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FTSE EPRA Nareit Green Indexes

IV Iberian Reit & Listed Conference

Madrid

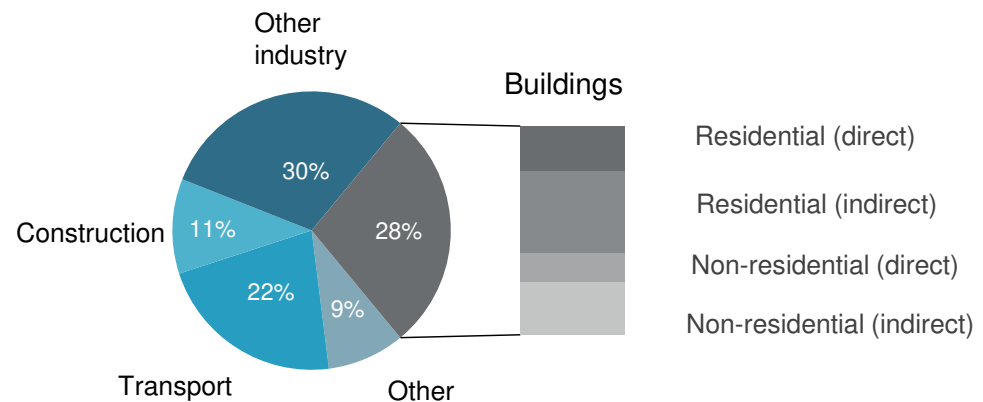


Green Real Estate – A key building block for the low carbon economy

Navigating climate risk in a carbon-intensive sector

- Real estate sector faces **material climate risk**, inherent to the long-lived, energy-intensive fixed assets within.
- Regulatory pressure will continue to **increase** as policy makers look to accelerate **low carbon transition**.

Buildings account for 28% of global carbon emissions and over half of global electricity usage



Share of global energy-related CO₂ emissions by sector, 2015¹

However unlike other carbon-intensive sectors:

- ✓ There are **many** cost-effective, well-understood **solutions** to reduce energy use & carbon emissions.
- ✓ Investment and sustainability objectives are often **closely aligned** in real estate investing.

Appropriate tools for integrating climate risk effectively in Real Estate strategies are lacking

Data gaps are a primary roadblock to develop implementation options for a sizeable asset class, with estimated **US\$57 trillion** in income generating holdings.¹

Certification efforts, industry initiatives and a growing number of **real estate companies with detailed disclosures** are contributing significantly to close these gaps.

However today, comprehensive **investment-grade data is still not widely available** to investors:

Fewer than half **disclose carbon emissions** data for their portfolio² among largest 50 constituents in FTSE EPRA Nareit Developed Index

At individual asset level, investors face many Green Certification schemes **with uneven coverage.**

Only **1 in 5 companies** currently able to **collect/disclose asset level data for 100%** of their holdings.³



Introducing the FTSE EPRA Nareit Green Index Series

Overview

FTSE EPRA Nareit Green Indexes



FTSE EPRA Nareit Global Real Estate Index Series

\$56 billion

TOTAL BENCHMARKED
PASSIVE ASSETS¹

\$313 billion

TOTAL BENCHMARKED
ASSETS¹

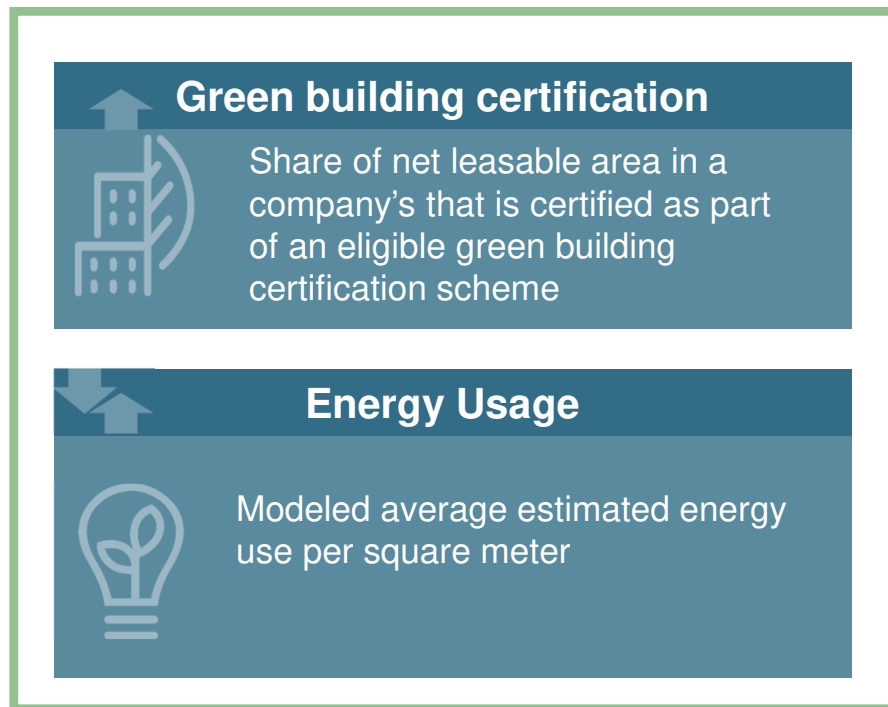
- Provide investors with **coverage of real estate** companies that exhibit strong sustainability characteristics
- Covers the **global developed market universe**: FTSE EPRA Nareit Developed Index
- Draws on a **geolocation database** from GeoPhy containing asset level information on over 15 million buildings
- Use of **bottom-up building data**; a consistent method of evaluating green characteristics of company's real estate portfolios
- **FTSE Russell tilt methodology** adjusts company weights up/down based on sustainable investment considerations



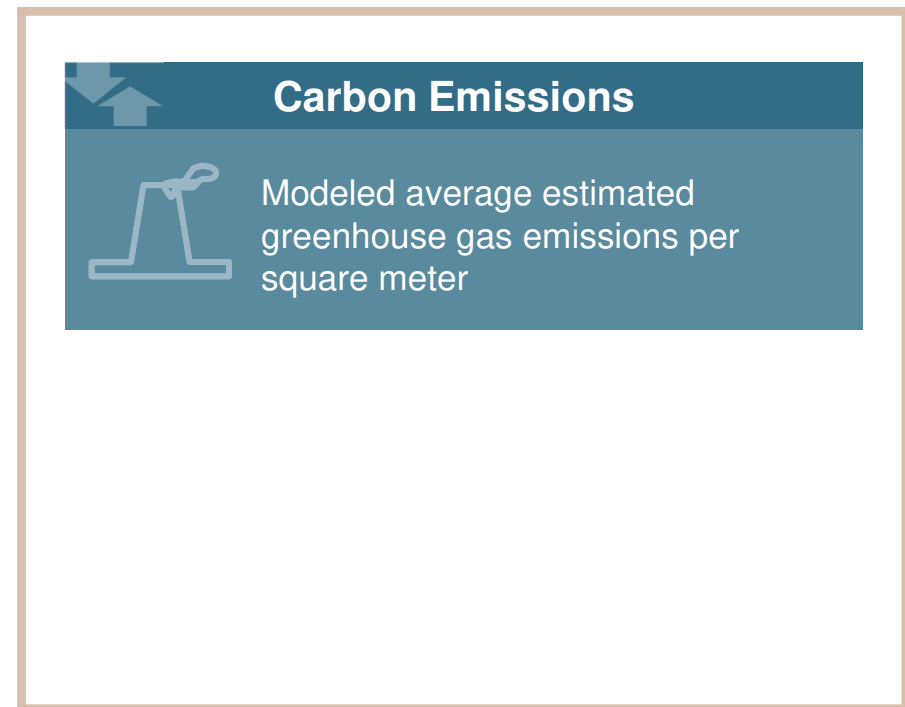
A bottom-up, asset-by-asset approach

- **Bottom-up, geolocation approach** used to identify the individual real estate assets in each company's portfolio.
- Basis for consistent & granular assessment of portfolio sustainability performance across **3 key indicators**.

Applied to adjust constituent weights

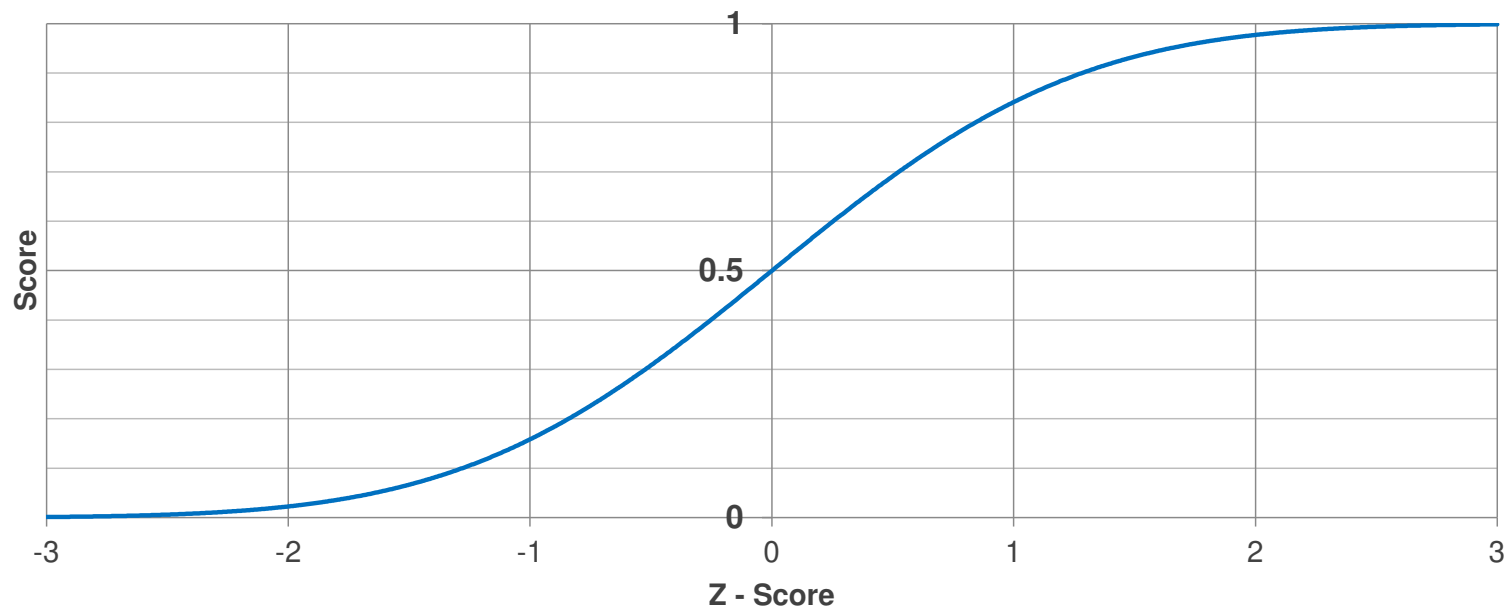


Reported in index outcomes



Factor Normalization and Mapping

- Select a universe – calculate raw factor values – convert to Z-Scores
- Map Z-Scores to S-scores (range from 0 – 1):



- Multiply market cap weights by S-scores – to apply “single strength tilt”
- Adjust tilt strength by changing the exponent.

Index Design Overview

Starting market cap universe (i.e. FTSE EPRA Nareit Developed Index)



Green parameters¹

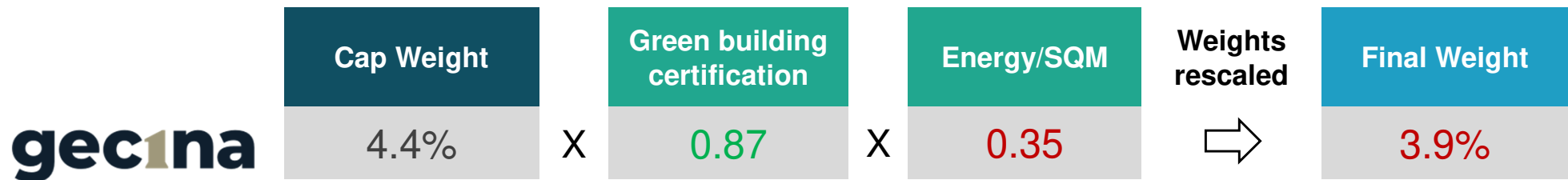
Tilts

$$W \times S_{\text{Green Building Certification}} \times S_{\text{Energy Usage}}$$



FTSE EPRA Nareit Green Indexes

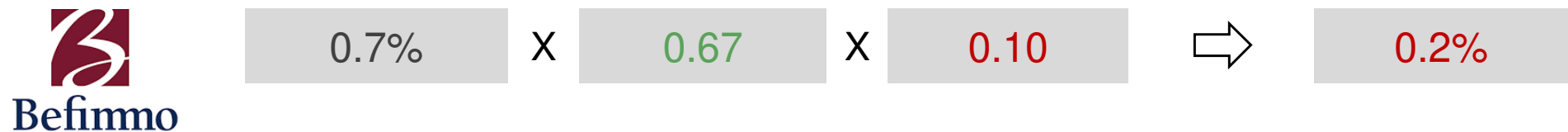
Illustration of tilting process based on green Real Estate parameters



Gecina invests in office and residential real estate. It has a high percentage of leasable area covered by green building certification and low energy usage relative to its sector regional peers.



Covivio invests in office real estate. It has a low percentage of leasable area covered by green building certification and low energy usage relative to its sector regional peers.



Befimmo invests in office real estate. It has a low percentage of leasable area covered by green building certification and high energy usage relative to its sector regional peers.

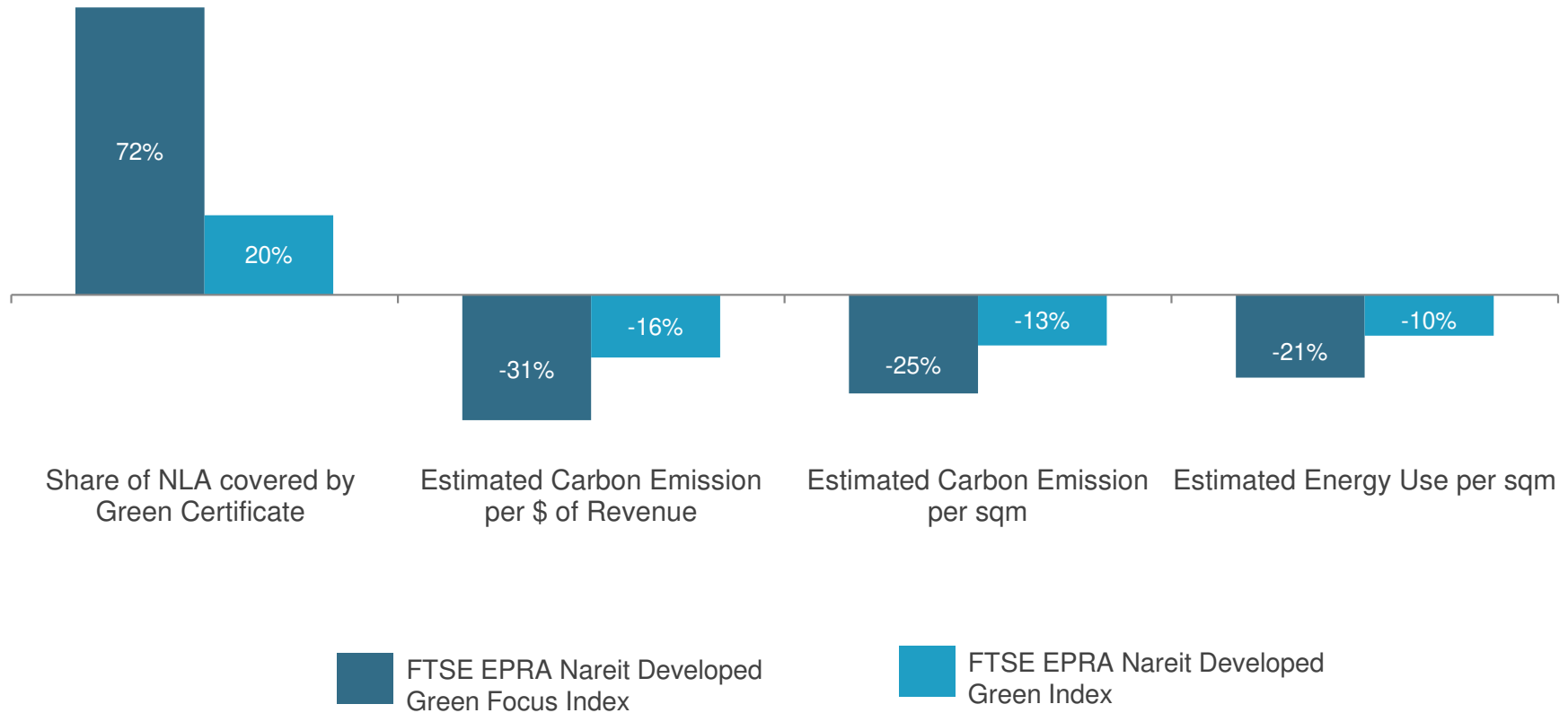


FTSE EPRA Nareit Green Indexes
Index outcomes

Index outcomes

Sustainability performance

Index level sustainability performance vs. benchmark

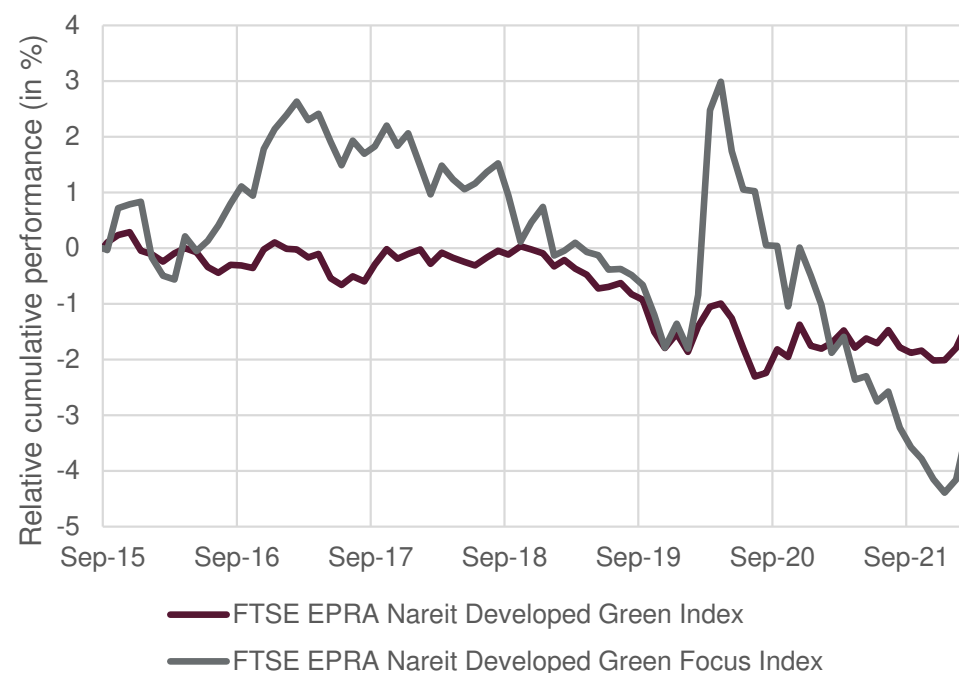
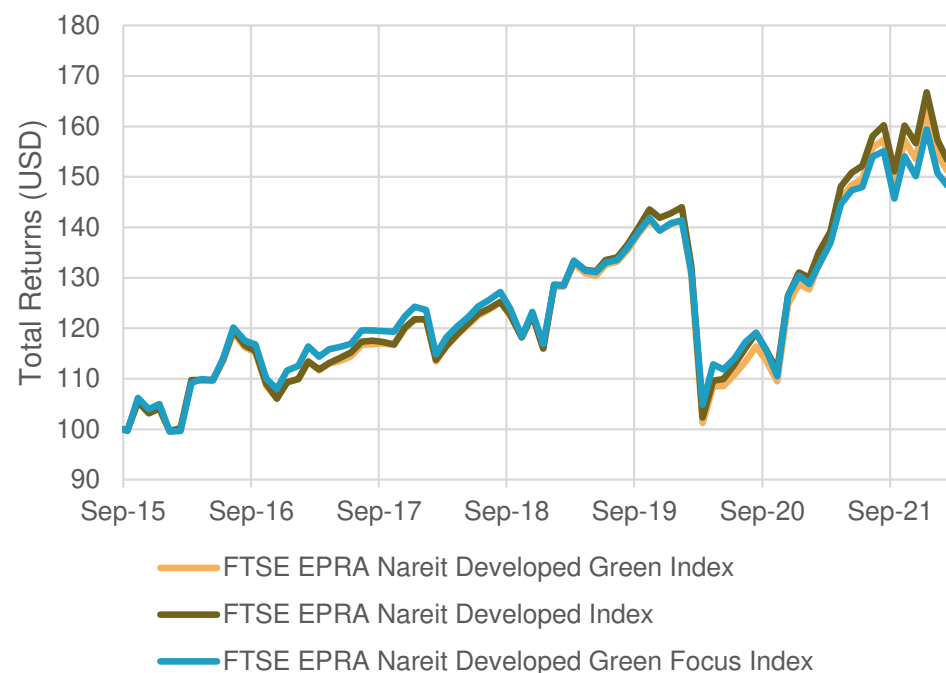


Index outcomes

Risk / Return characteristics

	Return (% p.a.)	Vol (% p.a.)	Number of stocks	TE (% p.a.)
FTSE EPRA Nareit Developed Index	8.1	16.4	382	n.a.
FTSE EPRA Nareit Developed Green Index	7.9	16.4	339	0.8
FTSE EPRA Nareit Developed Green Focus Index	7.5	15.8	283	2.0

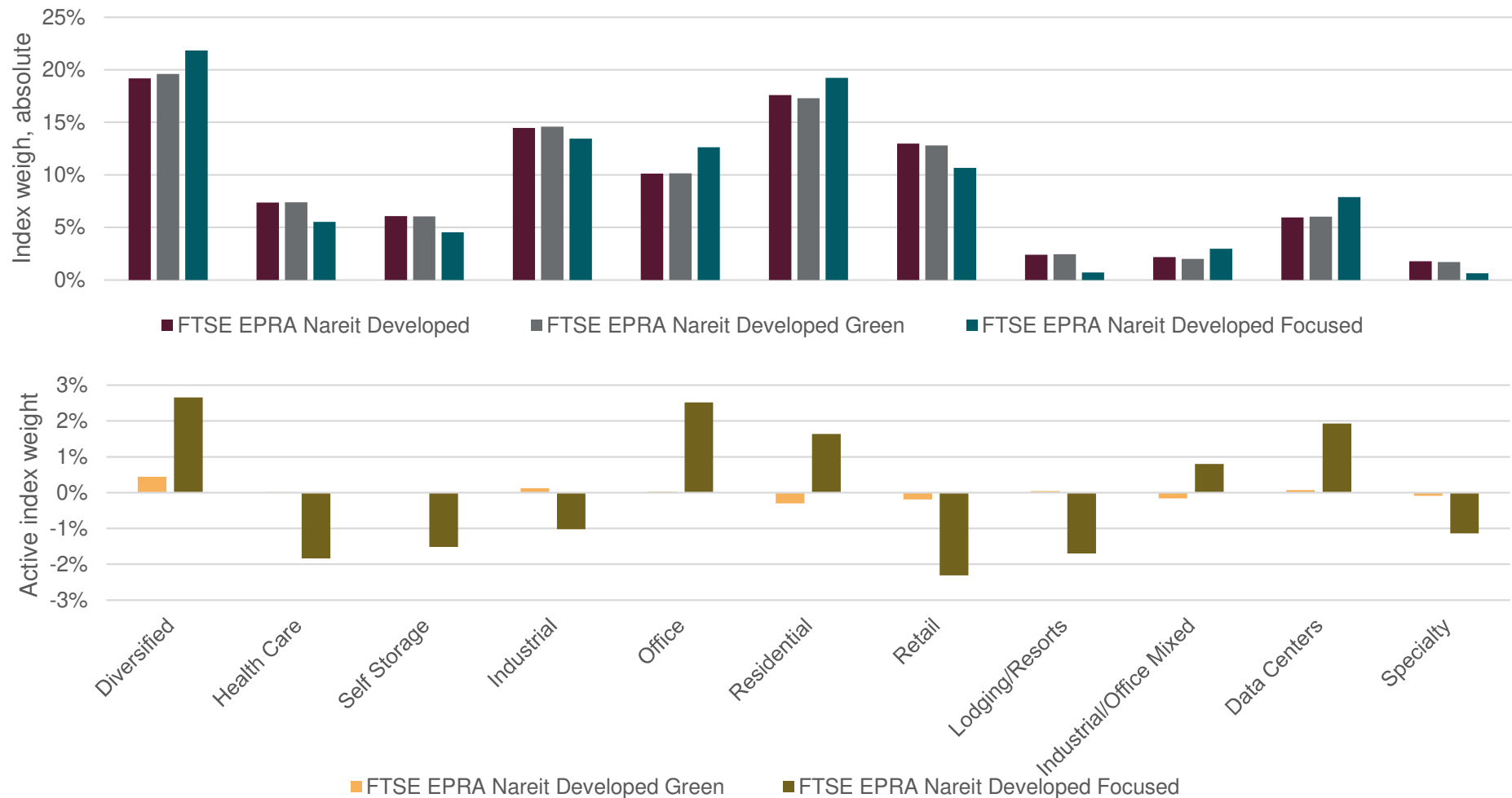
Total returns for the Green Index and Green Focus Index vs. benchmark



Index outcomes

Active exposures

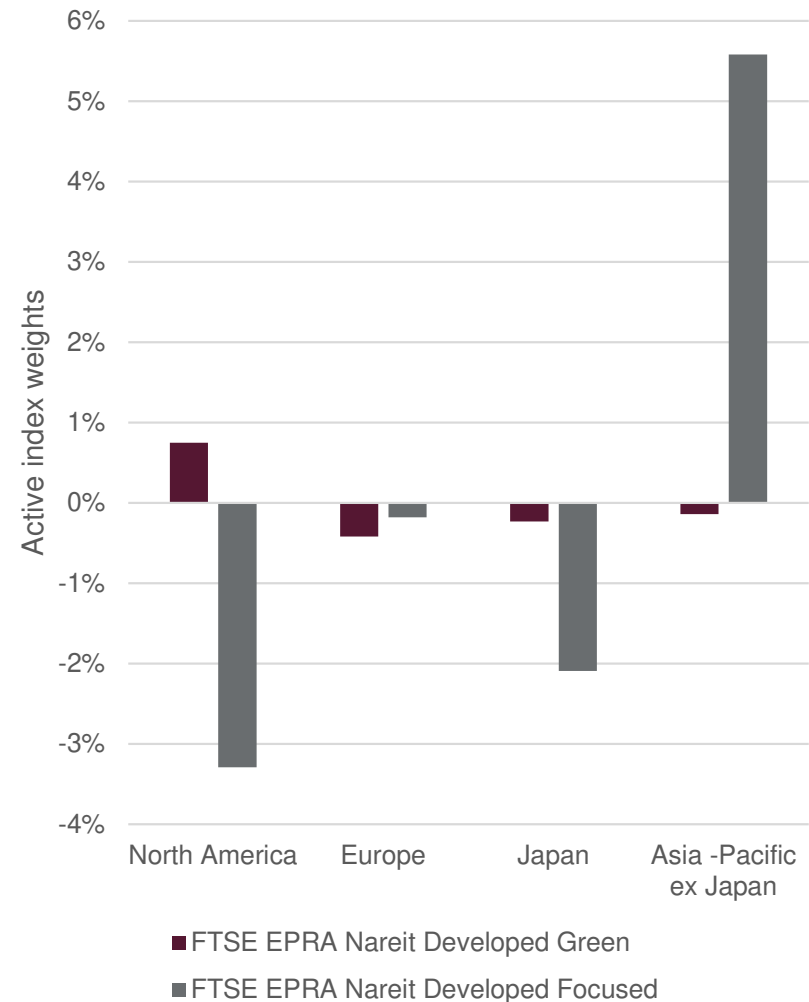
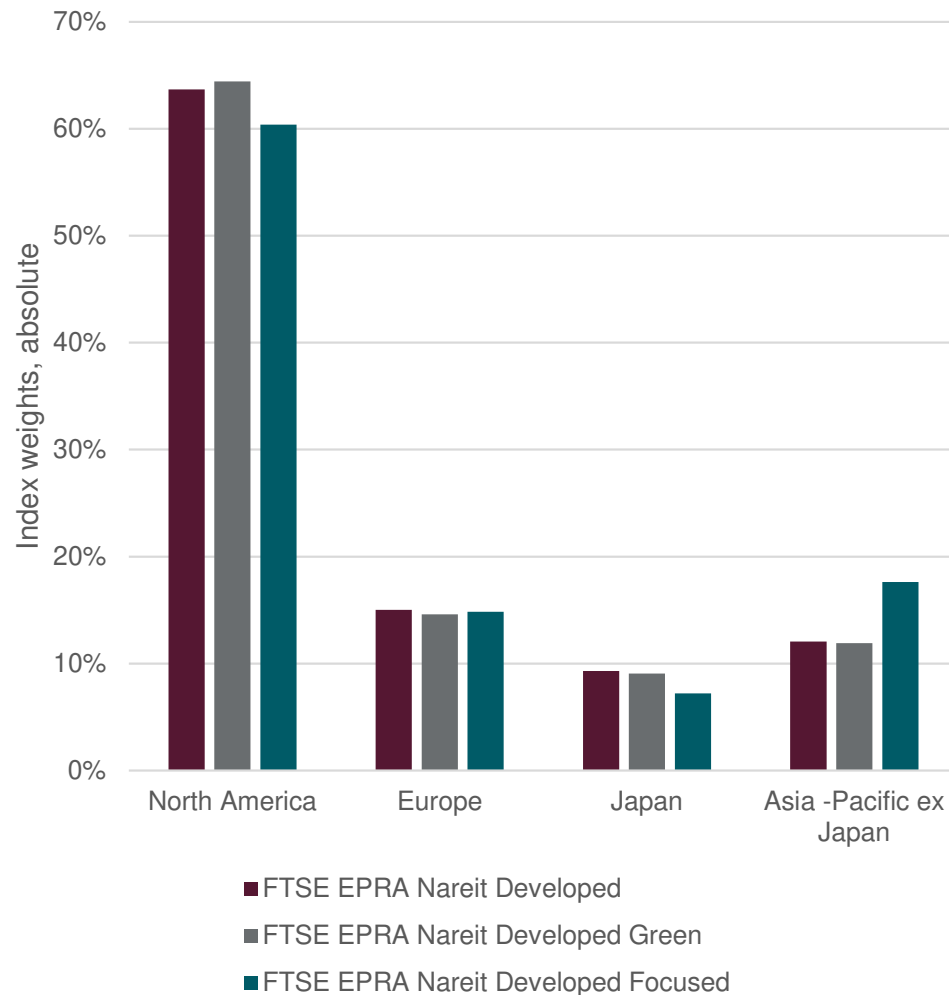
- FTSE E/N Developed Green variant controls Industry deviations



Index outcomes

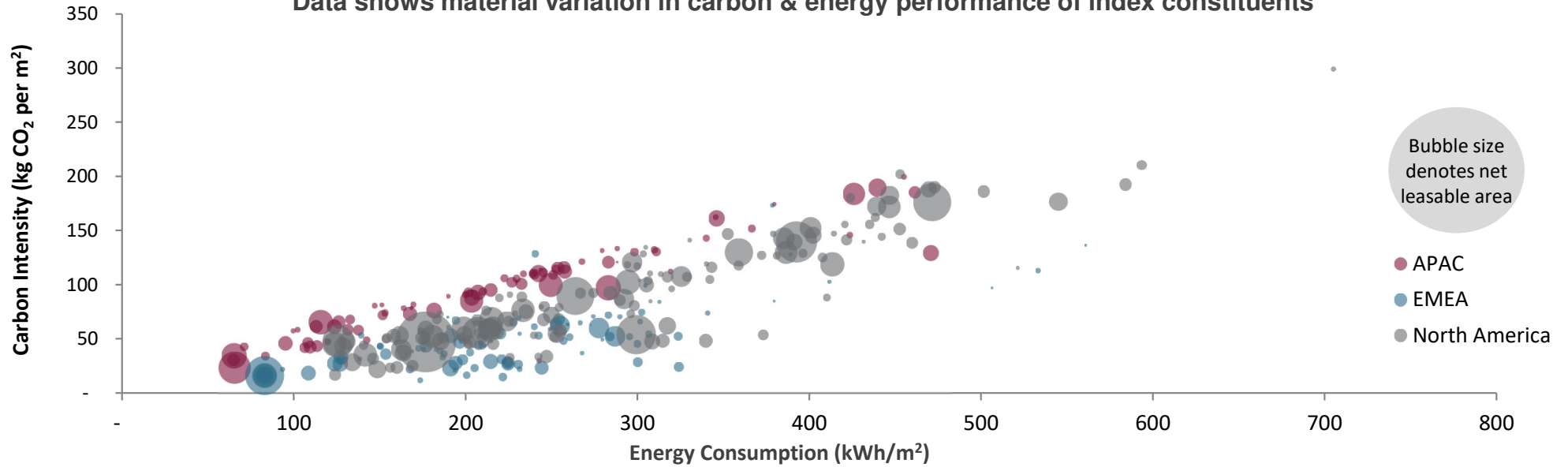
Active exposures

- FTSE E/N Developed Green variant controls regional deviations

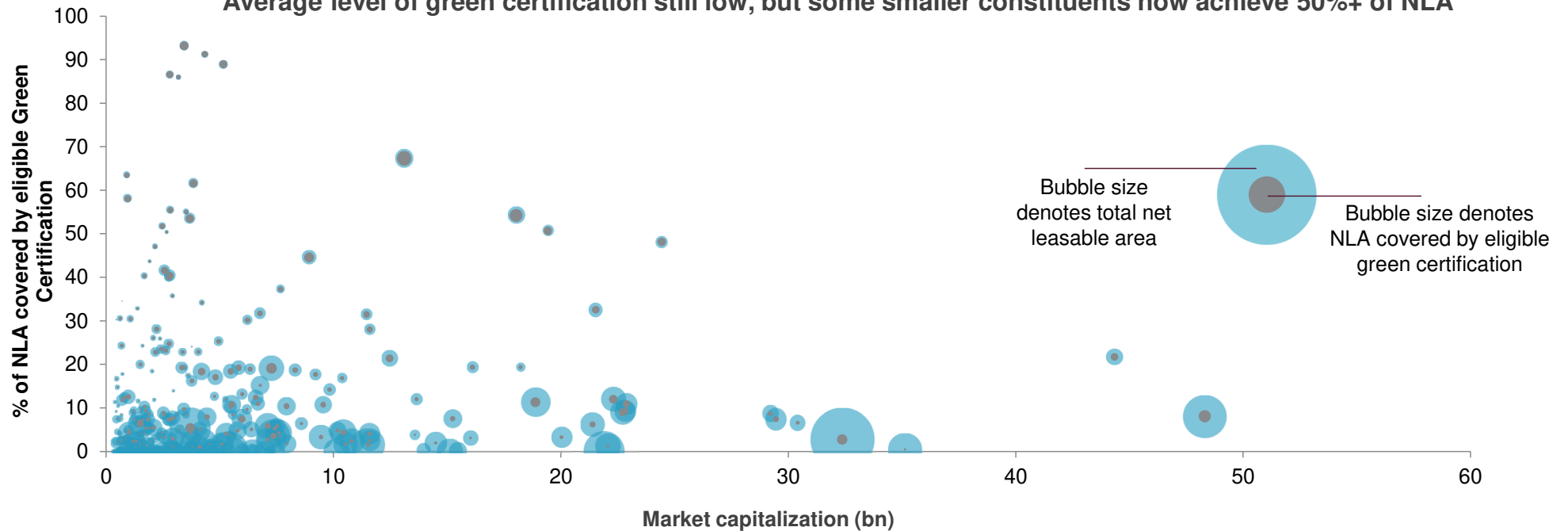


Appendix – Green Real Estate Data

Data shows material variation in carbon & energy performance of index constituents

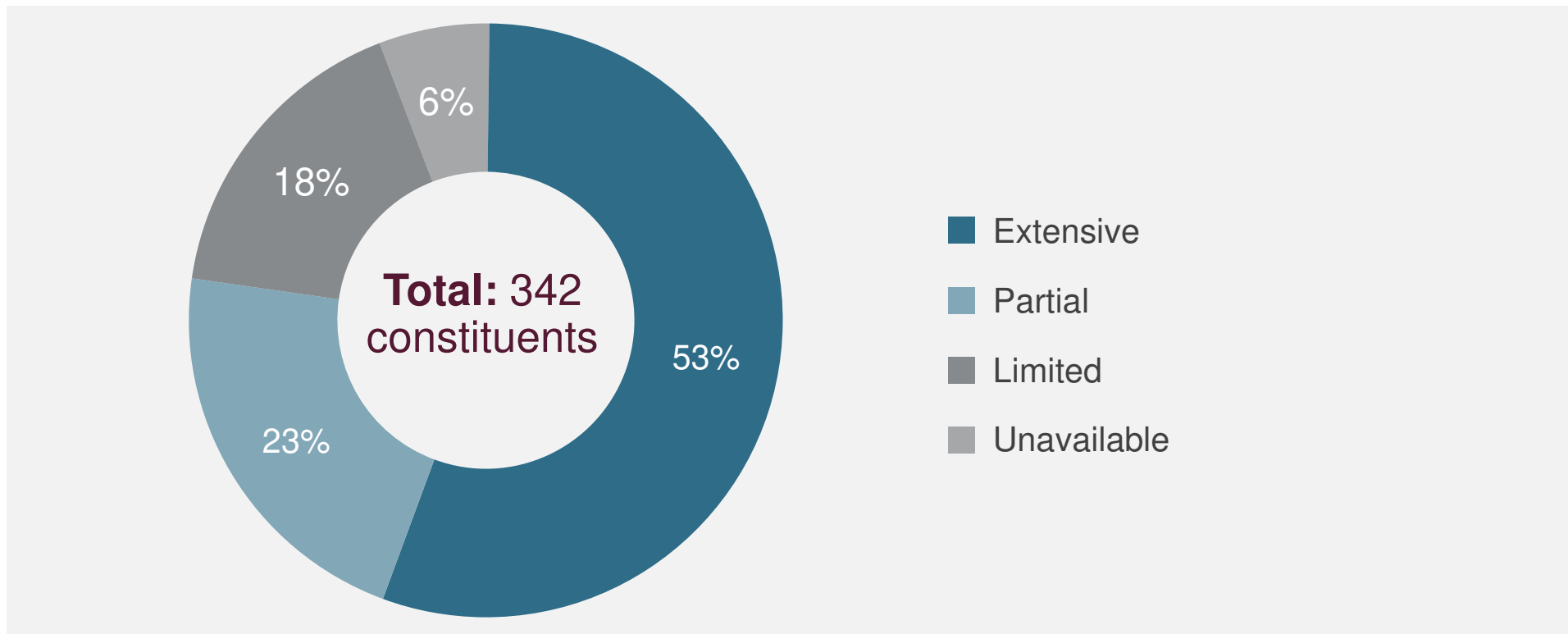


Average level of green certification still low, but some smaller constituents now achieve 50%+ of NLA



Disclosure quality of constituents

~ Quality of disclosure on assets owned by FTSE EPRA Nareit Developed Index constituents ~



Detailed list of data sources for energy modelling and carbon emissions

Data	Details	Source
Location	Building address, latitude and longitude	Company reports/country and county tax records
Property Type	Office, retail, industrial, residential, healthcare, education, convention, hospitality, leisure, cultural, parking	Company reports/country and county tax records
Size	NFA (net/leasable floor area), in m ² GFA (gross floor area as ratio of NFA), in m ²	Company reports/country and county tax records
Electrical energy use	kWh/m ²	National statistics offices, utilities data
Baseline electrical energy	Average per asset type, size and location, by year	National statistics offices, utilities data
Thermal energy use	kWh/m ²	National statistics offices, utilities data
Baseline thermal energy	Average per asset type, size and location, by year	National statistics offices, utilities data
Energy carbon intensity	kg CO ₂ e/kWh	IPCC, International Energy Agency (IEA)

Data	Details	Source
Building carbon intensity	kg CO ₂ e/m ²	GeoPhy Energy/Carbon Model
Heating/cooling days	Number of heating and cooling days including temperature range	NASA
Electricity sources	Nuclear, coal, natural gas, oil, nuclear, geothermal, biomass, hydro, solar PV, concentrated solar, wind power	International Energy Agency (IEA), National statistics offices
Electricity source mix	Relative weight of different sources per country/state per year	International Energy Agency (IEA), National statistics offices
Thermal energy sources	Coal, natural gas, oil, wood, peat, geothermal, biomass, solar	International Energy Agency (IEA), National statistics offices
Thermal energy source mix	Relative weight of different sources per country/state per year	International Energy Agency (IEA), National statistics offices
Building vacancy	Physical vacancy	Company reports/country and county tax records
Year of construction	Year when construction was finished	
Year of renovation	Most recent major renovation/overhaul of building technical installations	Company reports/country and county tax records
Reporting year	Setting for building specifications, energy baseline, energy mix	GeoPhy Energy/Carbon Model

Eligibility for green building certification

Eligible Green Certificates	
Arge TQ	Green Globes
Austin Energy Green Building Rating System	Green Mark
BOMA 360	Greenship
BOMA BEST	Green Star
BREEAM	Green Star NZ
Build it Green/ Greenpoint Rated	Green Star SA
CASBEE	IREM Certified Sustainable Property
Certified Green Restaurant	LEED for Building Design and Construction
CHPS	LEED for Building Operations and Maintenance
DGNB	LEED for Homes Design and Construction
Florida Green Building Certification	LEED for Interior Design and Construction
GPR Gebouw	Miljöbyggnad
	SKA Rating

Criteria

- **Transparent methodology** (publicly available)
- **3+ sustainability-related indicators**
- **1+ energy performance indicator**
- **Robust certification procedure**
- **List of certified assets** (publicly available)

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