



Deep dive on Non-Financial Performance: Listed Real Estate companies across Europe

November 2023

This study overview is based on the analysis of EPRA members indicators and therefore does not aim to represent an index for the Real Estate sector

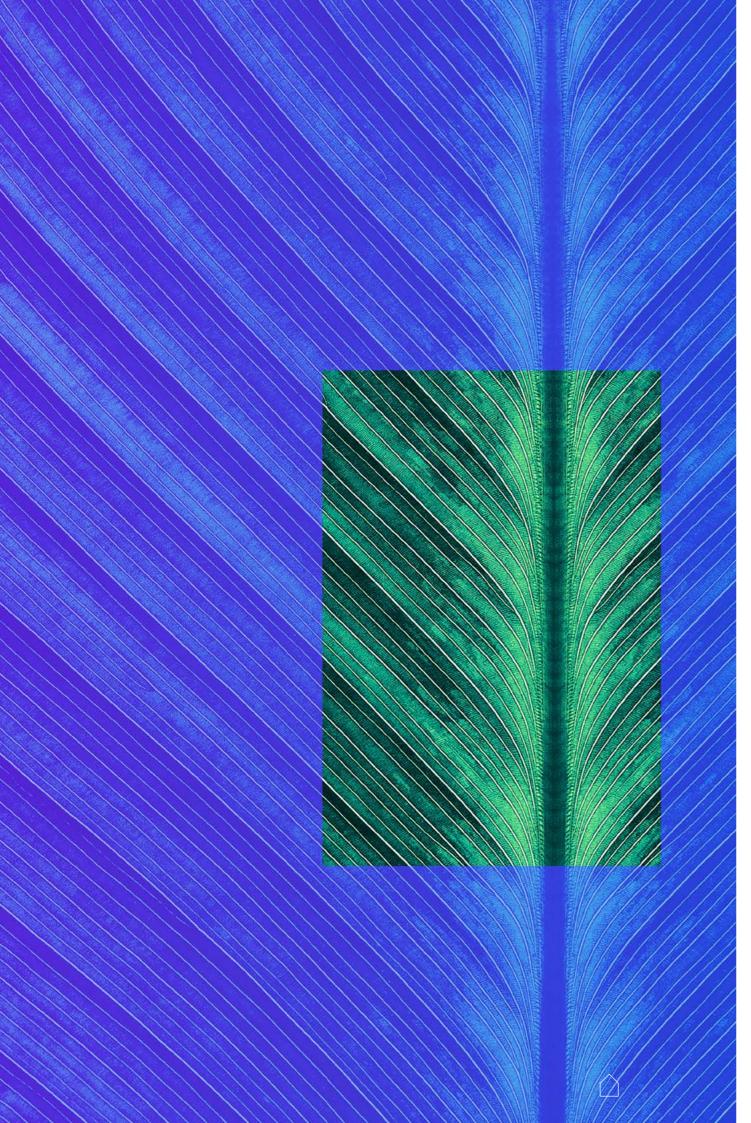


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Sandie Tzinmann

Real Estate Partner, KPMG

"At a time when the challenges of climate change and sustainable development are becoming urgent, the real estate industry is increasingly shifting its focus toward sustainable practises and environmental responsibility. In the aftermath of a global pandemic, and faced with geopolitical and macroeconomic uncertainly, the real estate sector must deal with a deep transformation of its value chain when it comes to ESG criteria. Such criteria are not only reshaping project development and portfolio management in real estate, but are also setting the course for the sustainable future of the industry at large.

The real estate sector is challenged to take greater responsibility for its environmental impact (E), to implement sustainable processes as a commitment to social betterment (S), and to strive toward good corporate governance (G), which together define the ESG purpose.

As the regulatory environment surrounding ESG at the local and EU levels becomes more robust, and in light of



Hassan Sabir

EPRA Finance & ESG Director

"Since 2011, EPRA has underscored the importance of transparent, accurate, and comparable ESG data in the listed real estate sector with the EPRA Sustainability Best Practises Recommendations (sBPR), the established standard for European LRE ESG reporting. In 2021, in partnership with KPMG, we celebrated our 10th anniversary with an inaugural study on the sector's sustainability disclosure evolution.

In this 2023 edition, we've expanded the study to include a geographical and sector breakdown, providing deeper insights into sustainability practises across regions and sub-sectors.



Ismail Ben Achour

EMEA Head for ESG Real Estate, KPMG

recent increases in energy and materials costs, the need to accelerate the ESG transition of the real estate sector is more salient than ever. Our first survey issued in 2021 highlighted the measures adopted by companies to improve their environmental indicators;

2 years later, this second survey reflects the steps that have been taken by listed real estate companies in terms of governance, innovation, the involvement and impacts of stakeholders and the measures implemented.

With the use of the sBPR Database, we have been able to analyze the non-financial performance of companies across years and by asset class. Our analysis of the Top 15% and Top 30% of companies by performance (i.e. best in class by metric analyzed) demonstrates the efforts that have been undertaken, as well as a clear positive trend.

The ESG transition is more than underway for the listed real estate sector!"

The EPRA sBPR Database, central to our study, highlights the growing commitment to sustainability reporting, driven by investor interest. With the EU's move towards mandatory sustainability standards for listed property companies, our sector is well-positioned to lead in reducing greenhouse gas emissions by 2030.

I see this report as a dynamic and ongoing series, mapping the exciting trajectory of our sector's sustainability journey and sparking excellence in ESG practices. It's much more than a document; it's our testament to progress for the industry and a source of inspiration for the pursuit of ultimate standard in sustainability."

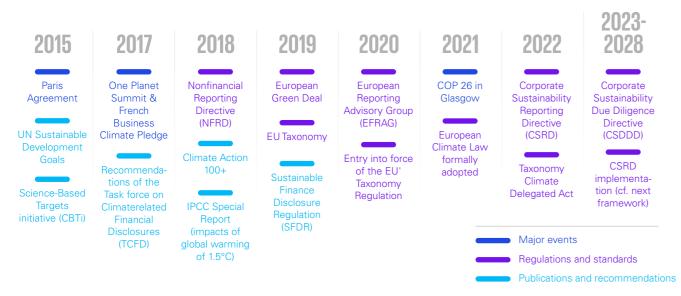


Introduction: Challenges and European regulations

Europe has arguably the most thorough and detailed regulations in the ESG real estate sector thanks to the Sustainable Finance Disclosure Regulation (SFDR), the EU Taxonomy, and the Corporate Sustainability Reporting Directive (CSRD), three of the defining components of the EU Sustainable Finance Framework governing ESG initiatives and reporting. The EU has put in place stronger regulations that require ESG progress disclosure to become the first continent to achieve net-zero.



Key EU ESG regulations applicable to Real Estate



Among those EU regulations, the EU Taxonomy and the CSRD are the ones occupying the most the European Public Real Estate companies.

Starting with the EU Taxonomy, EPRA has issued several reports/ guidelines such as The EPRA Guide: EU Taxonomy Alignment in Listed Real Estate (October 2022), EU Taxonomy Factsheets with the World Green Building Council (October 2023).

The EU Taxonomy has brought lot of questions for the Real Estate companies in terms of activities eligible and aligned, the energy performance certificates (EPC), the Nearly Zero Energy Buildings (NZEB) requirements, as well as the Top 15%/ Top 30% performing companies. Also, within the four objectives applicable in January 2024 as per the EU Taxonomy, only the objective of the 'Transition to a Circular Economy' has a list of eligible activities for Construction and Real Estate.

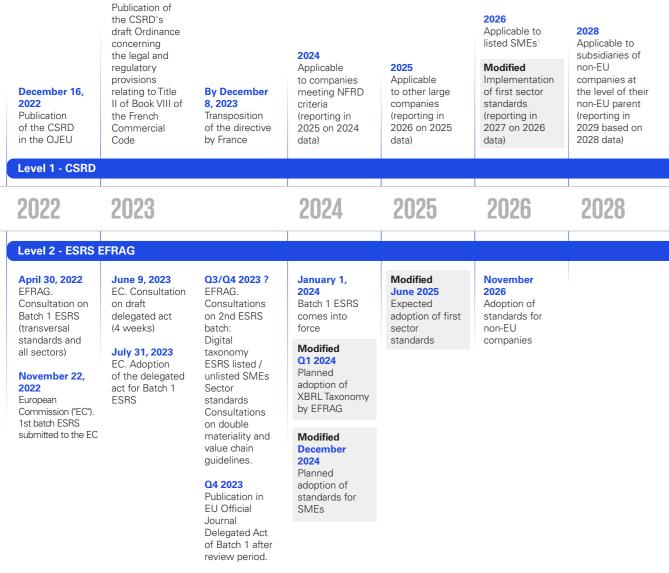
The EU Taxonomy is the first pillar for the measurement and improvement of extra-financial performance.

The second important pillar of the EU regulations will be the implementation of the CSRD, along which the European Sustainability Reporting Standards (ESRS) defined by EFRAG.

This implementation will be progressive depending on the size of the companies with a very large scope of application expected in 2028:

CSRD and ESRS schedule

June 9, 2023



1 SMEs: Small and Medium-sized Enterprises

With the CSRD, Real Estate companies will go a step further by defining the relevant indicators to report based on their ESG strategy and the double materiality analysis.

In terms of non-financial performance, the EU Taxonomy and the CSRD will increase more technical disclosures on the indicators analysed on this survey.

Energy intensity

The Nearly Zero Energy Buildings standard, known as **"NZEBs"**, is a requirement applicable to new buildings. This standard includes roof insulation, air filtration & ventilation, efficient lighting, energy efficient heating, solar panels, charging points (for electric cars, for instance), smart thermostat, efficient appliances, high performance windows.

Under the EU taxonomy, the primary energy demand of new construction is at least 10% lower than NZEB requirements in national measures. Therefore, NZEB-10% is a level of energy efficiency used to assess alignment with the EU taxonomy.

Under the EU Taxonomy, for existing/ in operations buildings, the primary energy demand is at least based on EPC level A or NZEB-10% based on the local building stock.

Water intensity

There is a specific ESRS standard that applies to water, E3 WATER AND MARINE POLLUTION. When

it comes to water, it is very often a local issue, with challenges related to both the quantity and the quality of bodies of water. Therefore, this standard is articulated around these two sub-topics, and on areas of highwater stress.

For new constructions, the EU-Taxonomy includes water-saving recommendations, such as:

- Use of greywater systems. Greywater is wastewater that has been used for tasks such as dishwashing or laundry. Greywater recycling systems reuse this wastewater, for instance, to flush toilets and to water plants. This may contribute to a 30% reduction in water use.
- Use water-efficient fixtures and appliances. Compared to conventional fixtures and appliances, they are made to use less water. For instance: low-flow faucets, showerheads, and toilets.

This indicator is the only regulatory indicator for new buildings to address the topic of water consumption in Europe for the time being.

The EU Taxonomy and the CSRD aim to improve quality of the non-financial information provided by the companies but also to improve their comparability within a sector. This is clearly going in the sense of the EPRA SBPR Guidelines to issue a set of recommendations to follow and contributing to improve harmonisation of the indicators disclosed.

GHG intensitv

Under the ESRS E1 CLIMATE

CHANGE standard, undertakings shall disclose how they intend to transition towards a sustainable low-carbon economy and to adapt their strategy and business models to become more resilient to climate change risks.

Climate-related financial disclosures from the financial statements are required under ESRS 2 when E1 requires the disclosure of potential financial effects from physical and transition risks and opportunities. This includes: (1) the amount and the list of current net assets at physical risk, the amount of current net assets at transition risk, usually called "stranded assets," and the real estate assets by Energy Efficiency classes. (2) The potential liabilities from regulated emissions trading schemes and from contractual commitments, for instance to purchase carbon credits. And finally, (3) the share of revenues from activities exposed to physical and to transition risks



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Study overview

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Scope

Market capitalisation by country

The country is represented by the stock exchange where the company is listed.

Overall, there are 120 companies in the scope, operating across Europe.





Methodology

Scope

This study is based on EPRA sustainability Best Practises Recommendations (SBPR) datasets disclosed by EPRA members and available via the EPRA SBPR database. The EPRA SBPR Guidelines are providing a full description of the indicators with core recommendations

These EPRA SBPR metrics were created back in 2011 and have provided EPRA with 12 years historical date on E indicators. EPRA members can download these data directly accessing the Database.

The study includes 120 European real estate listed companies, members of EPRA as of 12/31/2022 and complying with the EPRA Sustainability Best Practises Recommendations Guidelines.

The data span over the period from 2020 to 2022. These three years' indicators are yet to be analysed considering the impact of the sanitary crisis and the economic consequences of the Russian-Ukraine conflict in one hand, and on the other hand the impact of the growing EU and local regulations around ESG.

Companies have been grouped according to the EPRA FTSE Nareit Global Real Estate Index Series classification and associated property sector. The definition of each sector is available in appendix 3.

Indicators selected for the SURVEY

EPRA indicators have been selected in order to ensure comparability across peers regardless of their portfolio size.

For this reason, we chose the following indicators presented by square metres for each company's entire portfolio:

- Energy intensity
- Water intensity
 - GHG intensity (for scope 1 + scope 2)

These indicators represent the most frequently published data by EPRA members. The definition of each indicator is available in appendix 2.

Moreover, regarding the energy and GHG intensity indicators, 'Best in class' performances are presented. For energy, the 'Best in class' encompasses the top 15% performing companies, in line with the EU taxonomy. For GHG intensity. the 'Best in class' average relates to the performance of the top 30% contributing companies.

Data processing

The main improvement in this second study is the precision of the performance indicators by property sector. In the first study published in 2021, property sector was allocated according to a company's main sector (i.e., the energy performance of a company with a majority of logistics assets was allocated to this sector's performance only). However, in the second study, performances measures have been refined, with each company reporting data by property sector (i.e., if the aforementioned company also owns residential assets, it reports logistics and residential performance independently).

The number of companies contributing to the average calculated for each indicator may vary from one year to another and therefore have an impact on the indicators reported.

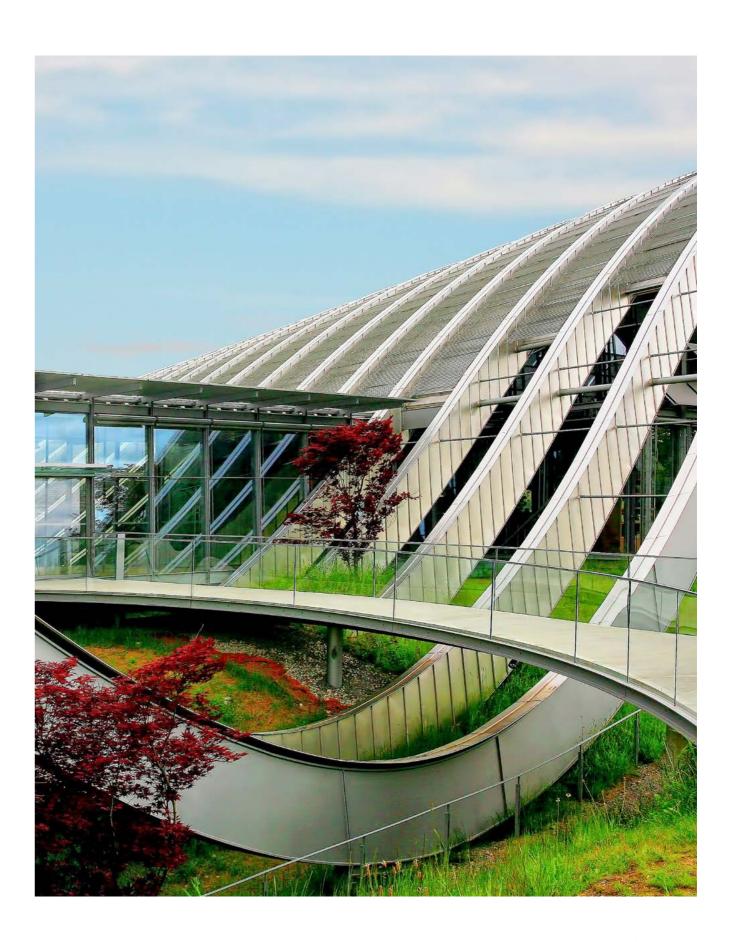
The best in class companies identified each year for one indicator may also vary from one year to another due to variations in value or data not disclosed for the 3 years; the analysis of the best in class indicators over the 3 years doesn't reflect a trend by sector.

For each indicator, we have specified the number of companies (out of the 120 in our sample) that provided performance data by property sector. When there are less than two companies listed under a given property sector disclosing a specific indicator, we indicated "Data not disclosed".

Indicators

The following indicators represent the average intensity of the companies that disclosed the indicators at their portfolio level, regardless of sector property.





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Energy intensity 4

Breakdown by property sector (KWh/m²/year).

The Best in class encompasses the Top 15% and Top 30% performing companies, in line with the EU taxonomy.

The averages obtained by property sector over a 3-year period allow us to visualise changes in energy consumption. By providing a sectoral view based on real data, the aim of this longitudinal study is to monitor and support the ecological transition in the property market, as well as to highlight trends specific to each sector. Many of the property sectors analysed have been impacted by the Covid period. The ESG regulations and strategies implemented also impact the indicators analysed at different paces depending on the sector and depending on which indicators the companies decided to concentrate their efforts.



According to the overall 2022 results, one square metre of office space consumes an average of 169 kWh per year. This measure has fallen since 2020, reflecting an acceleration in the reduction of energy consumption observed. This is also due to the gradual return to offices which were largely unoccupied in 2020 because of Covid-19, as pointed out in our study published in 2021.

The 16% reduction in the Top 15 and 9% reduction in the Top 30 for office buildings between 2021 and 2022 is a positive sign in terms of energy efficiency. This reduction can be explained in part by the efforts made by market players in 2022, demonstrating their commitment to more sustainable practises.



The retail sector has a peak of energy consumption in 2021, during which a square metre of retail space consumed an average of 189 kWh. This significant increase compared to 2020 can be explained by the reopening of shopping centres after closures due to the COVID-19 pandemic. In addition, the increase was partially offset in 2022 by the energy-saving measures put in place and described in §2.4.



The residential sector appears to have the lowest energy intensity compared to the office, retail, and industrial sectors. The easily implementable actions in the residential sector, as outlined in § 2.4, may provide an explanation for this. In addition, there is a heterogeneous residential portfolio, with buildings that are both newly built and more or less renovated. Best in class figures are falling, which can be explained by the number of energy-saving measures that have been put in place.



The industrial sector encompasses industrial warehouse assets and distribution facilities. These properties have become an important component of Europe's building stock from 2020 onwards, particularly with changes in consumer habits and the rise of e-commerce. This peak in energy consumption in 2020 and 2021 is therefore explained by the rise of investment in and development of logistical buildings, and the decline in 2022 is explained by the measures put in place by Best in class contributors.

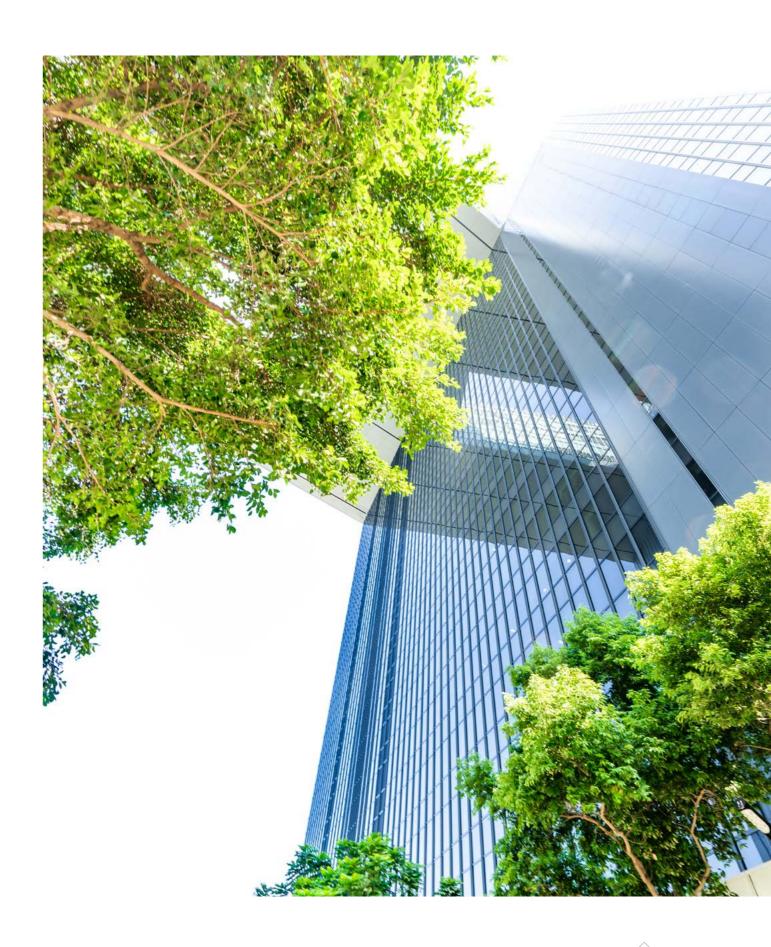


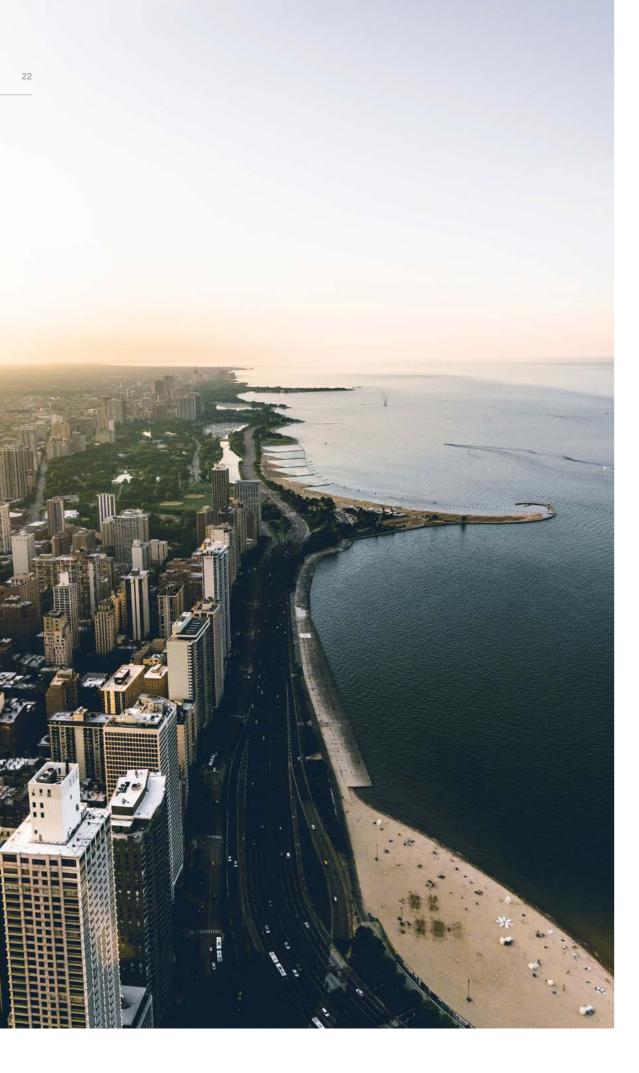
The small number of contributions observed in the healthcare, self-storage and lodging resorts sectors does not allow us to perform an analysis of the Top 15 and Top 30. We can, however, analyse the overall intensity data obtained for these sectors.

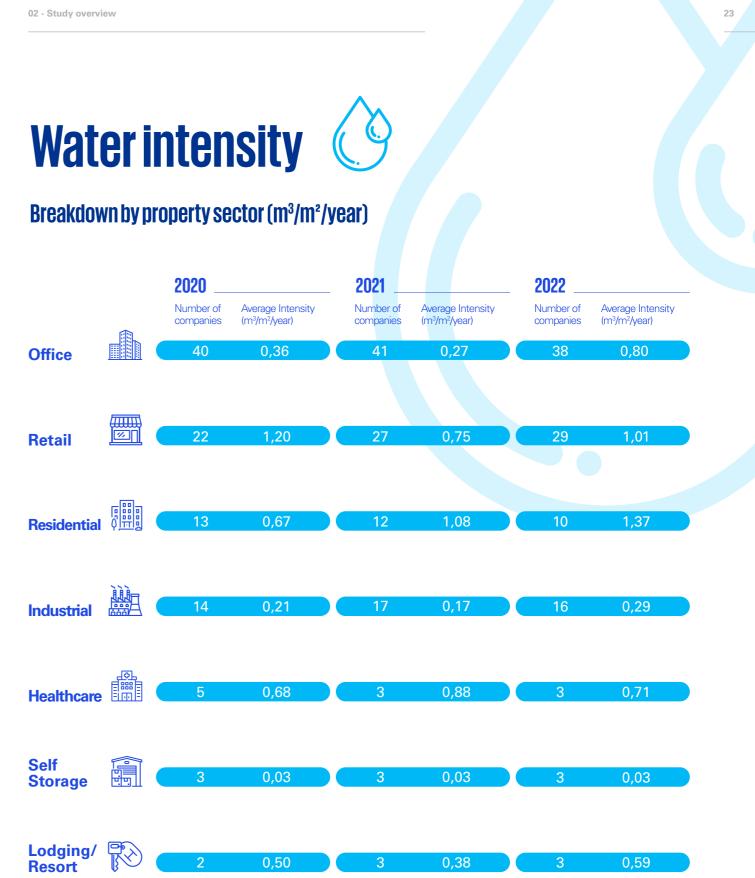
Healthcare: Because it require huge quantities of energy to function, the healthcare sector is especially vulnerable to increased energy expenditures. This partly justifies the considerable efforts made in 2022 to reduce energy consumption, when one square metre of healthcare space consumed an average of 126 kWh in 2022. This can also be explained by the decline of COVID-19 cases, implying less overcrowding in medical centres.

Self-storage: It should be noted that the overall energy consumption of self-storage facilities has remained relatively stable over the years.

Lodging resorts: The significant increase for hotels can largely be attributed to the upturn in activity during 2022 after a period of unprecedented slowdown due to the COVID-19 pandemic. This does not imply that hotel companies have not made investments to lower energy consumption; rather, it shows that the rise in energy use is a direct result of the tourist industry's economic recovery.







The water intensity is directly linked to consumption and therefore to the presence of users in the building. The industrial and office sectors are showing the lowest intensity compared to retail and residential, which is in line with our expectations.

02 - Study overview

GHG intensity (scope 1+ scope 2)

Breakdown by property sector (K CO,/m²/year)

The 'Best in class' encompasses the Top 15% and Top 30% performing companies, in line with the EU taxonomy.

Breakdown by property sector (K CO2/m²/year), only regarding scopes 1 and 2. The analysis of scope 3, not included in this survey, will represent a significant avenue of research in the coming years. Another area for future research would be a country-bycountry approach to GHG emissions since greenhouse gas emissions depend on the source of energy production.



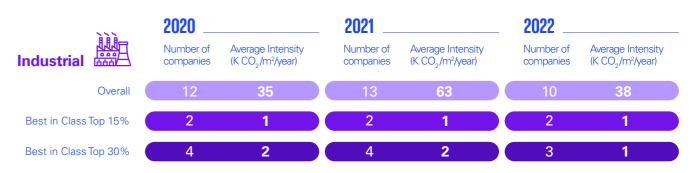
The trends put forward as justifications for the energy intensity of the office sector are the same as those for GHG intensity. Indeed, we can explain this decrease over the last three years due to several factors.



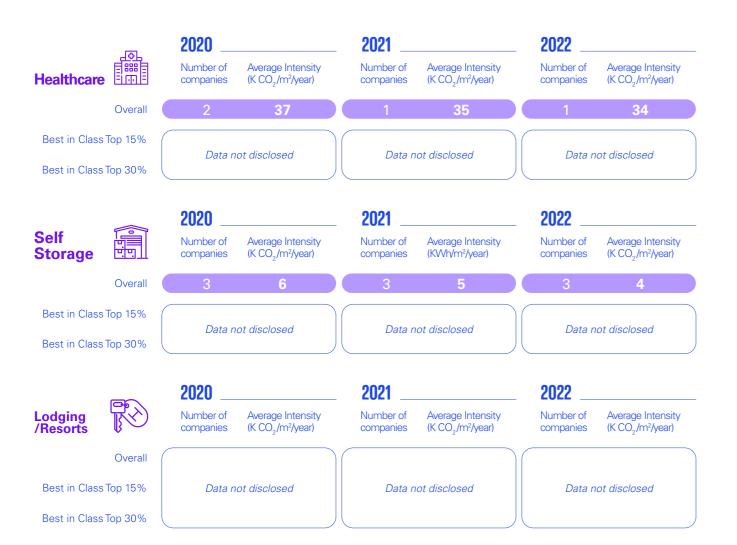
The retail sector appears to be part of the lowest GHG intensity (after the self-storage sector). The retail sector had a peak of GHG emissions in 2021, during which a square metre of retail space consumed an average of 35 kCO2 per year. This significant increase compared to 2020 can be explained by the progressive reopening of shopping centres in 2021 after a period of slowdown due to the COVID-19 pandemic.



The residential sector appears to have the highest GHG intensity measures. First, it should be noted that in the case of the residential sector, the buildings are heterogeneous, with new buildings, both those undergoing renovation or not being renovated, explaining the wide disparity in our sample. Lastly, the increase in 2022 is explained by the inclusion of different contributors from one year to the next in our database.

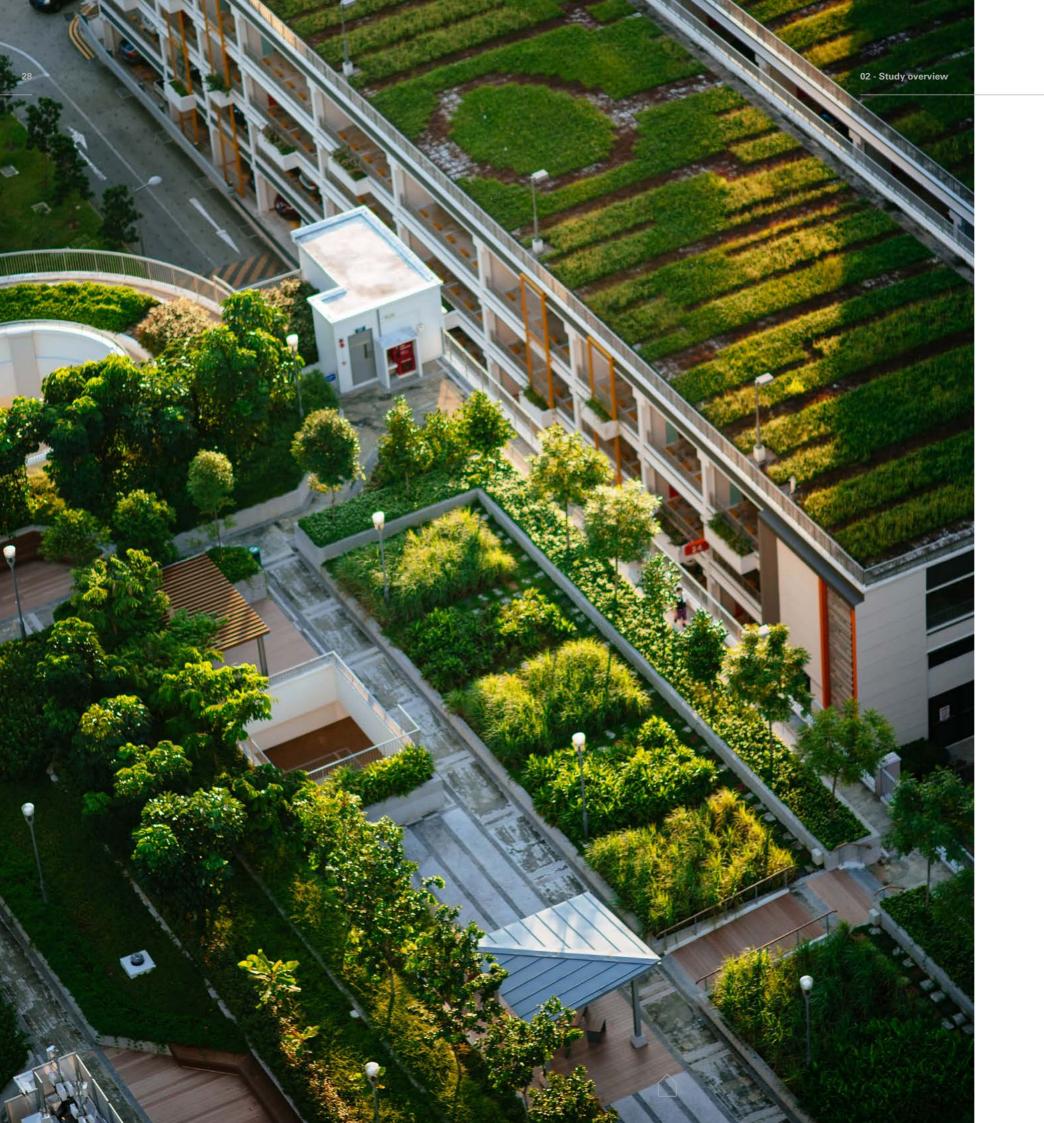


The industrial sector encompasses industrial warehouse assets and distribution facilities. These properties have become an important component of Europe's building stock, particularly with changes in consumer habits and the rise of e-commerce. The evolution of the average intensity also reflects a heterogeneous portfolio with brand-new assets, both renovated and non-renovated.



As for energy intensity data, the small number of contributions obtained for the healthcare, self-storage, and lodging resorts sectors does not allow us to draw up an in-depth analysis. It should be noted that the overall GHG emissions of healthcare and self-storage has remained relatively stable over the years.





Main environmental measures disclosed in the annual reports

Based on the information published in the annual reports of the best in class companies, we have identified the main disclosures describing the environmental measures implemented to improve the energy, water and GHG intensity.

We have analysed these disclosures around three themes: Strategy and governance, reduction and optimisation and involvement of kev stakeholders.

Strategy and governance

As from our first survey, we noticed that ESG was becoming a priority for Boards and that they were implementing specific ESG committees

In the 2022 Annual reports, we can notice that Boards have again accelerated on this topic with the first application of EU Taxonomy and preparation to CSRD. Also, the Boards are more paying attention to the ESG aspects and therefore focus to increase abilities and knowledge of the members, especially through trainings. ESG criteria are more and more considered in the variable compensation of executives.

With the CSRD, the Audit Committees will have to ensure that the internal control processes related to the sustainability reporting are robust and efficient. Part of this, the question of the data quality is important. On this topic, best in class companies have organised their data identification process allowing increased quality and liability with a more automatised and real-time data aggregation and collection.

Therefore, the data can really be used as a management tool for preventive and corrective actions.

As an example, Green Leases allow enhanced energy data capture, or Water Metres allow the collection of more accurate water data to help analyses and reductions.

Reduction and optimisation

With technology improvements, the measures described in their Annual reports by the companies analysed are showing an interesting turning point compared to the 2020 Annual reports analysed.

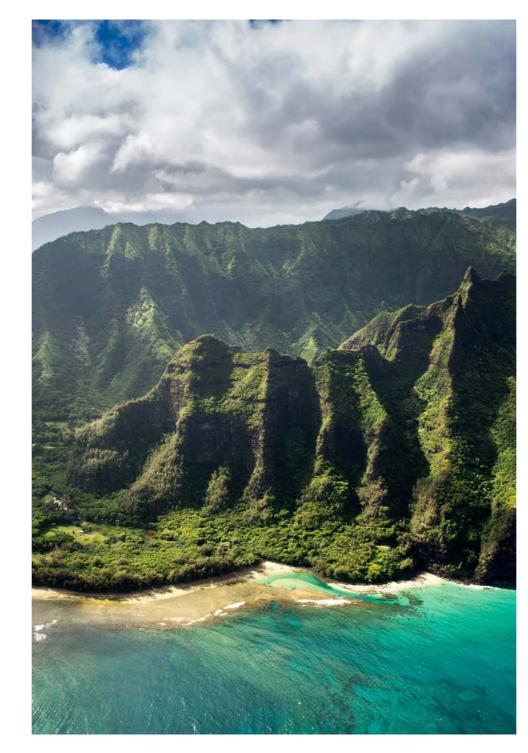
Among those improvements, we can notice a larger use of solar energy with photovoltaic panels, new building fabrics for roofing, efficient energy materials, new Heating, Ventilation and Air-Conditioning systems, decrease of fossil energies, better insulation and glazing.

Charging stations for electric cars are also expanding among the companies analysed and is concerning different type of assets such as offices and retail.

For offices, some Green lease clauses are requiring the occupiers to achieve higher EPC standards as part of their fit out works.

The best in class companies mention the following actions in respect to their energy consumption:

• a switch to higher efficiency systems reducing the fossil operated heating plants;



- strategic partnerships with energy suppliers of gas and electricity with relevant certifications;
- engagements to switch all electricity to Power Purchase Agreement certified renewable electricity from wind, hydroelectric and solar photovoltaic sources.

For residential, different measures are implemented within the flats, the common parts and the communal gardens if any:

- installation of master switches by the door in each apartment enabling residents to turn off all the lights when they leave their home. Properties are connected to a remote monitoring system for energy and water consumption, which enables a quick response and repairs in the event of a leak, for example;
- for common parts, lighting upgrade with installation of lighting controls, fabric upgrades, window replacements and roof insulation. Installation of PV panels located on the roof to supply energy and all-electric heating and hot water upgrades;
- installation of rainwater recycling in the communal gardens.

For retail, the best in class companies analysed mention a shift towards electricity supply from renewable energy sources and the development of on-site renewable energy production capacity. The integration of circular economy at different stages of the life of the asset is also mentioned as an important measure.

Involvement of key stakeholders

In conjunction with improving assets and their energy efficiency, the other area of improvement is to encourage users to reduce their energy consumptions.

This is much more relevant considering the ESG objectives defined by the users and the increase of the cost of energy.

Energy efficiencies ultimately benefit of the occupiers for offices, retail and residential. This is the interest of users and owners to reduce jointly the energy costs.

For residential, please refer to the below Case study 3.2 Towards Energy Restauration of the Residential Park.

Compared to the previous study, some best in class companies analysed also mentioned working with their providers in order to encourage them to monitor their energy consumption through contractual limits.

As a conclusion, the best in class ESG strategy is driven by the net zero carbon objectives defined by the companies as well as the regulations in place and to come. In the real estate sector, this is implying a clear strategy in terms of renovation of the assets, investments criteria to include ESG matters and disinvestments policy.



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Case study

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Circular Economy

The transition to Circular Economy, as part of the six environmental objectives of the EU Taxonomy, includes the activities related to Construction and Real Estate. The implementation of this objective by the companies will have an impact on the building's energy consumption. We can already notice the growing interests of companies for this transition.

It means reducing resource consumption through reuse, ecodesign and anticipating the end-of-life of materials and consuming better by rethinking manufacturing processes and the use of bio-sourced materials.

For the real estate sector, circular economy allows to limit greenhouse gas emissions during the construction or renovation phase, by using less polluting materials as woods, but also by reusing raw materials or using biosourced materials. This is what we call the circular economy.

These terms refers to the production of goods and rendering of services in a sustainable way by limiting the consumption and wastage of resources and the production of waste. In other words,

It also allows to better manage long-term reuse projections by adopting the right methods from the construction stage, so that materials can be reintegrated into the economy and not transformed into waste.

The use of circular economy offers prospects for decarbonising the building. However, it is important to monitor the energy intensity of buildings to retain the benefits gained during the construction or renovation phase.

Towards Energy Restauration of the Residential Park

For a long period of time, the residential sector was less attractive for Public Real Estate players and remained in the portfolios of private institutional investors.

These last years, we have noticed an increased interests of Public real estate companies for the residential sector, including managed residencies.

In this context, we thought it will be of interest to focus on energy efficiency for this sector, especially when the users may have different motivations and environmental concerns.

Energy renovation of residential building complexes is a key step towards achieving carbon neutrality in Europe by 2050. This project is built around 3 major objectives: combating

climate change, supporting household purchasing power, and improving occupants' quality of life. This movement has been reinforced by the launch in 2020 of the "Renovation Wave" in Europe, a vast initiative focused on three strategic pillars: eradicating fuel poverty and lowperformance buildings, modernising public structures, and reducing CO2 emissions from energy production. However, despite the involvement of regulatory bodies in this project, the success of the transition will depend on the commitment of homeowners. tenants, and property companies to this movement.

The implementation of energyefficiency renovations is driven by the motivations and concerns of homeowners and properties companies, such as:

Motivating Factors

- Improved living condition
- Reduce Energy costs
- Personal Conviction

Primary Concerns

- Financial Risk
- Actual Benefits



Personal time investment

These motivations and perceived risks will define the steps to be taken before undertaking energy renovation work. Depending on the initial reluctance of key stakeholders and decision makers, implementation timelines will vary.

Three main stages in a homeowner's renovation journey:



(1)

Not considering an Energy Efficiency Restoration (EER): Key communication issues

The media play a crucial role in raising public awareness of the importance of reducing greenhouse gas emissions and of the risks of global warming. While thoughtful media messaging is critical in elevating public awareness of these issues, it is not enough on its own to move the needle from awareness to concrete action.

What is needed is an actionable plan to educate homeowners initiated by trusted players, from associations to local and national governments The aim is to reduce uncertainty about the effectiveness of energy renovation work, while providing practical information on how to get started. To have the greatest possible impact, it is crucial to contact homeowners at moments which are most conducive to energy restoration, such as when it is time to replace a heating system at the end of its useful life, when a building is being renovated or when a property is being rented out. As the total renovation of a home or building is not a trivial decision, nor is it always financially feasible, a targeted communication plan can offer stakeholders an incremental path toward full-scale transformation of their energy infrastructure.

These are the first steps to be taken to encourage people to consider energy-efficient restoration.

2

Considering and Implementing an Energy Efficiency Restoration: support for homeowners

An individual's decision-making process is likely to vary considerably from one European country to another, and even within the same country, depending on social class, income, housing type, education, and legal framework, as well as on their financial goals, their aversion to risk, and the level of access to skilled craftsmen. All of these elements should be considered to understand the factors influencing decision-making.

Once awareness has been raised, it is necessary to support homeowners in their approach, in order to reduce the perceived or real effort involved in energy renovation.

Several incentive measures can be implemented by governments or associations to offer optimal support to people engaged in this process. In France, for example, this is reflected in the introduction of a government aid scheme called "Ma Prime Renov" which provides access to subsidies for the installation of heat pumps beginning in 2023, regardless of income. On a larger scale, the REFURB project, funded by the European Union's Horizon research and innovation program and involving several European countries, aims to simplify the process. REFURB has set up a "one-stop-shop" model, bringing together all essential information



in one place, as well as creating local partnerships to facilitate energy renovation.

Another key challenge is to clarify the benefits of energy-efficient home renovation aligned with energy performance diagnostics. Energy performance diagnostics report on a home's energy efficiency, without clearly stating the benefits of upgrading to a higher rating. Greater transparency of benefits, such as an estimate of financial gains or improved comfort, would encourage homeowners to make the right choices.

After Renovation: avoid the rebound effect

The impact of energy renovation on performance and energy intensity

The energy performance of a dwelling is defined by the amount of energy it consumes over a one-year period. In Europe, the performance of a residential building is calculated using EPB (European Energy Performance). This includes a rating system which assigns a score to buildings according to their energy performance and greenhouse gas emissions. The rating is generally on a scale from A to G, where A represents the best rating.

The notion of energy intensity expresses the amount of energy required to produce something. In real estate, for example, this is expressed in kwh of energy needed to heat a room to 19 degrees. Energy intensity has a direct impact on energy performance.

Following renovation, a building's energy intensity is reduced by the new installations. Lower intensity means higher energy performance, and therefore lower greenhouse gas emissions. However, it is sometimes possible to observe a drop in a building's energy performance after a renovation due to a change in consumption habits. This is known as the Rebound Effect.

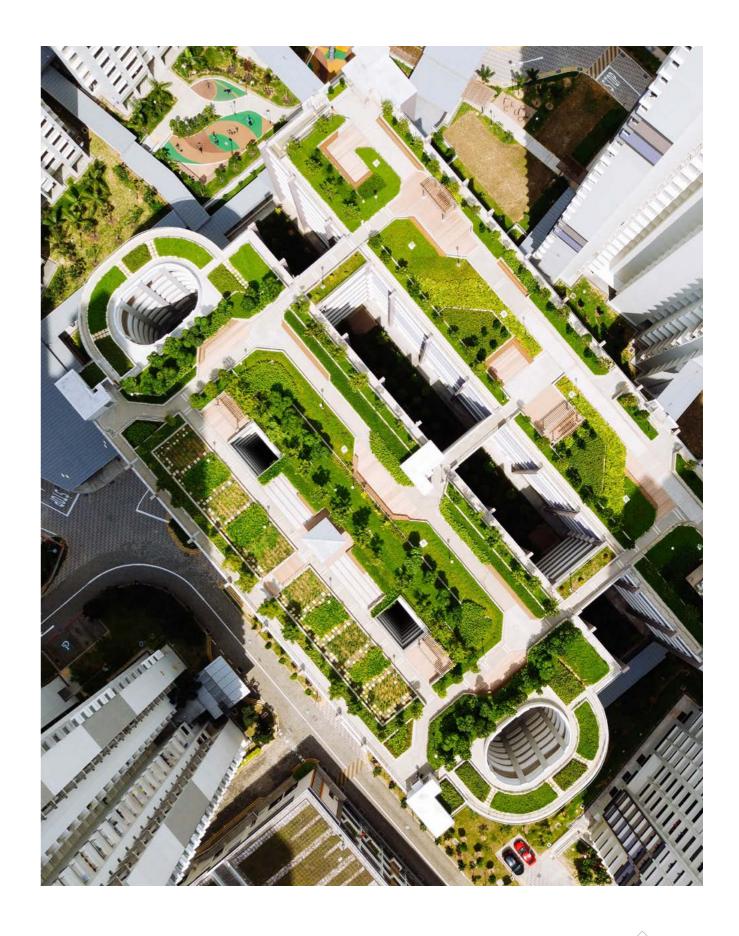
Rebound Effect

This economic concept, introduced by William Stanley Jevons, states that increasing energy efficiency can paradoxically increase consumption of the resource. In the real estate context, rebound effects can take two forms: direct and indirect. Direct effects translate into an increase in energy consumption following an improvement in a building's energy efficiency (e.g., a more heated room following the replacement of a heating system). Indirect effects mean that savings made in one area are invested elsewhere (e.g., a homeowner uses the money saved on energy consumption to go on vacation by plane, which is highly pollutant).

As in the preparatory phase of implementing a renovation plan, we need to consider the energy

behaviours of users. Everyone will have a different approach to energy efficiency. This will be influenced by norms, values, lifestyles, perceptions of comfort, beliefs, and certainties. After the work has been completed, support is needed to explain to homeowners that energy renovation does not prevent them from monitoring their energy consumption if they are to reap the full benefits and avoid the rebound effect. Regulations also play a role. The adoption of smart metres and the presentation of consumption information on bills encourage accountability.

That is why a hybrid approach, combining economic and behavioural strategies, is essential to truly mitigate rebound effects. Renovation policies need to stimulate investment while planning for the post-renovation period. Transformation requires a synergy in which financial incentives and behavioural changes reinforce each other, while considering individual behaviours.



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Appendices

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04 - Appendices

APPENDIX 1:

TO GO FURTHER ON EUROPEAN REGULATIONS: FOCUS ON ENERGY, WATER, AND GREENHOUSE GAS EMISSIONS

Buildings account for 30% of the world's energy demand¹ and 36% of CO2 emissions². Buildings also have negative effects on the environment, including contributions to resource scarcity, biodiversity loss, and pollution of the air, water, and land. Therefore, in the context of this report, we focus on **ENERGY, WATER CONSUMPTION**, and **GHG EMISSIONS** as significant action levers to improve real estate's impact on sustainability. For each of these three intensity-indicators, we will present the main regulations and disclosure requirements.



When it comes to energy, several European standards and regulations have been implemented in recent years. One of the most important, the Renewable Energy Directive, is a legal framework to facilitate collaboration between EU nations in the development of sustainable energy across every sector of the EU economy. The proportion of renewable

energy sources in EU energy consumption has increased since the introduction of the Renewable Energy Directive, rising from 12.5% in 2010 to 21.8% in 2021. A provisional agreement for a binding target of at least 42.5% by 2030, but aiming for 45%, was reached on March 30, 2023. The law has not been adopted yet.



1 EA - International Energy Agency, July 2023. 2 European Climate Foundation "Building Europe's Net-Zero Future".



Construction of new buildings

The Nearly Zero Energy Buildings standard, known as **"NZEBs"**, is a requirement applicable to new buildings. This standard includes roof insulation, air filtration & ventilation, efficient lighting, energy efficient heating, solar panels, charging points (for electric cars, for instance), smart thermostat, efficient appliances, high performance windows.

Under the EU taxonomy, the primary energy demand of new construction is at least 10% lower than NZEB requirements in national measures. Therefore, NZEB-10% is a level of energy efficiency used to assess compliance with the EU taxonomy to mitigate climate change.

While new buildings will be extremely energy efficient as a result of improved design and construction methods, it's expected that more than 85% of the current structures will still be standing in 2050¹. Moreover, assets could become stranded in the coming years due to new government regulations that limit fossil fuels (e.g., carbon pricing), a shift in demand

(e.g., a move toward renewable energy due to decreased energy prices), or even legal action against high polluters. Existing structures, possibly facing a considerable drop in value, should seek renovations aimed at improving sustainability and reducing natural resource use and greenhouse gas emissions.

Acquisition and ownership of buildings

Acquirers and owners of real estate can refer to the following legislation:

As part of the Energy Performance of Buildings Directive (EPBD), the Energy Performance Certificates (EPC) and inspections of heating and cooling systems are important tools for enhancing a building's energy performance. The minimum level of EPC to refer to on the reference arid (from A to F) is level C.

There are also various local regulations, for example in France:

Tertiary Decree. As part of the Elan Law, the Tertiary Decree obliges lessors and occupiers of buildings with more than 1,000 sgm used for tertiary activities to reduce their energy consumption by at least 40% in 2030, 50% in 2040 and 60% in 2050.



No specific ESRS under the CSRD

From the perspective of the European

taxonomy, we voluntarily chose the

7.2. Renovation of existing buildings,

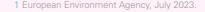
7.1. Construction of new buildings,

and 7.7. Acquisition and ownership

is directly applied to the energy-

intensity topic.

of buildings.



Several European standards and directives are applicable when companies are addressing the renovation of existing buildings. The aim is at least a 30% reduction in primary energy demand. After the renovation process, buildings in the top 15% and top 30% will stand out (from initial state to projected final state).

Moreover, the BACS (Building Automation and Control System) decree, published at the end of July 2020, requires all commercial buildings to be fitted with autonomous control systems, such as the "Building Management System" (BMS), from January 1st, 2025. All new and existing tertiary buildings, whether public or private, equipped with a heating or air-conditioning system with a rated output of 290 KW or more are covered by the BACS decree.

Water indicator

There is a specific **ESRS standard** that applies to water, E3 WATER AND MARINE POLLUTION. When it comes to water, it is very often a local issue, with challenges related to both the quantity and the quality of bodies of water. Therefore, this standard is articulated around these two subtopics, and on areas of high-water stress. Although marine resources are an important subject, it is "sectoragnostic," therefore we decided not to enter specific detail, as it does not specifically concern actors from the real estate sector.



E3 Water and marine pollution

CONTENTS OF ESRS E3

IROs management

Process to identify material IROs

- Matters: water and marine resources (inc. rare species) including sea use change, depletion of resources, etc.
- Outcome of assessment:
- List of geographical areasList of marine resources
- List of sectors
- or segments - To be considered:
- LEAP approach around
- Location, Evaluation, Assessment
- Value chain and life-cycle assessment
- Physical and transition risks opportunities

E3-1 Policies & E3-2 Actions and resources

- Whether and how adopted in the mitigation hierarchy:
 Avoid the use of water and marine resources, product
- and service designReduce water and marine
- resources consumptionRestore, regenerate
- and transform marine ecosystems and basins. • Link with areas at water risk and high water stress
- Sustainable oceans and sea practises

Water indicator

Metrics and targets

- E3-4 Water Consumption
- Water consumption
- Water consumption intensity (on turnover)
- Total water consumption in areas at material water risk
- Total water recycled and reused
- Total water stored and changes in storage
- > Contextual information on river basins' water quality and quantity, methodologies and assumptions.

E3-3 Targets whether and how adopted

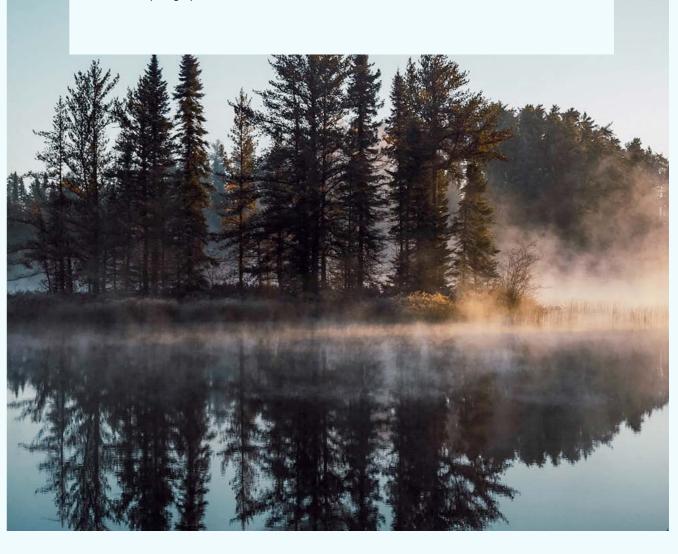
Linked to material metrics, ecological threshold

E3-5 Potential financial effects

- Quantitative unless impracticable
- Single amount or range



- There are currently no full-fledged regulations on water.
- However, for new constructions, the **EU-Taxonomy** includes **water-saving recommendations**, such as:
- Use of greywater systems. Greywater is wastewater that has been used for tasks such as dishwashing or laundry. Greywater recycling systems reuse this



wastewater, for instance, to flush toilets and to water plants. This may contribute to a 30% reduction in water use.

 Use water-efficient fixtures and appliances. Compared to conventional fixtures and appliances, they are made to use less water. For instance: low-flow faucets, showerheads, and toilets.





E1 Climate change

CONTENTS OF ESRS E1

ESRS 2: General disclosures

DR related to ESRS 2 GOV-3 Integration of sustainability-related performance in incentive schemes

DR E1-2 Policies related to climate change

IROs management

DR E1-1 Transition plan for climate change mitigation

mitigation and adaptation

DR E1-3

te change Actions and resources in relation to climate change policies

DR related to ESRS 2 SBM-3

Material IROs and their interaction with strategy and business model(s)

DR related to ESRS 2 IRO-1

Description of the processes to identify and assess material climaterelated IROs



Under the ESRS E1 CLIMATE

CHANGE standard, undertakings shall disclose how they intend to transition towards a sustainable low-carbon economy and to adapt their strategy and business models to become more resilient to climate change risks.

Climate-related financial disclosures from the financial statements are required under ESRS 2 when E1 requires the disclosure of potential financial effects from physical and transition risks and opportunities. This includes: (1) the amount and the list of current net assets at physical risk, the amount of current net assets at transition risk, usually called "stranded assets," and the real estate assets by Energy Efficiency classes. (2) The potential liabilities from regulated emissions trading schemes and from contractual commitments, for instance to purchase carbon credits. And finally, (3) the share of revenues from activities exposed to physical and to transition risks.





In Europe, the buildings sector is a key contributor to GHG emissions, representing 36% of CO2 emissions¹. The European Union has set an ambitious objective to achieve **net zero GHG emissions** by 2050. Member States must significantly reduce their carbon risk or risk seeing their assets depreciated.

Therefore, the built environment sector must define goals and track the decrease in energy use at the building level. To that end, several supporting tools have been developed to guide towards decarbonisation pathways compatible with European objectives by 2050. Shared metrics, a common vocabulary, and standardised market practises are necessary for the race to zero to succeed and enable fair and accurate comparisons.

Moreover, to achieve net zero GHG emissions, reducing emissions will not be enough. It will also be necessary to capture the carbon already present in the atmosphere. Thus, the geological formations where carbon can be stored are governed by the Carbon **Capture and Storage** (**CCS**) directive. Collaborating with the Commission, Member States must create maps of closed, prospective, and active geological storage sites.



Metrics and targets

DR E1-4

Targets related to mitigation and adaptation

DR E1-5

Energy consumption and mix (including intensity per revenue)

DR E1-6

Gross Scopes 1,2,3 and total GHG mitigation projects financed through carbon credits

DR E1-8

Internal carbon pricing

DR E1-9

Potential financial effects from material physical and transition risks and potential climate-related opportunities



Double materiality and strategy

Double materiality is a European concept and refers to capturing a company's impact on the environment and society in addition to the impact of sustainability factors on the company. This concept was already anchored in the NFRD (Non-Financial Reporting Directive) established in 2014. The EU's focus on double materiality is a significant distinction between the standards being developed by the European Financial Reporting Advisory Group (EFRAG) and those from the International Sustainability Standards Board (ISSB).

"Double materiality" refers to how information revealed by a firm is evaluated in terms of its effects on the company's financial value, as well as its impact on the environment. It acknowledges that sustainability considerations are not only relevant for ethical or environmental reasons but are also financially material. Double materiality is a central element of the European Sustainability Reporting Standards (ESRS) established by the EFRAG (European Financial Reporting Advisory Group).

In the real estate sector, the concept of double materiality underscores the idea that the environmental and social

performance of a property or development project can significantly affect its long-term economic viability. Investors and stakeholders are increasingly recognising that a sustainable real estate portfolio not only contributes to a healthier planet, but also enhances its resilience and value in a world where climate change and sustainability concerns are becoming increasingly important. Consequently, embracing double materiality in real estate entails integrating sustainability into financial decision-making processes to create environmentally responsible and economically sound real estate investments.

The double materiality assessment is mandatory under the CSRD and allows organisations to identify the CSRD themes that are material and therefore reportable. The ability to report for each of the European Sustainability Reporting Standards (ESRS) is then something that organisations need to determine. Five environmental standards, four social standards, one governance standard, and two cross-cutting standards are included. Standardisation by sector is likewise to be anticipated.

Matrix-based approach: double materiality x dual scope

According to double materiality, a firm must report both on how sustainability concerns influence its business ("outside in") and on how its operations impact society and the environment ("inside out"). Moreover, the dual scope considers both regulatory and voluntary scopes. This enables us to correctly identify all ESG issues.

Double materiality

Internal impact/ financial materiality:

The potential impacts of sustainability risk (and opportunities) that have a significant impact on the value of the investment and its financial returns. OUTSIDE IN SUSTAINABILITY RISKS AND OPPORTUNITIES

Dual scope

Regulatory scope

• Alignment and regulatory compliance



- Modelling obsolescence risk and resilience opportunity
- Vulnerability, physical and transition risk modelling



To complete the analysis, companies will have to define the dual scope: regulatory and voluntary. In terms of regulatory scope, our approach is based on the CSRD and taxonomy. When it comes to validating the ESRS, we will voluntarily use intensity indicators to measure the demands of the regulatory scope. The more precise these indicators are, the more we apply what is required by European regulations, in line with this logic of double materiality.



External impact/ ESG materiality:

The external impacts of real estate activities and investments on the environment and on external sustainability factors.



Voluntary scope

- Valuing responsible investment
- Conditionality of sustainable funding
- Integration into a responsible real estate strategy

The implementation of the CSRD will have an impact on the definition of the strategy at different levels:





Transparent Reporting

efforts ..

Implementing comprehensive CSR reporting mechanisms enables stakeholders to assess a real estate project's impact beyond financial metrics. This includes reporting on carbon emissions, waste management, engagement, and diversity and inclusion



committing to longterm sustainability goals, such as achieving net-zero carbon emissions or enhancing affordable housing options, demonstrates a commitment to CSR.

Setting and publicly **Compliance with**

> Real estate companies should ensure their projects adhere to environmental and social sustainability standards, such as LEED certification for green buildings or compliance with local regulations related to

> > energy efficiency and

environmental impact

Sustainability

Standards



Collaboration

Real estate firms can engage with industry associations and advocacy groups to influence policies and regulations that promote sustainability and responsible



and Advocacy

Stakeholder Engagement

Engaging with a diverse set of stakeholders, including local communities, organisations, and government bodies, fosters collaborative approaches to sustainability and helps address community

Best in class/ **Best in progress**

There are four levels of asset maturity that can be used to define a strategy.

Within the regulatory scope:

- Current regulations, which we described above;
- Anticipated regulations. To avoid regulatory obsolescence. For example, in France, the DPE regulation has an impact on the value of assets.
- Certifications and labels that provide a mark of quality and guarantee a performance approach

with voluntary indicators;

Within the voluntary scope:

 Voluntary indicators (or KPIs) and the Best in class strategy.

ESG evaluation of an asset by integrating the different performance issues

The ESG maturity level of a real estate **asset** is assessed by distinguishing Voluntary KPIs between different performance issues. **Best in Class** Alignment with current and anticipated regulatory scopes: Voluntary KPIs • For compliance; Labels Certifications • For security against the risk of regulatory obsolescence of the asset. Anticipated regulations The level of performance of the voluntary scope: • To balance the "blended rating" approach of the labelling and Current certification frameworks; regulations • To develop opportunities to increase the value of your share, creating value (ranking of the asset among the Best in Class).





Social Impact Assessments

Conducting social impact assessments before and during the development of real estate projects can identify potential negative consequences on communities and help in implementing mitigation measures.



Investor Relations

Real estate companies can align with socially responsible investors who prioritise sustainability and CSR efforts, attracting capital and support from those who share their values.



Ethical Procurement and Supply Chain

Adopting CSR principles in the selection of contractors and suppliers ensures that the entire real estate value chain follows sustainable and responsible practises.



Continual Improvement

Regularly reviewing CSR practises, seeking feedback from stakeholders, and adapting strategies to address emerging sustainability challenges is essential for ongoing integration of CSR into real estate APPENDIX 2: DEFINITIONS OF THE DIFFERENT METRICS (EPRA DEFINITIONS)¹

Energy-Int Building energy intensity - kWh/person/year or MWh/m2/year or kWh/ revenue/year

Definition

Energy-Int refers to the total amount of direct and indirect energy used by renewable and non-renewable sources in a building over a full reporting year, normalised by an appropriate denominator.

lssue

Intensity indicators are widely used to report performance. However, the variety of approaches used by companies to calculate intensity indicators represents a challenge for stakeholders when understanding how to interpret data provided by reporters.

Rationale

Building energy intensity is one of the most effective measures of a building's overall energy efficiency during the occupation and operational phase of the building's lifecycle and enables analysis of performance over time without the need to exclude acquired or sold properties.

This performance measure can be used for the energy intensity for both those buildings occupied by the reporter and those held in investment portfolios. Building energy intensity is primarily intended to track changes over time for the reporter's' assets.

Water-Int Building water intensity - (litres or m3)/person/ day; or m3/ m2/ year; or (litres or m3)/revenue/year

Definition

Water-Int refers to the total amount of water consumption within a building over a full reporting year, normalised by an appropriate denominator.

lssue

Intensity indicators have become widespread measures of performance (alongside the absolute consumption and like-for-like indicators). However, the variety of approaches used by companies to calculate intensity indicators represents a challenge for stakeholders when understanding how to interpret these indicators.

Rationale

Water-Int is one of the most effective measures of a building's overall water efficiency during the occupation and operational phase of the building lifecycle and allows analysis of performance over time without the need to exclude acquired or sold properties. This performance measure provides reporters with the opportunity to disclose water intensity for both those buildings occupied by the reporter and those held in investment portfolios. Water intensity is primarily intended to track changes over time for the reporters' assets.

GHG-Int Greenhouse gas (GHG) emissions intensity from building energy consumption - kg CO2e/ m2/year; kg CO2e/person/year; kg CO2e/revenue/year

Definition

GHG-Int refers to the total amount of direct and indirect GHG emissions generated from energy consumption in a building over a full reporting year, normalised by an appropriate denominator.

lssue

Intensity indicators have become widespread measures of performance (alongside the absolute consumption and like-for-like indicators). However, the variety of approaches used by companies to calculate intensity indicators represents a challenge for stakeholders when understanding how to interpret these indicators.

Rationale

GHG-Int is an effective measure of efficiency during the occupation and operational phase of the building lifecycle and allows analysis of performance over time without the need to exclude acquired or sold properties. This performance measure provides reporters with the opportunity to disclose GHG intensity for both those buildings occupied by the reporter and investment properties. GHG intensity from building energy is primarily intended to track changes over time for the reporters' assets.

APPENDIX 3: DEFINITIONS OF THE EPRA FTSE NAREIT GLOBAL REAL ESTATE INDEX SERIES CLASSIFICATION USED IN THE STUDY

a) The underlying universe for the Property Sector Index Series is the EPRA FTSE Nareit Global Real Estate Index Series classification. The idea behind the Property Sectors Index Series is to distinguish the cohorts of listed real estate equities by separating the existing constituents into distinct Property Sectors based on gross invested book assets. The purpose is to provide investors with a mechanism to manage their exposure to different risk-reward profiles in relation to the different aspects of the real estate business, including office buildings, retail centres, industrial facilities, lodging/resorts, residential buildings and other types of properties.

b) The classification by Property Sector is based on the gross invested book assets as disclosed in the latest published financial statement. Each constituent of the EPRA FTSE Nareit Global Real Estate Index Series classification will be classified in one of the Property Sectors listed below.

Health Care

Real estate investment trusts or corporations (REITs) or listed property trusts (LPTs) where 75% or more of their gross invested book assets are invested in health care properties.

Self-Storage

Real estate investment trusts or corporations (REITs) or listed property trusts (LPTs) where 75% or more of their gross invested book assets are invested in self-storage properties.

Industrial

Real estate investment trusts or corporations (REITs) or listed property trusts (LPTs) where 75% or more of their gross invested book assets are invested in industrial warehouses and distribution facilities.

Office

Real estate investment trusts or corporations (REITs) or listed property trusts (LPTs) where 75% or more of their gross invested book assets are invested in offices.

Industrial/Office Mixed

Real estate investment trusts or corporations (REITs) or listed property trusts (LPTs) that are not members of property sectors Industrial (N741) or Office (N742) but have a combined total of 75% or more of their gross invested book assets invested in industrial warehouses, distribution facilities and offices.

Residential

Real estate investment trusts or corporations (REITs) or listed property trusts (LPTs) where 75% or more of their gross invested book assets are invested in residential home properties. That includes apartment buildings and residential communities.

Retail

Real estate investment trusts or corporations (REITs) or listed property trusts (LPTs) where 75% or more of their gross invested book assets are invested in retail properties. That includes malls, neighbourhood and community shopping centres and factory outlets. c) Under index roles, companies are classified according to the following Property Sectors (only sectors that are presented in the study are listed below).

Lodging/Resorts

Real estate investment trusts or corporations (REITs) or listed property trusts (LPTs) where 75% or more of their gross invested book assets are invested in lodging & resort properties.

Diversified

Real estate investment trusts or corporations (REITs) or listed property trusts (LPTs) which own, manage and lease substantial assets across two or more property sectors where none meet the 75% gross invested book assets threshold for any single property sector.

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