GRESB

2025 Aggregation Handbook

Introduction

The GRESB Real Estate Assessment requires Participants to report on Energy, GHG, Water, and Waste performance at the asset level. The intent of this document is to provide clarity on the calculations taking place in the GRESB Asset Portal when aggregating asset-level data to metrics shown to participants (property sub-type & country) in the GRESB Assessment Portal.

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This document includes the following items:

Data Coverage

GRESB evaluates data coverage through two dimensions: area and time.

A. **Data Coverage (area)** refers to the amount of space (expressed in % of the maximum space) covered by performance data points.
B. **Data Coverage (time)** refers to the amount of time (expressed in % of the ownership period) covered by performance data points.

Data Coverage (Area)

This section outlines GRESB's methodology to calculate Data Coverage (area) for energy per control type (tenant vs. landlord). The same methodology applies to water, though it is simpler since GRESB recognizes only one water type rather than multiple energy types.

Data Coverage (area) per subspace is calculated by dividing the sum of each energy type's Floor Area Covered by the sum of their corresponding Maximum Floor Area. The same calculation is performed for both control types: Landlord Controlled and Tenant Controlled.

Energy can be reported either at Whole Building or Base Building + Tenant Space level. Each level corresponds to a control type (represented by →):

Whole Building level:

- Whole Building → Landlord Controlled (WB LC)
  or
- Whole Building → Tenant Controlled (WB TC)

Base Building + Tenant Space level:

- Common Areas → Landlord Controlled (CA)
- Shared Services → Landlord Controlled (SS)
- Tenant Space - Landlord Controlled → Landlord Controlled (TS LC)
- Tenant Space - Tenant Controlled → Tenant Controlled (TS TC)

If an asset is reported at the Whole Building level, its Data Coverage (Area) will be equal to the Data Coverage (Area) of the Whole Building area. If an asset is reported at the Base Building + Tenant Space level, each individual subspace listed above – corresponding to the same control type – will be aggregated to calculate the Data Coverage (Area) for that specific control type.

Landlord Controlled

Landlord Controlled areas include four areas (see above): WB LC, CA, SS and TS LC. The Data Coverage (area) of a specific subspace is calculated by dividing the sum of each energy type's Floor Area Covered by the sum of its corresponding Maximum Floor Area.

Example: Whole Building - Landlord Controlled

$$Data\ Coverage\ (Area)_{wb,\,lc} = \frac{\sum_{j=1}^{n} Floor\ \ Area\ Covered_{wb,\,lc,\,j}}{\sum_{j=1}^{n} Maximum\ \ Floor\ Area_{wb,\,lc,\,j}}$$

Formula 1.a. Data Coverage (Area) - Whole Building - Landlord Controlled

Where:

- *'wb' is Whole Building*
- *'lc' represents Landlord Controlled*
- *'j' represents an energy type (Fuel, Electricity, and District Heating and Cooling)*
- *"n' is the total number of energy types applicable*

Throughout this document, the use of lowercase subscripts refers to asset-level metrics, while capital letters refer to property sub-type-level metrics.

Since the Whole Building level represents the entire asset, the Whole Building Data Coverage (Area) is equal to the asset's Data Coverage (Area).

$$Data\ Coverage\ (Area)_{lc} = Data\ Coverage\ (Area)_{wb,\,lc}$$

Formula 1.b. Data Coverage (Area) at the asset level- Landlord Controlled

For assets reported at the Base Building + Tenant Space level, the Data Coverage (Area) for Landlord Control is calculated as the weighted-average sum of the Data Coverage (Area) of each subspace classified as Landlord Controlled, using the corresponding Area Size as weighting factor:

$$Data\ Coverage\ (Area)_{lc} = \frac{\sum_{lc}\left(\frac{\sum_{j=1}^{n} Floor\ \ Area\ Covered_{\,lc,\,j}}{\sum_{j=1}^{n} Maximum\ \ Floor\ Area_{\,lc,\,j}} \times Asset\ Size_{\,lc}\right)}{\sum_{lc} Area\ \ Size_{\,lc}}$$

Formula 2. Data Coverage (Area) - Base Building + Tenant Spaces Landlord Controlled

Where:

- *'lc' is Landlord Controlled*
- *'j' represents an energy type (Fuel, Electricity, and District Heating and Cooling)*
- *'n' is the total number of applicable energy types*

Throughout this document, the use of lowercase subscripts refers to asset-level metrics, while capital letters refer to property sub-type-level metrics.

To aggregate the Landlord Controlled Data Coverage (Area) from the asset level to the property sub-type and country level, GRESB applies a weighted average using the corresponding Landlord Controlled floor area of an asset as the weighting factor. The percentage of ownership the reporting entity holds in an asset is taken into account when calculating the corresponding Landlord Controlled (LC) floor area weight.

For assets reported at the Base Building + Tenant Space level, the following two assumptions apply:

1. Tenant Spaces - Landlord Controlled and Tenant Spaces - Tenant Controlled do not overlap.
2. The Shared Services floor area overlaps with all other subspaces.

Therefore, the Landlord Controlled (LC) weight is calculated as follows:

$$LC\ Weight\ = \frac{\max(CA\ +\ TS\ LC,\ SS)}{\max(CA\ +\ TS\ LC,\ SS) + TS\ TC} \times Asset\ Size \times \%\ of\ Ownership$$

Formula 3. Landlord Controlled weight - Base Building and Tenant Spaces

Finally, GRESB calculates the Data Coverage (Area) at the property sub-type and country level for a specific control type (Landlord Controlled) as a weighted average of asset-level Data Coverage (Area) of the same control type (Landlord Controlled), using the weights above as weighting factors.

$$Data\ coverage\ (Area)_{P,\,C,\,LC} = \frac{\sum_{i=1}^{n}\left(Data\ Coverage\ (area)_{\,lc,\,i} \times LC\ Weight_{\,i}\right)}{\sum_{i=1}^{n} LC\ Weight_{\,i}}$$

Formula 4. Data Coverage (Area) at property sub-type & country level - Landlord Controlled

Where:

- *'Data Coverage (Area) lc, i' represents the Data Coverage (Area) corresponding to the Landlord Controlled areas of the asset i*
- *'LC Weight' i is the Landlord Controlled weight of asset i*
- *'P' is a specific property sub-type*
- *'C' is a specific country*
- *'i' represents an asset in a specific property sub-type & country*
- *'n' is the total number of assets in a specific property sub-type & country*
- *'lc' denotes Landlord Controlled*

** Note: For assets reporting at the Whole Building level, the LC Weight is equal to the Asset Size multiplied by the % of Ownership of the corresponding asset.*

Tenant Controlled

Tenant Controlled areas consist of two subcategories: WB TC, and TS TC. The Data Coverage (Area) of a specific subspace is calculated by dividing the sum of each energy type's Floor Area Covered by the sum of their corresponding Maximum Floor Area.

Example: Whole Building - Tenant Controlled

$$Data\ Coverage\ (Area)_{wb,\,tc} = \frac{\sum_{j=1}^{n} Floor\ \ Area\ Covered_{\,wb,\,tc,\,j}}{\sum_{j=1}^{n} Maximum\ \ Floor\ Area_{\,wb,\,tc,\ j}}$$

Formula 5.a. Data Coverage (Area) - Whole Building - Tenant Controlled

Where:

- *'wb' is Whole Building*
- *'tc' refers to Tenant Controlled*
- *'j' represents an energy type (Fuel, Electricity, and District Heating and Cooling)*
- *'n' is the total number of applicable energy types*

Since the Whole Building level represents the entire asset, the Whole Building Data Coverage (Area) equals the asset's Data Coverage (Area):

$$Data\ Coverage\ (Area)_{tc} = Data\ Coverage\ (Area)_{wb,\,tc}$$

Formula 5.b. Data Coverage (Area) - Tenant Controlled

Throughout this document, the use of lowercase subscripts refers to asset-level metrics, while capital letters refer to property sub-type-level metrics.

For assets reported at the Base Building + Tenant Space level, the Data Coverage (Area) for Tenant Control equals the Data Coverage (Area) of the subspace TS TC. The same calculation methodology from *Formula 5.a* applies to the Tenant Controlled area of an asset reported at this level:

$$Data\ Coverage\ (Area)_{tc} = \frac{\sum_{j=1}^{n} Floor\ Area\ Covered_{\,tc,\,j}}{\sum_{j=1}^{n} Maximum\ Floor\ Area_{\,tc,\,j}}$$

Formula 5.c. Data Coverage (Area) - Base Building + Tenant Spaces Tenant Controlled

Where:

- *'tc' refers to Tenant Controlled*
- *'j' represents an energy type (Fuel, Electricity, and District Heating and Cooling)*
- *'n' is the total number of applicable energy types*

To aggregate the Tenant Controlled Data Coverage (Area) from the asset level to property sub-type and country level, GRESB applies a weighted average using the corresponding Tenant Controlled floor area of an asset as the weighting factor. The percentage of ownership the reporting entity has in an asset is also factored in when calculating the corresponding Tenant Controlled (TC) floor area weight.

For assets reported at the Base Building + Tenant Space level, the following two assumptions are made:

1. Tenant Spaces - Landlord Controlled and Tenant Spaces - Tenant Controlled don't overlap.
2. The Shared Services floor area overlaps with all other subspaces.

Therefore, the Tenant Controlled (TC) weight is calculated using the following formula:

$$TC\ Weight\ =\ \frac{TS\ TC}{\max(CA\ +\ TS\ LC,\ SS)+\ TS\ TC} \times Asset\ Size \times \%\ of\ Ownership$$

Formula 6.a. Tenant controlled weight - Base Building and Tenant Spaces

Alternatively:

$$TC\ Weight = Asset\ Size \times \%\ of\ Ownership - LC\ Weight$$

Formula 6.b. Tenant controlled weight - Base Building and Tenant Spaces

Finally, GRESB calculates the Data Coverage (Area) at property sub-type and country level for a specific control type (Tenant Controlled) as a weighted average of asset-level Data Coverage (Area) of the same control type (Tenant Controlled), using the weights above as weighting factors:

$$Data\ Coverage\ (Area)_{P,\ C,\ TC}\ = \frac{\sum_{i=1}^{n}\left(Data\ Coverage\ (Area)_{tc,\ i}\ \times\ TC\ Weight_i\right)}{\sum_{i=1}^{n} TC\ \ Weight_i}$$

Formula 7. Data Coverage (Area) at property sub-type & country level - Tenant Controlled

** Note: For assets reported at the Whole Building level, the LC Weight is equal to the Asset Size multiplied by the % of Ownership of the corresponding asset.*

Where:

- *'Data Coverage (area) tc, i' is the Data Coverage (Area) - Tenant Controlled of the asset i*
- *'TC Weight i' is the Tenant Controlled weight of asset i*
- *'P' is a specific property sub-type*
- *'C' is a specific country*
- *'i' is an asset in a specific property sub-type and country*
- *'n' is the total number of assets in a specific property sub-type and country intersection*
- *'tc' is Tenant Controlled*

Data Coverage (Time) | Data Availability

This section outlines the methodology used by GRESB to calculate Data Coverage (Time) for Energy, GHG, and Water.

Data Coverage (Time) of an asset is calculated based on the following factors:

1. **Ownership Period**: This refers to the period during which an asset is owned by the reporting entity. GRESB expects participants to report performance data for the

entire Ownership Period during which the asset is classified as a Standing Investment (see below).

2. **Status:** GRESB participants are not required to report performance data for periods when an asset is classified as New Construction and/or Major Renovation. Instead, GRESB only requires data reporting for periods when an asset is classified as a Standing Investment.

Data Coverage (Time) of an asset is calculated as follow:

$$Data\ Coverage\ (Time) = \frac{Data\ Availability\ (To) - Data\ Availability\ (From)}{Ownership\ Period_{SI}}$$

Formula 8. Data Coverage (Time) at the asset level

Where:

- *'Data Availability (To)' is the Data Availability End Date of an asset*
- *'Data Availability (From)' is the Data Availability Starting Date of an asset*
- *'Ownership PeriodSI ' is the Ownership Period for which the asset was a Standing Investment*

**Note: If a participant collects performance data from before the acquisition date, they are permitted to report a Data Availability period that exceeds the Ownership Period$_{SI}$. In this case, Ownership Period$_{SI}$ will be the maximum between Data Availability (To)-Data Availability (From) and Ownership Period$_{SI}$.*

GRESB calculates the Data Coverage (Time) at property sub-type and country level as a weighted average of asset-level Data Coverage (Time), using Ownership Period$_{si}$ as weighting factors.

$$Data\ coverage\ (Time)_{P,\ C} = \frac{\sum_{i=1}^{n}\left(\ Data\ Coverage\ (Time)_{i}\ \times\ Ownership\ Period_{SI,\ i}\ \right)}{\sum_{i=1}^{n}\ \ \left(Ownership\ Period_{SI,\ i}\right)}$$

Formula 9. Data Coverage (Time) at property sub-type and country level

Where:

- *'Data Coverage (Time) i' is the Data Coverage (time) of the asset i*
- *'Ownership PeriodSI ' is the Ownership Period for which the asset was a Standing Investment*
- *"P' is a specific property sub-type*
- *'C' is a specific country*
- *'i' represents an asset in a specific property sub-type & country*
- *'n' is the total number of assets in a specific property sub-type & country*

**Note: that Data Availability can be greater than Ownership Period$_{SI}$ in case the participant has collected performance data prior to the acquisition date. In this case, Ownership Period$_{SI}$ will be the maximum between Data Availability (To)-Data Availability (From) and Ownership Period$_{SI}$.*

Data Coverage (Area/Time)

This section outlines GRESB methodology to aggregate the two dimensions of Data Coverage: Area and Time. The Data Coverage (Area/Time) metric is calculated per control type (Landlord Controlled and Tenant Controlled) in a consistent manner.

Firstly, GRESB calculates the Data Coverage (Area/Time) at the asset level as the product of Data Coverage (Area) and Data Coverage (Time).

Landlord Controlled: $Data\ Coverage\ (Area/Time)_{lc} = Data\ Coverage\ (Area)_{lc} \times Data\ coverage\ (Time)$

Formula 10.a . Data Coverage (Area/Time) - Landlord Controlled at the asset level

Where:

- *'Data Coverage (Area) lc ' is the Data coverage (Area) at the asset level*
- *'Data Coverage (Time)' is the Data Coverage (Time) at the asset level*
- *'lc' is Landlord Controlled*

Tenant Controlled: $Data\ Coverage\ (Area/Time)_{tc} = Data\ Coverage\ (Area)_{tc} \times Data\ coverage\ (Time)$

Formula 10.b . Data Coverage (Area/Time) - Tenant Controlled at the asset level

Where:

- *'Data Coverage (Area) tc ' is the Data coverage (Area) at the asset level*
- *'Data Coverage (Time)' is the Data Coverage (Time) at the asset level*
- *'tc' is Tenant Controlled*

GRESB calculates Data Coverage (Area/Time) at the property sub-type and country level for a specific control type as a weighted average of asset-level Data Coverage (Area/Time), using *TC Weight x Ownership Period$_{si}$* or *LC Weight* x *Ownership Period$_{si}$* as weighting factors.

This weighting factor takes into account both: the control specific weight (*LC Weight and TC Weight*) and period of ownership (*Ownership Period$_{si}$*) in the aggregation.

Landlord Controlled:

$$Data\ Coverage\ (Area/Time)_{P,C,LC} = \frac{\sum_{i=1}^{n}\left(Data\ Coverage\ (Area/Time)_{lc,i} \times LC\ Weight_i \times Ownership\ Period_{si,i}\right)}{\sum_{i=1}^{n}\left(LC\ Weight_i \times Ownership\ Period_{si,i}\right)}$$

Formula 11.a. Data Coverage (Area/Time) - Landlord Controlled at property sub-type & country level

Where:

- *'Data Coverage (Area/Time) lc, i is the Data Coverage (Area/Time) - Landlord Controlled of the asset i*
- *'LC Weight i' is the Landlord Controlled weight of asset i*
- *'Ownership Period si ' is the Ownership Period for which the asset was a Standing Investment*
- *'P' is a specific property sub-type*
- *'C' is a specific country*
- *'i' is an asset in a specific property sub-type and country*
- *'n' is the total number of assets in a specific property sub-type and country*
- *'tc' is Tenant Controlled*

Tenant Controlled:

$$Data\ Coverage\ (Area/Time)_{P,C,TC} = \frac{\sum_{i=1}^{n}\left(Data\ Coverage\ (Area/Time)_{tc,i} \times TC\ Weight_i\ x\ Ownership\ Period_{si,i}\right)}{\sum_{i=1}^{n}\left(TC\ Weight_i \times Ownership\ Period_{si,i}\right)}$$

Formula 11.b. Data Coverage (Area/Time) - Tenant Controlled at property sub-type and country level

Where:

- *'Data Coverage (Area/Time) a, tc, i is the Data Coverage (Area/Time) - Tenant Controlled of the asset i*
- *'TC Weight ' is the Tenant Controlled weight of asset i*
- *'Ownership Period$_{si}$ ' is the Ownership Period for which the asset was a Standing Investment*
- *'P' is a specific property sub-type*
- *'C' is a specific country*
- *'i' is an asset in a specific property sub-type & country*
- *'n' is the total number of assets in a specific property sub-type & country*
- *'lc' is Landlord Controlled*

**Note: Data Availability can be greater than Ownership Period$_{SI}$ if the participant collects performance data prior to acquisition. In this case, Ownership Period$_{SI}$ will be the maximum between Data Availability (To)-Data Availability (From) and Ownership Period$_{SI}$.*

Like-for-Like

This section outlines the methodology used by GRESB to aggregate the Like-for-Like Change and the Like-for-Like Data Availability from asset level to property sub-type and country level.

Like-for-Like (LFL) only includes comparable data points from two consecutive reporting periods. To be eligible for inclusion in the LFL calculations, assets must meet all of the following criteria, for both the current and previous reporting years:

1. Data Availability covers the full year (> 355 days);
2. Data Coverage is positive;
3. Data Coverage is the same (within 1% error threshold);
4. The asset is classified as Standing Investment.

**Note: To avoid infinite values, Like-for-like also requires the existence of a positive performance value in the previous year.*

Like-for-Like Change

The LFL Change calculates the percentage change in consumption/emission from last year (LY) to current year (CY). This metric is calculated per control type (Landlord Controlled and Tenant Controlled) in a consistent manner.

GRESB calculates the LFL Change at the property sub-type and country level for a specific control type as the sum of asset-level LFL Change corresponding to that control type, using *LY consumption* as weighting factors. Both LY and CY consumption are weighted by the percentage of ownership the reporting entity has in each asset.

Energy - Landlord Controlled:

$$LFL\ Change_{P,\,C,\,LC} = \frac{\sum_{i=1}^{n}\left(CY\ consumption_{lc,\,j}\ \times\ \%\ of\ Ownership - LY\ consumption_{lc,\,j}\ \times\ \%\ of\ Ownership\right)_i}{\sum_{i=1}^{n}\left(LY\ consumption_{lc,\,j}\ \times\ \%\ of\ Ownership\right)_i}$$

Formula 12.a. LFL Change at property sub-type & country level - Landlord Controlled

Where:

- *'lc' is Landlord Controlled*
- *'j' represents an energy type (Fuel, Electricity, and District Heating and Cooling)*
- *'P' is a specific property sub-type*
- *'C' is a specific country*
- *'i' is an asset in a specific property sub-type & country*
- *'n' is the total number of assets in a specific property sub-type & country*
- *% of Ownership is the percentage of the assets owned by the reporting entity.*

Energy - Tenant Controlled:

$$LFL\ Change_{P,C,TC} = \frac{\sum_{i=1}^{n}\left(CY\ consumption_{tc,j} \times \%\ of\ Ownership - LY\ consumption_{tc,j} \times \%\ of\ Ownership\right)_i}{\sum_{i=1}^{n}\left(LY\ consumption_{tc,j} \times \%\ of\ Ownership\right)_i}$$

Formula 12.b. LFL Change at property sub-type & country level - Tenant Controlled

Where:

- *'tc' is Tenant Controlled*
- *'j' represents an energy type (Fuel, Electricity, and District Heating and Cooling)*
- *P' is a specific property sub-type*
- *'C' is a specific country*
- *'i' is an asset in a specific property sub-type and country*
- *'n' is the total number of assets in a specific property sub-type and country*
- *% of Ownership is the percentage of the assets owned by the reporting entity.*

**Note: The Outdoor / Exterior Areas / Parking consumption are also included in the scope of the LFL Change, and are differentiated by control type.*

The same methodology applies to GHG, with the exception that the LFL Change metric is calculated per scopes (Scopes 1/2 and Scope 3) instead of per control types.

The same methodology applies to Water. However, GRESB recognizes only one type of Water consumption.

Example 1:

- Asset A has reported electricity consumption in both years, and CY consumption is 0.

Reporting year	Common Areas								
	Fuels			District Heating & Cooling			Electricity		
	Consumption (kWh)	Floor Area Covered (m2/sq.ft.)	Maximum Floor Area (m2/sq.ft.)	Consumption (kWh)	Floor Area Covered (m2/sq.ft.)	Maximum Floor Area (m2/sq.ft.)	Consumption (kWh)	Floor Area Covered (m2/sq.ft.)	Maximum Floor Area (m2/sq.ft.)
2019							500	1,000	1,000
2020							0	1,000	1,000

Figure 1. LFL Change - Example 1

We assume that the asset is classified as a Standing Investment and has data availability greater than 355 days. Given that LY consumption is positive, and data coverages are positive and stable in both years, the Electricity consumption of Common Areas is included in the LFL Change scope.

Example 2:

The same scenario applies, but LY electricity consumption is 0. However, Asset B has reported positive LY fuels consumption.

Reporting year	Common Areas								
	Fuels			District Heating & Cooling			Electricity		
	Consumption (kWh)	Floor Area Covered (m2/sq.ft.)	Maximum Floor Area (m2/sq.ft.)	Consumption (kWh)	Floor Area Covered (m2/sq.ft.)	Maximum Floor Area (m2/sq.ft.)	Consumption (kWh)	Floor Area Covered (m2/sq.ft.)	Maximum Floor Area (m2/sq.ft.)
2019	300	1,000	1,000				0	1,000	1,000
2020	0	1,000	1,000				500	1,000	1,000

Figure 2. LFL Change - Example 2

Since the LY consumption in the Common Areas is positive, both the LY and CY consumption are included in the LFL Change calculation.

Example 3:

Asset C has reported electricity consumption equal to 0 for LY, but CY consumption is positive.

Reporting year	Common Areas								
	Fuels			District Heating & Cooling			Electricity		
	Consumption (kWh)	Floor Area Covered (m2/sq.ft.)	Maximum Floor Area (m2/sq.ft.)	Consumption (kWh)	Floor Area Covered (m2/sq.ft.)	Maximum Floor Area (m2/sq.ft.)	Consumption (kWh)	Floor Area Covered (m2/sq.ft.)	Maximum Floor Area (m2/sq.ft.)
2019							0	1,000	1,000
2020							500	1,000	1,000

Figure 3. LFL Change - Example 3

The consumption for both years will not be included in the LFL Change, as LY consumption in the Common Areas is equal to 0.

Like-For-Like Data Availability

The LFL Data Availability is calculated similarly to the Data Coverage (Area) outlined in the Data Coverage section of this document. This metric is calculated per control type (Landlord Controlled and Tenant Controlled) using a consistent methodology.

In addition to the criteria specified above, calculating LFL Data Availability requires positive LY consumption/emission within a subspace of an asset.

Energy - Landlord Controlled:

$$LFL\ Data\ Availability_{lc} = \frac{\sum_{lc}\left(\frac{\sum_{j=1}^{n} Floor\ \ Area\ Covered_{lc,\,j}}{\sum_{j=1}^{n} Maximum\ \ Floor\ Area_{lc,\,j}} \times Area\ Size_{lc}\right)}{\sum_{lc} Area\ \ Size_{lc}}$$

Formula 13.a. LFL Data Availability at asset level - Landlord Controlled

Where:

- *'lc' is Landlord Controlled*
- *'j' represents an energy type (Fuel, Electricity, and District Heating and Cooling)*
- *'n' is the total number of energy types applicable*

$$LFL\ Data\ Availability_{P,C,LC} = \frac{\sum_{i=1}^{n}(LFL\ Data\ Availability_{lc,i}\ x\ LC\ Weight_i)}{\sum_{i=1}^{n} LC\ Weight_i}$$

Formula 14.a. LFL Data Availability at property sub-type & country level - Landlord Controlled

Where:

- *'LFL Data Availability lc, i is the LFL Data Availability - Landlord Controlled of the asset i*
- *'LC Weight i is the Landlord Controlled weight of asset i*
- *P' is a specific property sub-type*
- *'C' is a specific country*
- *'i' is an asset in a specific property sub-type and country*
- *'n' is the total number of assets in a specific property sub-type and country*

Energy - Tenant Controlled:

$$LFL\ Data\ Availability_{tc} = \frac{\sum_{j=1}^{n} Floor\ Area\ Covered_{tc,j}}{\sum_{j=1}^{n} Maximum\ Floor\ Area_{tc,j}}$$

Formula 13.b. LFL Data Availability at asset level - Tenant Controlled

Where:

- *'tc' is Tenant Controlled*
- *'j' represents an energy type (Fuel, Electricity, and District Heating and Cooling)*
- *'n' is the total number of energy types applicable*

$$LFL\ Data\ Availability_{P,C,TC} = \frac{\sum_{i=1}^{n}\left(LFL\ Data\ Availability_{tc,i}\ x\ TC\ Weight_i\right)}{\sum_{i=1}^{n} TC\ \ Weight_i}$$

Formula 14.b. LFL Data Availability at property sub-type and country level - Tenant Controlled

Where:

- *'LFL Data Availability tc $_{ji}$' is the LFL Data Availability - Tenant Controlled of the asset $_{ii}$*
- *'TC Weight$_i$' is the Tenant Controlled weight of asset i*
- *P' is a specific property sub-type*
- *'C' is a specific country*
- *'i' is an asset in a specific property sub-type and country*
- *'n' is the total number of assets in a specific property sub-type and country*

Note: Floor Area Covered and Maximum Floor Area values should only be included in the formulas above if the subspace is eligible for the LFL Data Availability.

Intensities

This section outlines GRESB's methodology for calculating the average Energy/GHG/Water Intensity from the asset level to the property sub-type and country level.

For all assets with 100% Data Coverage (Area/Time) and a full year of reported data, GRESB calculates the equity-weighted Intensities at the property sub-type level. This is determined by dividing the sum of an asset's total consumption by the sum of the Asset Sizes (GFA), weighted by the percentage of ownership the reporting entity has in each asset.

Assets with less than 100% Data Coverage (Area/Time) or incomplete reporting data for the full year, are excluded from the calculations.

Energy intensity

$$Intensity_{P,C,Energy} = \frac{\sum_{i=1}^{n}(\%\ ownership_i\ x\ Total\ Energy\ Consumption_i)}{\sum_{i=1}^{n}(\%\ ownership_i\ x\ Asset\ size\ (GFA)_i)}$$

Formula 15. Average Energy Intensity per property sub-type & country level

Where:

- *'P' is a specific property sub-type*
- *'C' is a specific country*
- *'i' is an asset in a specific property sub-type and country*
- *'n' is the total number of assets in a specific property sub-type and country*

GHG intensity

$$Intensity_{P,C,GHG} = \frac{\sum_{i=1}^{n}(\%\ ownership_i\ x\ Total\ GHG\ Emissions_i)}{\sum_{i=1}^{n}(\%\ ownership_i\ x\ Asset\ Size\ (GFA))_i}$$

Formula 16. Average GHG Intensity per property sub-type & country level

Where:

- *'P' is a specific property sub-type*
- *'C' is a specific country*
- *'i' is an asset in a specific property sub-type and country*
- *'n' is the total number of assets in a specific property sub-type and country*

Water intensity

$$Intensity_{P,C,Water} = \frac{\sum_{i=1}^{n}(\%\ ownership_i\ x\ Total\ Water\ Consumption_i)}{\sum_{i=1}^{n}(\%\ ownership_i\ x\ Asset\ Size\ (GFA)_i)}$$

Formula 17. Average Water Intensity per property sub-type and country level

Where:

- *P' is a specific property sub-type*
- *'C' is a specific country*
- *'i' is an asset in a specific property sub-type and country*
- *'n' is the total number of assets in a specific property sub-type and country*

Outliers

Outliers are observations of data points that lie at an abnormal distance from other values. This does not necessarily indicate that the reported values are incorrect; however participants are encouraged to review them to ensure the accuracy of the asset-level data provided.

The two most common explanations for outliers relate to vacancy rates and data availability periods:

- **Intensity values** are normalized by both **vacancy and data availability**.
- **Like-for-Like values** are normalized by **vacancy only**. Like-for-like outliers are not normalized by data availability because an asset is only eligible for Like-for-like inclusion if the data is available for 2 continuous years.

Like-for-Like Outliers

$$\frac{\left(CY\ consumption \div (1 - CY\ vacancy\ rate)\right) - \left(LY\ consumption \div (1 - LY\ vacancy\ rate)\right)}{LY\ consumption \div (1 - LY\ vacancy\ rate)}$$

Intensity Outliers

$$\frac{CY\ Consumption}{Applicable\ Area \times Data\ Availability \times (1 - CY\ Vacancy\ Rate)}$$

Refer to the Appendix 4 of the Reference Guide for more information on outlier thresholds, impact on scoring and how to avoid them.