

#### ***IV. Do Stricter Decarbonization Rules Present a Transition Risk for Real Estate?***

##### **A. Introduction**

Politically driven decarbonization efforts, supported by improved data analysis, are tightening regulations on the real estate sector, a source of significant greenhouse emissions. These rules will pose several drastic transition risks for real estate investments including financial, regulatory, and market shift risks. However, these decarbonization efforts also provide opportunities for forward-looking investors. Strategies such as proactive retrofits, renewable energy investments, and green building development can mitigate risks and capitalize on the growing demand for sustainable spaces. Legislative advocacy for fair regulations, government incentives, and transparency can further remedy the potential transition risks.

##### **B. Decarbonization Efforts**

The real estate sector, including the operations of current buildings and the construction of new ones, is “responsible for almost 40 percent of the annual energy- and process-related carbon dioxide emissions.”<sup>1</sup> This category encapsulates greenhouse gases released during activities involving the production, transformation, and use of energy by existing buildings.<sup>2</sup> It also includes embodied carbon: the carbon emissions associated with the materials used in the construction of new buildings, from raw materials’ extraction to their end-of-life disposal.<sup>3</sup> It is estimated that the embodied carbon of the four main building and infrastructure materials (cement, iron, steel, and aluminum) constitutes 11 percent of the annual carbon emissions attributed to the real estate sector.<sup>4</sup> And yet, as estimated by the United

---

<sup>1</sup> Fatih Birol & Inger Andersen, *2019 Global Status Report for Buildings and Construction* 3 (U.N.E.P 2019); see also Ian Hamilton et al., *2022 Global Status Report for Buildings and Construction* xvi (U.N.E.P. 2022).

<sup>2</sup> Birol & Andersen, *supra* note 1, at 9.

<sup>3</sup> *Why the Built Environment?*, ARCHITECTURE 2030, <https://www.architecture2030.org/why-the-built-environment/> (“Embodied carbon represents the carbon emissions associated with making building or infrastructure products and construction, from raw material extraction to manufacturing, transportation, and end of life disposal or recycling.”).

<sup>4</sup> Birol & Andersen, *supra* note 1, at 9.

Nations (“U.N.”), cities and towns across the globe “are projected to grow by almost 50 [percent] by 2050.”<sup>5</sup> The U.N. also projects that “[t]here quarters of the infrastructure that will exist in 2050 has yet to be built.”<sup>6</sup>

Accordingly, there has been a growing movement to craft and implement policies to decarbonize the real estate sector.<sup>7</sup> This movement has taken force, particularly after the 2015 Paris Agreement and its directional shift in global decarbonization efforts.<sup>8</sup> During the U.N. Secretary General’s Climate Summit in 2018, several countries and private sector titans pledged their commitment to a “zero-carbon buildings sector.”<sup>9</sup> While not binding, these commitments have manifested into reality somewhat, with 2021 seeing “an approximate 16 [percent] increase in global investment in energy efficiency, [amounting] to over USD 230 billion.”<sup>10</sup> However, this trend must be sustained if the alliance is to reach its stated “goal of [mobilizing] USD 1 trillion in ‘Paris-compliant’ building investments in developing countries by 2030.”<sup>11</sup> These commitments to decarbonize the real estate sector are mostly motivated by factors such as increasing investor pressure, rising consumer expectations, and the international proliferation of applicable regulation at both national and city levels.<sup>12</sup>

---

<sup>5</sup> *Message by António Guterres on World Habitat Day 2021* (Oct. 4, 2021), in U.N. Digital Library, <https://digitallibrary.un.org/record/3942426?ln=en>.

<sup>6</sup> *Id.*

<sup>7</sup> See generally Eric Roston, *The World Is Moving Toward Net Zero Because of a Single Sentence*, BLOOMBERG (Feb. 8, 2021), <https://www.bloomberg.com/news/articles/2021-02-08/the-world-is-moving-toward-net-zero-because-of-a-single-sentence>.

<sup>8</sup> *Id.* (Anna Lising, who at the time worked for the D.C. Department of Energy & Environment said “When the IPCC report dropped, you could feel the urgency. Everyone said we don’t have any more time. . . . [Discussion of the bill] went from everyone being supportive to everyone acting with urgency.”).

<sup>9</sup> Birol & Andersen, *supra* note 1, at 3.

<sup>10</sup> Hamilton, *supra* note 1, at xvi.

<sup>11</sup> Birol & Andersen, *supra* note 1, at 3; see also Hamilton, *supra* note 1, at xvi (The goals of the Paris Agreement, as reaffirmed at in 2021, emphasize “accelerating and rapidly scaling up energy efficiency measures.”).

<sup>12</sup> Michelle Bachir & Meadow Rutenbar, *Decarbonization of Real Estate: End-to-End Business Transformation*, DELOITTE (Oct. 5, 2020), <https://www.deloitte.com/global/en/services/risk-advisory/blogs/decarbonization-of-real-estate.html> (Enumerating “factors driving decarbonization of real estate.”).

Such regulations “include rising carbon prices, building and energy efficiency standards, and renewable energy mandates.”<sup>13</sup>

Currently, the debate surrounding climate disclosure regulations in the United States is ongoing.<sup>14</sup> For instance, the Security and Exchange Commission’s (“SEC”) proposed rule in March 2018 would require public companies to report on emissions, climate-related financial risks, and decarbonization plans.<sup>15</sup> However, the scope of these regulations has faced opposition from both sides, some advocating for stricter measures with others seeking less stringent rules.<sup>16</sup> Regardless of the outcome, the real estate sector is likely to face stricter decarbonization regulations in the future.

There are already a number of state and city level measures affecting carbon neutrality in real estate: Washington’s Clean Buildings Bill, lowering and limiting pollution from fossil fuel consumption; Boston’s Climate Action Plan, committing to reach carbon neutral by 2050; Washington D.C.’s Clean Energy DC, committing to reduce emissions by 55% by 2032; San Francisco’s Climate Action Plan, mandating all buildings reach zero emissions by 2040; and Los Angeles’ Green New Deal, mandating all new buildings reach zero emissions by 2030 and existing buildings by 2050.<sup>17</sup> While these policies are crucial to achieving climate goals, they will likely impose significant financial burdens on real estate investors through transition risks.<sup>18</sup>

---

<sup>13</sup> David Carlin, *40% Of Emissions Come From Real Estate; Here’s How The Sector Can Decarbonize*, FORBES (Apr. 5, 2022, 11:14 AM), <https://www.forbes.com/sites/davidcarlin/2022/04/05/40-of-emissions-come-from-real-estate-heres-how-the-sector-can-decarbonize/?sh=72fe347b63b7>.

<sup>14</sup> See generally *How Does Carbon Neutral Affect Real Estate?*, 8020 CONSULTING (Mar. 30, 2022), <https://8020consulting.com/how-does-carbon-neutral-affect-real-estate/>.

<sup>15</sup> *Id.* (“[The] SEC issued a proposal in March requiring public companies to report GHG emissions, audited climate-related financial risks and metrics, and information regarding their targets, goals and transition plans . . .”).

<sup>16</sup> Michael Copley, *Climate rules are coming for corporate America*, NPR (Oct. 12, 2023), <https://www.npr.org/2023/10/12/1205068747/climate-change-emissions-companies-disclosure-sec-california> (“[G]roups on both sides of the regulatory fight are trying to influence the looming SEC rules.”).

<sup>17</sup> 8020 Consulting, *supra* note 14.

<sup>18</sup> See generally Konstantinos Ferentinos et al., *Climate policy and transition risk in the housing market*, BANK ENGLAND, Working Paper No. 918 (Apr. 2021), <https://www.bankofengland.co.uk/-/media/boe/files/working-paper/2021/climate-policy-and-transition-risk-in-the-housing->

### C. Transition Risks

Transition risk refers to the potentially adverse price adjustment affecting property value “result[ing] from the process of adjustment[s] towards a lower-carbon economy.”<sup>19</sup> Regulatory risks include fines, liability for climate-related damages, and investment uncertainty. Market shifts toward green spaces threaten vacancies and declining income for inefficient properties. Financial risks include non-compliant buildings facing lower values, higher operational costs, and potential obsolescence.

#### 1. Regulatory Risks

In the context of transition risks, regulatory risks refer to costs resulting from policies aiming to address the real estate sector’s contribution to climate change.<sup>20</sup> Much of the debate surrounding the SEC’s proposed climate disclosure rule centers on the potential requirement for companies to calculate their Scope 3 emissions.<sup>21</sup> Scope 3 emissions are the emissions caused by a company’s entire value chain, including the end-user of the product over its life cycle, often extending beyond the company’s direct operations.<sup>22</sup> Quantifying these emissions can be particularly challenging due to their indirect nature, “requir[ing] an extensive level of external collaboration across the entire value

---

market.pdf?la=en&hash=B28CB81193F8B872457B5FCC84D4D2F10A799C12.

<sup>19</sup> *Id.*; citing Mark Carney, Chairman, Bank England Fin. Stability Bd., *Breaking the tragedy of the horizon – climate change and financial stability*, Speech at Lloyd’s London (Sep. 29, 2015), <https://www.bis.org/review/r151009a.pdf>.

<sup>20</sup> Janis Sarra & Elisabeth DeMarco, *Climate-Related Legal Risks For Financial Institutions: Executive Brief*, GLOBAL RISK INSTITUTE 1-2 (Aug. 2021), <https://ccli.ubc.ca/wp-content/uploads/2021/08/Climate-related-legal-risks-for-financial-institutions-Executive-brief.pdf>.

<sup>21</sup> Copley, *supra* note 16 (“[T]he big question is whether the agency will make companies report the most controversial level of pollution known as Scope 3 emissions.”).

<sup>22</sup> *Scope 3 Inventory Guidance*, E.P.A. CTR. FOR CORP. CLIMATE CHANGE, <https://www.epa.gov/climateleadership/scope-3-inventory-guidance#:~:text=Scope%203%20emissions%20are%20the,its%20upstream%20and%20downstream%20activities>. (last updated Mar. 8, 2024).

chain.”<sup>23</sup> This complexity raises concerns about the accuracy, consistency, and overall feasibility of complying with regulation mandating such reports.

This is particularly concerning for the real estate sector, since its Scope 3 emissions can be several times higher than other sources put together.<sup>24</sup> A recent study of the world’s largest real estate companies found that, despite their significance, disclosure rates are significantly low for Scope 3 emissions.<sup>25</sup> Even among real estate companies reporting their Scope 3 emissions, granularity of the data is often lacking, with over half of such companies not providing any breakdown by emission category.<sup>26</sup> This lack of detail hinders a comprehensive understanding of a company’s exposure to transition risks. Furthermore, mis-categorization presents an additional challenge, with “some building owners incorrectly classify[ing] emissions from . . . leased assets as emissions from . . . sold products,” leading to inaccuracies in the reported data.<sup>27</sup> Geographical disparities are also evident, with Great Britain, Australia, and the EU leading in disclosure rates, while the U.S. and Singapore trail.<sup>28</sup> These issues highlight the need for consistent and standardized reporting practices, as well as the difficulty of enforcing decarbonization regulation across different regions.

Compliance with, and subsequent enforcement of, regulations in the real estate sector face limitations because of the difficulty of accurately calculating emissions and transition risks.<sup>29</sup> However, data-driven solutions like the Carbon Risk Real Estate Monitor Project

---

<sup>23</sup> Frank Onstwedder et al., *Scope 3 emissions in real estate: The elephant in the room 1*, ROBECO (Mar. 2023), <https://assets.ctfassets.net/tl4x668x2ide/3xZ4soqC6GjCxudvU26nxW/52c26d9071bf8c0443ef92aef1f30d88/202303-scope-3-emissions-in-real-estate-the-elephant-in-the-room.pdf>.

<sup>24</sup> *Id.* (finding that, among the top 200 largest real estate companies in the world, scope 3 emissions are seven times higher than their scope 1 and 2 emissions).

<sup>25</sup> *Id.* at 5. (“The disclosure rates of scope 3 emissions are much lower than those of scope 1 & 2.”).

<sup>26</sup> *Id.* (“More granular disclosure of scope 3 by category is also limited. Even among the 56% of companies in our sample that did disclose scope 3 emissions, more than half of them did not break down emissions at all.”).

<sup>27</sup> *Id.*

<sup>28</sup> *Id.* (“The data shows evident geographical variances. The leaders in carbon emissions reporting include Great Britain (93%), Australia and New Zealand (75%), and the European Union (73%). On the other hand, the United States (41%) and Singapore (42%) exhibit low levels of disclosure.”).

<sup>29</sup> See Onstwedder, *supra* note 23 (describing the complexity of calculating emissions).

(“CRREM”) are streamlining compliance efforts.<sup>30</sup> Developed collaboratively with the European Union (“EU”), this open-source tool empowers large institutional investors in their efforts to quantify transition risks and drive low-carbon investments.<sup>31</sup> CRREM equips investors with science-based emissions targets for both companies and individual properties, helping them identify potential stranded assets<sup>32</sup> and develop strategic decarbonization plans.<sup>33</sup> Additionally, this tool enables standardized reporting of transition risks.<sup>34</sup> Standardization facilitates benchmarking and comparison across the industry, promoting transparency and accountability. Accordingly, compliance with increasingly stricter emission disclosure requirements will require companies to collaborate with companies that make effective use of these data processing innovations.

Legislative advocacy for fair regulations, government incentives, and transparency can remedy the potential regulatory risks.<sup>35</sup> However, defining fairness in this context requires balancing environmental goals with the economic viability of the sector, considering the differences between large investment firms and smaller property owners, and recognizing the long-term benefits of decarbonization resulting from up-front costs. These tensions can be reconciled by creating a regulatory framework that contemplates a mutually beneficial relationship between industry and social welfare. For example, financial risks could be minimized if the transition towards a lower-carbon economy “begins early and follows a predictable path, thereby helping the

---

<sup>30</sup> See generally Carbon Risk Real Estate Monitor, <https://www.crr-em.eu/about-crr-em/>.

<sup>31</sup> Carlin, *supra* note 13 (“The Carbon Risk Real Estate Monitor Project (CRREM) is an open-source tool developed in conjunction with the EU to improve the quantification of real estate transition risk and accelerate low-carbon investments in the sector.”).

<sup>32</sup> Sini Matikainen, *What are stranded assets?*, LONDON SCHOOL ECON. (July 27, 2022), <https://www.lse.ac.uk/granthaminstitute/explainers/what-are-stranded-assets/> (stranded assets are investments that can no longer be used, due to either regulatory or political pressure, “end[ing] up as a liability before the end of its anticipated economic lifetime.”).

<sup>33</sup> Carlin, *supra* note 13 (“[CRREM] identifies potentially stranded assets and strategic actions to take.”).

<sup>34</sup> *Id.* (“[CRREM] allows for the quantitative reporting of transition risks in a standard format.”)

<sup>35</sup> See Carney, *supra* note 19, at 8 (“Financial policymakers will not drive the transition to a low-carbon economy. It is not for a central banker to advocate for one policy response over another. That is for governments to decide.”).

market anticipate the transition.”<sup>36</sup> Moreover, buy-in from real estate investors can be motivated by various incentive schemes, such as tax credits, governments grants, and loan programs for sustainable practices.<sup>37</sup> For these to work, however, open dialogue is necessary to ensure a smooth transition towards a sustainable environment, while preserving the resiliency of real estate investments.<sup>38</sup>

## 2. *Market Shift Risks*

Market shift risks refer to the potential financial consequences of consumer preferences changing in favor of energy-efficient buildings. This shift is driven by growing consumer awareness of the environmental and economic benefits of sustainability, coupled with the costs associated with stricter regulations and evolving building codes. This effect is illustrated by a study conducted by the Bank of England analyzing the effects of the United Kingdom’s (“UK”) Minimum Energy Efficiency Standard (“MEES”).<sup>39</sup> This policy imposed fines up to £5,000 on landlords renting out properties below a specific energy efficiency rating. The study found that value of affected properties decreased by £5,000 to £9,000 compared to unaffected properties.<sup>40</sup> As energy performance certificates became publicly available, potential buyers factored in the expected cost of future renovations needed to meet the required energy sufficiency standards.<sup>41</sup>

---

<sup>36</sup> Carney, *supra* note 19, at 4.

<sup>37</sup> Michael Novogradac, *Three Green Energy Incentives Developers, Investors Should Know When Building Affordable Housing*, NOVOGRADAC (Aug. 22, 2023), <https://www.novoco.com/podcast/aug-22-2023-three-green-energy-incentives-developers-investors-should-know-when-building-affordable> (Describing the opportunities presented by the HOMES Energy Rebate Program, the Internal Revenue Code Section 45L Energy Efficient Homes Credit, and the solar investment tax credit).

<sup>38</sup> *See Id.* at 7 (“You know, talk to your accountants about how it’s going to impact the overall basis and, you know, what the additional benefit is, and then be prepared for conversations with your investors.”).

<sup>39</sup> Ferentinos, *supra* note 18, at 1 (“[MEES was] aimed at encouraging landlords and property owners to improve the energy efficiency of their properties which should reduce overall greenhouse gas emission.”).

<sup>40</sup> *Id.*

<sup>41</sup> *Id.* at 1-2 (“The magnitude of this effect compares well to our priors. As energy performance certificates are publicly available, we expect potential buyers to consider them when making their purchase decisions.”).

While the U.S. currently lacks nationally mandated regulations like the UK's MEES, the public availability of information on green certifications appears to be causing a growing consumer preference for energy-efficient buildings. Studies have shown that buildings with energy-efficiency certifications like Energy Star<sup>42</sup> or LEED<sup>43</sup> may command higher rents compared to non-certified buildings.<sup>44</sup> This price difference reflects the value proposition of "energy savings and increased productivity, while owners benefit from higher asset value," as well as lower mortgage default risk.<sup>45</sup>

Accordingly, market shift risks could be mitigated by obtaining publicly recognized green certifications. Even though tenant demand for green space is relatively new and limited in scope, there are signs indicating that public skepticism towards the benefits of green buildings is diminishing.<sup>46</sup> Tenants are increasingly researching buildings' Energy Star ratings, LEED certifications, or high-performance

---

<sup>42</sup> Norm Miller et al., *Does Green Pay off?*, Energy Star 20 (July 12, 2008), <https://www.energystar.gov/sites/default/files/buildings/tools/DoesGreenPayOff.pdf> (The Energy Star is program run by the Environmental Protection Agency and the Department of Energy encouraging energy efficiency in buildings).

<sup>43</sup> *Id.* (The Leadership in Energy and Environmental Design "is a product of the U.S. Green Building Council," awarding points "for sustainability, water efficiency, energy and atmosphere, material and resources, indoor environmental quality and design innovation.").

<sup>44</sup> Richard Barkham, *Green Is Good: The Enduring Rent Premium of LEED-Certified U.S. Office Buildings*, CBRE (Oct. 26, 2022), <https://www.cbre.com/insights/viewpoints/green-is-good-the-endurance-of-the-rent-premium-in-leed-certified-us-office-buildings>; see also Richard Berger, *Eco-Friendly Buildings Pulling in 4.2% More Rent*, GLOBEST (Nov. 30, 2023), <https://www.globest.com/2023/11/30/eco-friendly-buildings-pulling-in-4-2-more-rent/?slreturn=20240122170524#:~:text=Certified%2C%20energy%2Defficient%20buildings%20are,of%20tenants%2C%20the%20report%20said>.

<sup>45</sup> Barkham, *supra* note 34; citing Xudong An & Gary Pivo, *Green Buildings in Commercial Mortgage-Backed Securities: The Effects of LEED and Energy Star Certification on Default Risk and Loan Terms*, 48 REAL ESTATE ECONOMICS 7 (Nov. 21, 2017).

<sup>46</sup> Miller, *supra* note 42, at 16 ("Tenant demand for green space is fairly new and not without its limits, but positive rent differentials do exist. We are starting to find less skeptical tenants willing to believe claims of potential benefits.").



features.<sup>47</sup> Some private developers are conscious of this market shift, and are acting accordingly to take advantage of this increase in demand, with investors increasing their focus on green buildings.<sup>48</sup> Some cities have ordinances mandate LEED certification for new developments,<sup>49</sup> while others are starting to offer incentives like faster permitting or reduced fees, further contributing to this market shift.<sup>50</sup> The potential benefits for both tenants and owners suggest that embracing energy efficiency is not just an environmental imperative but also a sound investment strategy for approaching the burdens posed by stricter decarbonization regulations.

### 3. *Financial Risks*

On the other hand, real estate investors who fail to adapt to these regulatory and market shift risks also face financial risks in the form of reduced building value, higher operational costs, and potential obsolescence. As noted in the previous discussion of the UK's policy intervention, buildings may face lower values as real estate markets account for the publicly available information about the energy efficiency of the underlying property, when pricing the property.<sup>51</sup> This phenomenon has cascading effects, with the decrease in property prices

---

<sup>47</sup> *Id.* at 17. (“The more typical tenants asking for Energy Star ratings, LEED certification or high-performance building features are private market-based firms.”).

<sup>48</sup> *Id.* (“Private developers are leading the way in accommodating this burgeoning demand. Some investors like CALPERS have recently announced efforts to increase their emphasis on green over the next several years.”).

<sup>49</sup> *Id.* (“Several cities, like Boston, Los Angeles or San Francisco, have mandated LEED certification); *see also* Lesley Baulding, *LEED Legislation by City: See Where LEED Certification is Required*, Everblue Training Inst. (June 18, 2015), <https://everbluetraining.com/cities-requiring-or-supporting-leed-2015-edition/> (last modified Sep. 11, 2023).

<sup>50</sup> Miller, *supra* note 42, at 17 (“[Cities] like Toronto, have provided incentives (i.e. rebates) for energy conservation methods. A great local incentive that costs cities very little but saves developers significant money is the promise of faster entitlement and permit reviews and or reduced permit fees or bonus densities.”).

<sup>51</sup> *See* Ferentinos, *supra* note 18 (“The magnitude of this effect compares well to our priors. As energy performance certificates are publicly available, we expect potential buyers to consider them when making their purchase decisions.”).

also decreasing the value of outstanding mortgages.<sup>52</sup> This in turn has implications for the country's general financial stability relative to the number of properties affected by the policy.<sup>53</sup>

Additionally, failure to adapt, either by retrofitting or through green investments, will result in higher operational costs for landlords. Traditional buildings with less energy-efficient systems must deal with higher costs associated with the consumption of utilities such as electricity, water, and gas. As energy prices rise, these operational costs impact the buildings' profitability. Buildings that do not adapt in favor of "more efficient operating abilities [to compete with] green buildings will become obsolete much faster."<sup>54</sup> Increased operational costs, coupled with difficulty finding tenants, lower rental rates, and declining property value eventually results in the property becoming not worth operating. However, by proactively investing in energy efficiency and sustainability, real estate investors can not only mitigate these financial risks but also position themselves to benefit from the growing demand for green buildings in the long run. Retrofitting existing buildings presents both benefits and challenges that real estate investors will need to consider.<sup>55</sup> However, there are conflicting studies on whether it may be cheaper to design a green energy building from the construction stage than it is to retrofit an existing building.<sup>56</sup> Notwithstanding, embracing sustainable practices through proactive investments in energy efficiency

---

<sup>52</sup> Ferentinos, *supra* note 18, at 2 ("[D]ecreases in property prices mean that collateral values of outstanding mortgages decrease.").

<sup>53</sup> *Id.* at 24.

<sup>54</sup> Miller, *supra* note 42, at 16.

<sup>55</sup> See Ivalin Petkov et al., *Decarbonizing real estate portfolios considering optimal retrofit investment and policy conditions to 2050*, 26 *ISCIENCE* 1 (May 19, 2023), [https://www.cell.com/iscience/pdf/S2589-0042\(23\)00696-X.pdf](https://www.cell.com/iscience/pdf/S2589-0042(23)00696-X.pdf); see also Ivalin Petkov et al., *The interplay of policy and energy retrofit decision-making for real estate decarbonization*, *INFRASTRUCT. SUSTAIN.* 1 (Dec. 20, 2021) ("Two challenges exist concerning decarbonization: (1) Assuring that new buildings are efficient, resilient, energetically renewable, while being constructed with low-CO2 footprint materials, and (2) addressing the aging existing building stocks of developed economies, such as Europe's, where 90% of buildings are still expected to stand in 2050.").

<sup>56</sup> See Phil Jones, *Retrofitting existing housing: how far, how much?*, 41 *BLDG. RSCH. INFO.* 532; cf. Dong Zhao & Yunjeong Mo, *Build New or Retrofit? Leverage Cost Benefits for Building Energy Efficiency*, U.S. Nat'l. Sci. Found. (Sep. 8, 2022), [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=4213217](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4213217) (Finding "a lack of evidence about the cost benefits in comparing new and retrofit projects.").

may ultimately lead to a more resilient and profitable real estate portfolio.

#### **D. Conclusion**

While stricter decarbonization rules are essential to address environmental concerns and meet international initiatives, potential transition risks have emerged for the real estate sector. The complexity of quantifying indirect emissions, alongside geographical inconsistencies, create challenges for accurate and standardized reporting. This lack of clarity creates uncertainty for investors regarding the future status of their real estate holdings, leading to unforeseen compliance risks that impact valuations and hinder long-term investment strategies. To create a real estate sector that is not only sustainable but also resilient, legislators will have to draft a consistent and collaborative framework that navigates these complexities. Open dialogue, proactive measures, and a unified focus on a smooth transition can steer the real estate sector in a direction that aligns with the international community's zero-carbon vision, ensuring both environmental protection and long-term investment resilience.

Alexis G. Santiago Rosario<sup>57</sup>

---

<sup>57</sup> Student, Boston University School of Law (J.D. 2024).