groupings, each with different levels of granularity.
   - Each grouping incorporates a different combination of hotel attributes such as asset class, hotel type, star rating, room tier, and floor area tier.
   - The **grouping** highlighted in **bold** represents the most specific granular benchmark available for your hotel in that geographic scale.
   - As you move down the list, groupings become broader, helping you see how your property performs in both focused and general peer sets.

3. **Intensity Metrics** are presented in the third column of the table. For each competitive set and segmentation, CHSB provides results for one or both of the following:
   - Per Occupied Room
   - Per Floor Area

HOW TO READ BENCHMARKS

1. **Competitive Set Size** refers to the number of hotels included in your benchmark group under that specific segmentation and grouping.
   - Different values may be shown for each intensity metric (e.g., one value for "per occupied room" and another for "per floor area"). This is because some properties

in your competitive set may have passed data validity checks for one metric but not for the other.

2. **Decile Tiering** indicates how your property performs relative to others in the competitive set.
   - A decile represents one-tenth of a distribution.
   - Lower deciles indicate better performance (i.e., lower consumption or emissions).
   - Higher deciles indicate higher resource use, meaning your hotel is consuming or emitting more than most peers in that group.

3. **Performance Interpretation** based on your hotel's decile:
   - A property in the Top (1st) decile is in the best-performing 10% of your comp set.
   - A property in the 5th decile is performing better than one in the 6th or 7th.
   - A property in the Bottom (10th) decile is among the highest consumers or emitters in its group, emitting more than 90% of the competitive set.
   - These rankings are relative to each competitive set and help you identify areas for improvement.
   - Data bars on the right visually represent the decile tier for quick reference.
   - Some rows may show "Insufficient Dataset" if the competitive set does not meet the minimum property count required to produce valid benchmark.

WORKED EXAMPLE

This is an example of how to interpret one row from the benchmark report for energy.

Identifiers/Segmentation Information

PARTICIPANT CODE	SAMPLE_AAAA		HOTEL NAME	Hotel Sample Name
ADDRESS	1, Sample Property Address 12345		BRAND	SAMPLE
			CODE	AAAA

Country	United States		Climate Zone 1	Temperate, dry summer, hot summer		Stars	★★★
City	Sacramento		Climate Zone 2	Dry Steppes and Shrub of Moderate Continental Climate (Mediterranean Division)		Asset Class	Limited Service
Market Area	Sacramento-Arden-Arcade-Roseville, CA MSA		Hotel Type: Group	NonResort		STR Market Segment	Upscale
CHSB Region	California State		Hotel Type: Sub-Group	Airport Hotel		Laundry	Washed On-site
			Operational Type	Year-Round		Location Type*	Urban

Property Details

✓	Number of Rooms	126	✓	Floor Area in Square Meters	6,456	✓	HCMI Ratio	94%
✓	Room Tier	Large (Room Count)	✓	Floor Area in Square Feet	69,492	✓	HWMI Ratio	94%
✓	Floor Area Tier	Large (Area)	✓	Total Occupied Rooms	35,455	✓	Occupancy Rate	83%

For this sample property:

- It is located in the **United States**.
- It is a **limited-service hotel**, a **non-resort**, rated **3 stars**, with **onsite laundry**. It falls in the **Large** room tier category.

The image below shows the property's benchmarks for energy within the same **Country**.
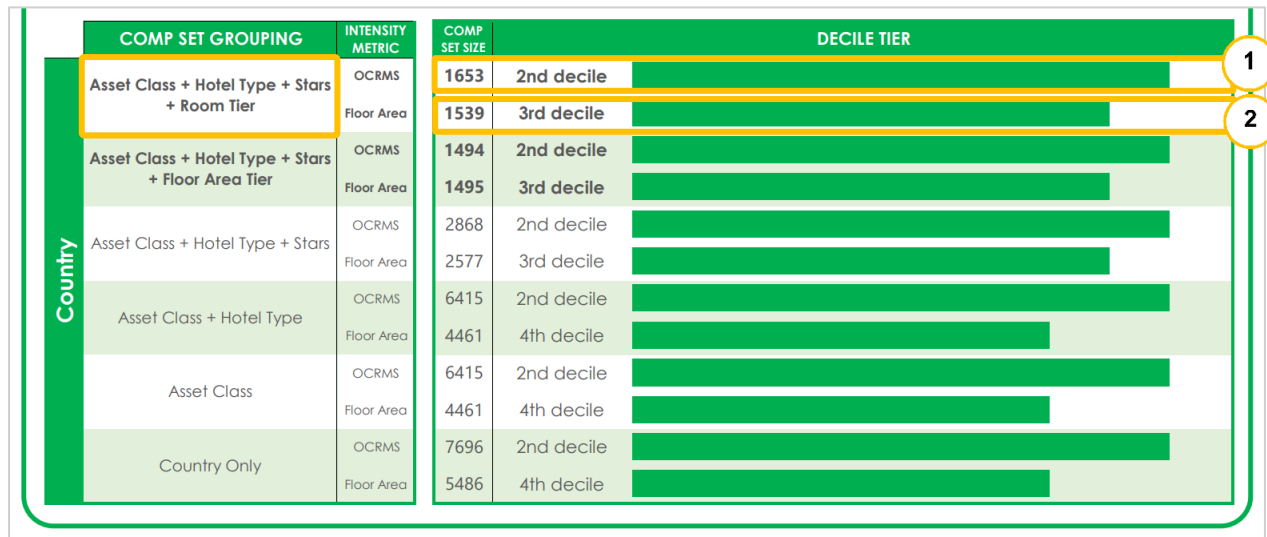
Benchmarking results:

1. Among **1,653 limited-service**, **non-resort** hotels in the **United States** with the same **3-star rating** and **Large room tier** classification, this hotel ranks in the **2nd decile** for energy use *per occupied room*.
2. Among **1,539 limited-service, non-resort** hotels in the **United States** with the same **3-star rating** and **Large room tier classification**, this hotel ranks in the **3rd decile** for energy use *per unit of floor area.*

What this means:

- This hotel's 2nd decile ranking per occupied room means it consumes less energy per guest night than at least 80% of hotels in its competitive set.
- This hotel's 3rd decile ranking per floor area shows it consumes less energy per unit of floor area than at least 70% of hotels in its competitive set.
- Together, these indicate that the property is a good performer in energy use and may be close to best-in-class among peers in the country.

FURTHER RESOURCES

For more information about the validity testing process, fence values, segmentation logic, and the benchmarking methodology, please consult the **CHSB Guidance Document**. This document is freely available alongside the public dataset via the Cornell Center for Hospitality Research Library, or directly through the [Greenview website](#).

You have now reached the end of this document.

For more information, please contact data@greenview.sg

Your feedback is welcome and appreciated!