

# Sustainability in listed real assets

Meeting today's needs and preparing for the next generation









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## GLOBAL CLEAN INFRASTRUCTURE IMPACT (GCII)

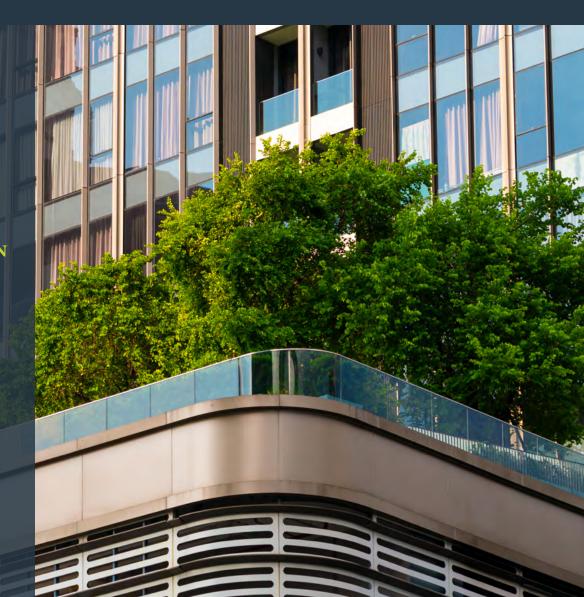
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## Overview

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## Message from our leaders



**Benjamin T. Kerl** Head of Listed Real Assets, Portfolio Manager

I am delighted to introduce the inaugural sustainability report of Nuveen's Listed Real Assets platform, which showcases the real asset team's commitment to responsible investing practices. From its modest start in 2005 with the management of a single strategy, the platform has expanded to \$5.8 billion\* across a range of listed real estate and infrastructure offerings, including capital invested on behalf of clients in the Paris-aligned real estate and clean infrastructure sectors.

The team's approach to responsible investing is rooted in transparency and accountability, stemming from a core belief: Companies that behave ethically and prioritize sustainability will become market leaders. We strive to invest accordingly, but not just because it's "the right thing to do." In our view, the transition to a low-carbon economy is and will continue to be the most compelling economic trend for decades to come — transforming industries, unlocking opportunities, and creating value for investors, while also benefiting communities and fostering a healthy planet.

I would like to express my gratitude to my team for its dedication and passion, our colleagues on the responsible investing platform for their guiding expertise and all other partners at Nuveen for their unwavering support. Together we are helping address today's challenges and paving the way for tomorrow's positive social and environmental change.



**Amy O'Brien**Global Head of Responsible Investing

Another year of unprecedented climate events posed challenges in 2023, but also created investment opportunities driven both by the actual events and by changes in human behaviors in response to them. Stakeholders across public and private markets worked to meet ever-rising global demand for clean energy solutions while navigating a complex environment of policy initiatives, regulations and competition for capital.

In 2024, the clean energy transition continues to help shape the evolution of our investment platforms amid burgeoning market demand and funding requirements:

**Capital movement.** The shift from fossil fuels to low-carbon energy sources is well underway. By 2030, global capital spending on this transition is expected to grow to \$3-5 trillion annually — two to four times current outlays. This multitrillion dollar trend will likely span decades.

**Client needs.** From our own 2024 EQuilibrium Institutional Investor Survey, we know that 88% of respondents are focused on the clean energy

transition. This signals healthy demand for additional investment opportunities, but political and regulatory disparities on the global stage create headwinds to developing them.

Real estate's role. Central to a net-zero carbon economy is the decarbonization of real estate, a task made more challenging by urban population growth and increased energy consumption. Real estate drives about 40% of global carbon emissions, so replacing traditional "brown" buildings (and their large carbon footprints) with green ones is essential to abating the climate crisis.

I'm proud of Nuveen's commitment and the strength of our Responsible Investing platform. I'm also confident in the ability of our listed real assets professionals to continue mobilizing the capital required to finance the clean energy transition and reduce carbon emissions from the built environment. Delivering on the goal of sustainability for future generations while meeting the needs of today's investors is a goal I enthusiastically look forward to achieving.

\*AUM as of 30 Jun 2024.



## Sustainability in listed real assets

We believe real assets will benefit from global megatrends that should persist through market cycles over generations. In particular, continued population shifts toward urban areas and increasing energy demand from an ever-larger population and growing middle class should drive the transition to low-carbon energy sources and a net zero economy."

Noah P. Hauser, CFA® Head of Infrastructure Investments, Portfolio Manager



The transformation to a net zero economy brings with it a massive investment opportunity in the listed real estate and infrastructure sectors.

In 1987, the United Nations defined sustainability as "meeting the needs of the present without compromising the ability of future generations to meet their own needs." Today, climate change and the degradation of the environment threaten this ability, as reflected in the following challenges:

- The world is losing about 2% of its natural capital stock¹ per year.²
- Unless specific, measurable steps are taken, the physical damage caused by climate change is expected to total \$2,328 trillion from 2025 through 2100,<sup>3</sup> although new research suggests that estimate may be too low.
- Approximately 90% of the damage to natural capital stock from climate change will be felt by the poorest 50% of countries and regions.<sup>4</sup>

In 2024, the World Meteorological Organization noted that the "Paris Agreement target of limiting global warming to 1.5 degrees Celsius is hanging on a thread. It's not dead yet, but it's hanging by a thread."5

Most economists agree that a price for carbon emissions is necessary to help accelerate the low-carbon transition, and theory suggests that this price should equate to the social costs of carbon borne by the public. For 2023, policymakers estimate those costs were \$204 per ton of carbon equivalent (tCO2e). As of 2023, the weighted average global carbon price was just \$23/tCO2e. To date, only a few European countries and Uruguay have implemented a carbon pricing policy at levels over \$60/tCO2e — still well below both the estimated public costs and the World Bank's suggested pricing of between ~\$226 - \$385/tCO2e by 2030.6

Regardless of how carbon pricing evolves, to reverse course and avoid global warming's most harmful effects, about \$275 trillion in cumulative global spending on physical assets will be required through 2050.7 This represents a huge investment opportunity that puts Nuveen's listed real assets platform at the core of the sustainable transition, as a solid portion of that spending will come from capital expenditures made by companies held in our portfolios that continue to fulfill basic needs such as shelter, energy and water.

## Supply and demand dynamics of the energy transition

Although financial markets tend to focus on the supply of clean energy, both the reduction of fossil fuel-based demand and the stimulation of clean energy demand are just as critical to the energy transition. In fact, the Intergovernmental Panel on Climate Change (IPCC) notes that demand-side measures can reduce greenhouse gas (GHG) emissions in end-use sectors — such as commercial buildings — by 40%-70% by 2050 compared to a "business-as-usual" scenario.

Nuveen is positioned at the center of the supply/demand dynamic. Some of the companies held in our listed real assets portfolios actively increase renewable energy supply, while others reduce energy demand and source clean energy through power purchase agreements (PPAs) — the contractual agreements between energy buyers and sellers. Moreover, many of our portfolio companies accelerate the phasing out of coal, which materially reduces GHG emissions. Lastly, our direct engagements with portfolio companies often focus on mechanisms like securitization<sup>8</sup> to retire coal plants even more quickly.

The long-term demand outlook for suppliers of clean electricity has been positive given widespread efforts to reduce GHG emissions via electrification. Meanwhile, advances in artificial intelligence (AI) and resulting energy demand for data centers have recently demonstrated the potential for spurring supply. To illustrate, three

industry leaders — Microsoft, Brookfield Asset Management and Brookfield Renewable Partners — recently announced a partnership for a series of PPAs designed to develop over 10.5 gigawatts (GW) of renewable energy capacity. Overall, the power generation capacity through global corporate PPAs grew by 12% in 2023,9 and corporate decarbonizations will continue to drive demand for these agreements, enabling further deployment of renewables.

Beyond clean energy, the focus on demand extends to other areas of low-carbon products and services. For example, property developers may stipulate that building materials must contain a certain percentage of recycled content or inputs created using lower carbon-intensive processes. Such requirements send a strong demand signal to upstream producers of these materials. These demand commitments help de-risk investments in, and financing of, climate solutions, enabling production to scale.

Another transition-inspired dynamic guiding our investment approach includes anticipating trends from the substitution effect, exemplified by the modal shift from road to rail to move people and goods. Rail uses only 2% of the energy in the transport sector but carries 8% of motorized passenger volume and 7% of freight. We see urbanization and the low-carbon transition providing structural tailwinds and return opportunities in the rail subsector.



#### **Corporate decarbonization commitments and forecasts**

Global Real Estate Carbon Reduction (GRECR)

69%

of portfolio companies have a Science Based Target vs. 48.6% of the benchmark (FTSE EPRA Nareit Developed Index) Global Clean Infrastructure Impact (GCII)

41%

of portfolio companies covered by a Science Based Target vs. 25.3% of the benchmark (50% S&P Global Infrastructure Index, 50% S&P Global 1200 Utilities Sector Capped Index)

#### Clean energy versus fossil fuel capex (ratio)

- Global economy: \$1.74T clean energy versus \$1.04T in fossil fuels (1.7:1); a 10:1 ratio is needed by 2030 to be on track with limiting warming to 1.5 degrees
- Global Clean Infrastructure Impact Strategy has \$1.6B in clean energy CapEx for every \$1M in fossil fuel CapEx (1,556:1) well above the benchmark, 50% S&P Global Infrastructure Index, 50% S&P Global 1200 Utilities Sector Capped Index with \$143M in clean energy CapEx for every \$1M in fossil fuel CapEx (143:1)

All figures listed above are as of 31 Dec 2023.



Shaping the circular economy ▶

Sustainable investment thesis ▶

Theory of change ▶

Our responsible investing philosophy ▶

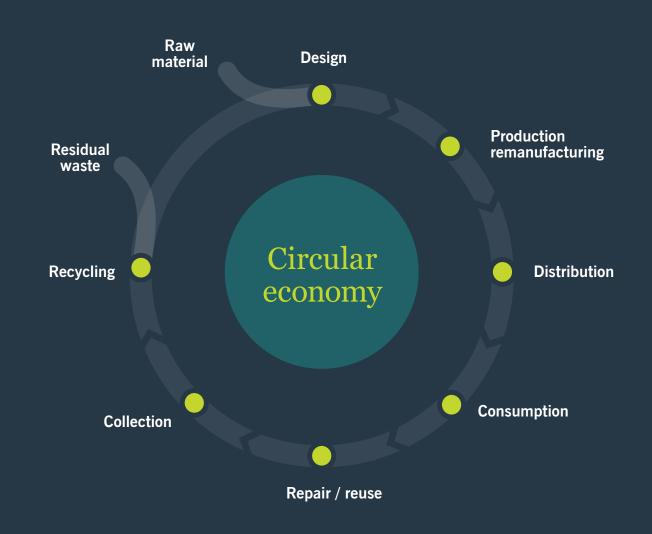
## Shaping the circular economy

Nuveen's sustainability approach also prioritizes advancing the circular economy — an aspirational model of production and consumption that targets zero waste and optimal resource renewal. Pursuing circularity helps to structurally lower emissions, while also relieving resource pressure and mitigating other environmental challenges, such as plastic waste. Nuveen's Global Real Estate Carbon Reduction strategy emphasizes the adoption of circularity principles in property design, there is the potential to lower global carbon emissions from building materials by about 38% through 2050 due to reduced demand for steel, aluminum, cement and plastic.<sup>11</sup>

We also examine both embodied carbon and scope 3 emissions when determining a company's eligibility for inclusion in our sustainability-focused real estate portfolios.

Additionally, we engage with real estate businesses to understand both their strategies for using upcycled material and how they decide whether to demolish or refurbish a building, keeping in mind how they might reuse materials.

Within infrastructure, some of our portfolio companies embed circularity in their operating models by utilizing methane from landfills to power their fleets of waste collection vehicles. Other companies contribute to the circular economy by deploying recycling facilities and related innovative technologies.



## Sustainable investment thesis

For real estate, we have observed positive tenant/ occupant demand dynamics relating to the green credentials of buildings. Premiums associated with the move to net-zero properties should be justified given lower and less volatile ongoing operational and maintenance costs.

On the infrastructure side, we are bullish on the capital deployment opportunity for the sector, which has been increasingly enabled by partnering with large corporations to meet their specific energy needs, including decarbonization requirements. Such efforts can support their long-term earnings growth and drive multiple expansion — another means of creating value for investors. While renewables may be subject to interest-rate sensitivity or other macro risks, their potential to compound future earnings at a high rate may buoy stock price appreciation through market and macroeconomic cycles.

We find the financial thesis underpinning the sustainable transition compelling, and believe that the rate of decarbonization is a key factor in driving returns."

Andre Shepley
Sr. Director, Responsible Investing



Regulatory compliance costs are growing, with more policy measures around the globe focusing on the carbon intensity of power generation and emissions generated by real estate."

**Crispin Royle-Davies**Co-Portfolio Manager, Listed Real Assets



## Theory of change

In our view, the objective of driving measurable, positive change can be achieved despite the structural constraints of participating in listed markets. We have developed a theory of change that describes our approach and contribution, summarized by three actions:



#### Influence expectations for ownership:

By creating investment vehicles with strict environmental criteria, market participants are prompted to decarbonize operations and/or invest in climate mitigation, both of whose positive influence on the environment is commensurate with capital commitments.



#### **Influence management behavior:**

Encourage companies on the path to decarbonization to accelerate their efforts and, where feasible, influence policymakers to facilitate an enabling environment.



#### Provide a fresh source of capital:

Where possible within the parameters of the investment guidelines for Nuveen's Global Clean Infrastructure Impact strategy (GCII, see page 15) and Global Real Estate Carbon Reduction strategy (GRECR, page 27), directly support companies by participating in primary equity or debt issuances.

We believe our approach, while not a panacea for solving environmental challenges, can have a positive impact while still seeking to provide investors with consistent returns over time.

## Our responsible investing philosophy



**Consider** financially material environmental, social and governance factors within the investment decision making process.



*Influence* to advance responsible investing practices while preserving and seeking to enhance long-term shareholder value.



*Drive* positive and measurable environmental and/or social outcomes through our investing practices.

Responsible investing is a holistic approach rooted in our belief that financial performance and social responsibility are intertwined. We believe that considering financially material ESG factors in investment research and portfolio management allows us to better assess potential risks and opportunities.

Furthermore, through our stewardship activities we seek to guide companies and issuers along a journey from transparency and accountability toward credible, real world impact.

specialists and sector research analysts created an enhanced proprietary framework to assess financially material ESG topics, combining the power of ESG data and the insightful forward looking view from the investment team."

### Stewardship



#### **ENGAGEMENT**

The investment team views engagement as an essential component of responsible investing. Leveraging the unique framework developed by Nuveen's stewardship team, the investment team in collaboration with colleagues from the stewardship team investigate where a company currently is in its ESG journey and identifies relevant ESG topics for engagement.

Engagement allows us to promote environmental and social progress with companies. As such, we believe it can not only improve investment outcomes but the outcomes for all stakeholders.

Based on each company's particular circumstances, the team will actively engage with boards and managements to outline expectations with a keen eye to promote environmental and social objectives.

The discussed case studies later in this report demonstrate how the team approaches stakeholder conversations and sets clear expectations.



#### **PROXY VOTING**

Exercising our rights via proxy voting is an important element of our public portfolio management activity, allowing us to signal to management and boards what we believe would maximize the long-term value of our portfolio holdings.

3,352
TOTAL PROPOSALS VOTED

At approximately **30%** of meetings, the team cast at least one vote against management.\*

<sup>\*</sup>From the period July 1, 2023-June 30, 2024 across the Listed Real Assets platform.



Market environment ▶

Case studies ▶

Sustainability KPIs ▶



GLOBAL CLEAN INFRASTRUCTURE IMPACT

## The view from Europe

In the European Union (EU), we are witnessing an acceleration of capital investments by electric and gas utilities to meet aggressive decarbonization and energy transition targets. The EU is committed to doubling the share of renewable energy in overall energy consumption, to 42.5% by 2030, and to reducing GHGs 90% by 2040.

One of the key investment opportunities in this mandate-driven region is electric grid infrastructure, as the lack of spending on this has been a major bottleneck to adding renewables to the grid. Electric transmission and distribution utilities in Italy, Spain, the United Kingdom and Belgium plan to ramp up their capital expenditure targets by 50% to 100% over the next decade. In Germany, investment targets for electric transmission have risen by as much as tenfold.

EU governments and regulators increasingly recognize the need to provide attractive, consistent and easily measurable returns for long-term investments that enable the energy transition. We have seen higher returns and incentives for grid investments in Italy, the United Kingdom and Germany, and we expect Spain to follow suit soon.

Customer affordability is a key challenge in the EU as well. With the rapid shutdown of coal and nuclear plants, the EU boosted its reliance on natural gas as the transition fuel to manage the intermittency and volatility associated with adding renewables. The EU's emphasis on natural gas led to a severe energy crisis in the region following the start of the Russia-Ukraine conflict. This experience strengthened the EU's resolve to

accelerate its energy transition, with the added goal of energy security. However, policymakers and regulators in Europe are now faced with the challenge of balancing the speed of transition with the costs associated with it. In our view, electricity grid infrastructure investments are the clear winner, representing a smaller part of customers' utility bills but a key enabler of reducing both volatility and system costs.

## Electric utilities: supply and demand forces at work

The electric utility industry currently sits at the busy intersection of supply and demand trends. On the supply side, government mandates are driving regulated utilities to transition their fleets away from fossil fuels (coal plants in particular) and toward cleaner, more renewable forms of power generation. Regarding demand, we have noted a recent trend of positive load growth (i.e., rising demand for electricity over time) in many parts of the U.S. — a departure from the negative load growth that had prevailed for years amid a global focus on boosting energy efficiency.

This upward shift in demand is being spurred in part by the AI boom and the accompanying need for more data centers. Specifically, data center demand is forecasted to grow by 15% annually in the U.S., from 155 terrawatt hours (TWh) today to 400 THw by the end of the decade, driving the need for 27 GW of additional generation.

Another major source of demand is the "onshoring" of manufacturing and industrial capacity as favorable macro factors persuade a growing number of U.S. multinational companies to bring their supply chains closer to home. For example, attractive commodity spreads in the U.S. Gulf Coast are driving rapid industrial growth in the region, driving incremental load not only from large

customers, but also from the influx of workers and their families who relocate to the region to support the manufacturing sectors.

Lastly, we are seeing additional demand growth from the electrification of our daily lives. Electric vehicles, consumer product usage and work-from-home arrangements are among the many trends adding to demand in the U.S.

Against this backdrop, we believe the electric utility industry is poised for a robust investment cycle over the next several decades, serving to both enable the decarbonization of fleets and provide the reliability and resilience to meet rapidly expanding customer demand for electricity.

While fleet transition has driven increased supply for more than a decade, mainly due to federal and state regulations, the pace of deploying renewable power generation has accelerated sharply in the past few years thanks to the Inflation Reduction Act of 2022 (the largest climate bill in U.S. history) and the desire of large customers to consume cleaner power to meet their clean energy goals.

Explosive renewable supply growth, however, comes with a risk — namely, the potential for heightened stress and volatility in the power market because of the intermittent nature of wind and solar generation, as seen in California in 2020 and Texas in 2021. We believe there's an opportunity for the electric utility industry to combat this risk by investing in the buildout of battery storage over the medium term, as well as in new, highly efficient gas generation as a near-term solution to meet backfill load requirements. In addition, we think supply risk creates the need for more spending on transmission to move power more efficiently from where it's created to where the load is located.

In our view, the biggest challenge utilities will face is customer affordability. Higher levels of spending will require large and frequent requests for rate increases from state regulators. This can be a particularly cumbersome issue in states with already-high electric rates. Ultimately, however, regulators and legislators must be convinced that spending on the grid now will shield customers from future rate shocks caused by high power prices and potential reliability issues if reserve margins — the cushion between the supply and demand of electricity — get too small.

## Updates from the United States

The track record of legislative involvement at the state level has been mixed thus far. Some states have been more proactive in directing and incentivizing utilities on sustainability trends. In Michigan and Colorado, for instance, recently passed legislation provides support for more expansive electrification and decarbonization goals and includes incentives for utilities.

#### Michigan (Senate Bill 271 of 2023):

- Establishes more aggressive mandates on the timeline of moving to cleaner power generation. For example, Michigan will produce 60% of its energy from clean sources including renewables, gas with carbon capture and storage (CCS) and nuclear power by 2025, and 100% by 2040.
- The legislation acknowledges that some of the most productive renewable generation sites might exist outside the utilities service territory. Therefore, Michigan utilities are offered an enhanced financial incentive if they buy renewable power from a developer in lieu of building the capacity themselves.

## Colorado (Senate Bill 218, passed in May 2024):

- Distribution is a key enabler of electrification, and Colorado's new law features improved financial incentives for utilities to allocate capital to distribution spending in the state.
- Electric distribution companies have been earning returns below authorized levels in the state. This legislation establishes a regulatory mechanism that ensures more timely compensation for electric distribution spending in Colorado.

GLOBAL CLEAN INFRASTRUCTURE IMPACT

## Case studies

**WEC ENERGY GROUP** 

CENTERPOINT ENERGY

RWE

AMEREN

in power generation and distribution, successful climate strategies are more complex than high-level emissions targets. Our engagement program ensures we spend time with companies to understand their approach to climate risk, allowing us to act as partners in their decarbonization journey."

**Megan Ahern**Director, Responsible Investing



central to our approach.
Through discussion with companies, we learn about their strategies and advocate for best practices — in service of both prudent portfolio management and the fund's decarbonization objectives."

**Rishi Modi** Senior Analyst, Listed Real Assets







## Affordable and clean energy

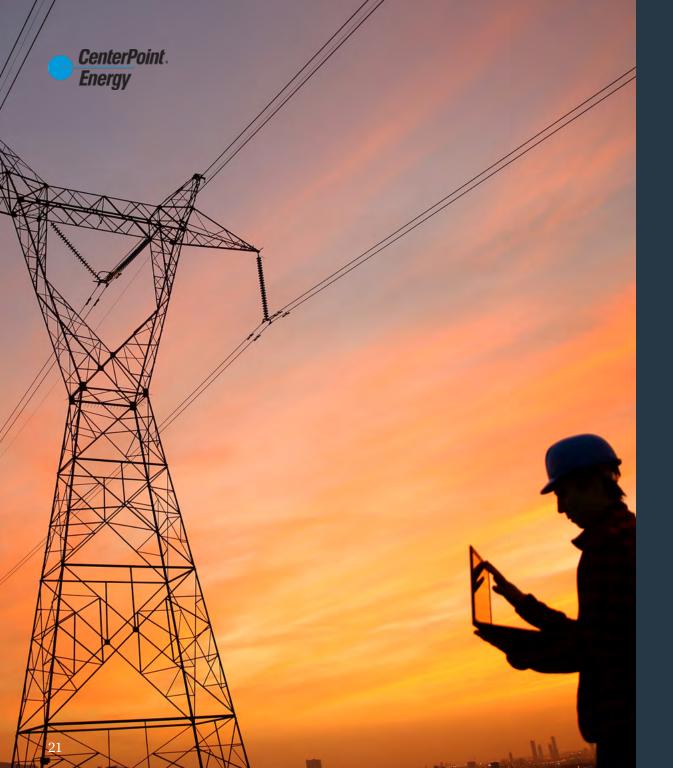
GCII CASE STUDY: WEC ENERGY GROUP (WEC)



Company description: American electric and natural gas utility serving 4.4 million customers across four states.

Engagement topic: The transition away from thermal coal for electricity generation is key to achieving global decarbonization goals, particularly in developed economies. In many instances, coal is both more carbon-intensive and more expensive than lower-carbon alternatives. As a result, engaging portfolio companies on options to reduce coal generation and pursue ratepayer savings is a priority for the fund. We have engaged WEC on this topic, as the company's owned generation capacity is currently 35% coal. WEC has goals in place to reduce coal generation, namely plans to use coal only as a backup fuel by 2030 and to eliminate coal generation entirely by 2035, 13 but we nonetheless continue to request the company consider emerging options (e.g., advanced battery technologies, demand response programs, grid-enhancing technologies) in order to accelerate coal phaseout.

Outcome/next steps: In October 2023, WEC announced it would be accelerating its coal phaseout target from 2035 to 2032.<sup>14</sup>





## Affordable and clean energy

GCII CASE STUDY: CENTERPOINT ENERGY (CNP)



Company description: American electric and natural gas utility serving more than 7 million customers across six states.

Engagement topic: Reducing the carbon-intensity of natural gas systems has emerged as an important global goal, demonstrated by the ambitious international commitments made at COP 28 to reduce methane within the oil and gas industry. Methane is a potent greenhouse gas that's more than 80 times as powerful as CO2 over a 20-year period, and it is frequently leaked along the natural gas supply chain. Downstream users of natural gas, such as utilities, can play an important role in reducing methane emissions both within their own pipelines as well as within the operations of their upstream suppliers. We have seen leading utilities set targets and establish programs to encourage better methane management from upstream suppliers, such as Xcel Energy's target to only acquire low-methane gas by 2030. We have encouraged consideration of similar programs at CenterPoint, and we have also supported a shareholder proposal at the company which requested that it expand its existing emissions goals to include the upstream emissions related to natural gas.

Outcome/next steps: Continue engagement with CNP on value chain emissions and support shareholder proposals to reiterate our expectations.





## Affordable and clean energy

**GCII CASE STUDY:** RWE



**Company description:** German multinational energy company operating in the US, Europe, and Asia-Pacific.

Engagement topic: The decarbonization of so-called "hard-to-abate" sectors, where low-carbon technologies/pathways are nascent, is critical to achieving global climate goals. A lever that may prove valuable for commercializing these nascent technologies is the use of advanced market commitments. Through these commitments, buyers signal to solutions-providers that there is a growing addressable market for their products, which helps to improve the "bankability" of emerging technologies, bring down costs, and accelerate commercialization. In the utility space, several hard-to-abate materials are used in operations, particularly steel. We have engaged RWE on this topic and have pointed them to the First Movers Coalition (FMC), which acts as an aggregator of advanced market commitments and leverages members' collective purchasing power. Several of RWE's peers, such as Engie, Enel, and Iberdrola, have set goals to acquire low-carbon steel through FMC.

Outcome/next steps: Continue to engage RWE on low-carbon steel procurement.





## Decent work and economic growth and reduced inequalities

**GCII CASE STUDY: AMEREN** 





UN SDG ALIGNMENT

**Company description:** American electric and natural gas utility serving over 3 million customers in Illinois and Missouri.

**Engagement topic:** Robust community engagement is central to effective utility operations. Understanding ratepayer needs and engaging with historically underserved communities, in particular, can help to improve customer satisfaction and ensure a smooth ratemaking process with regulators. As a result, we continuously engage utilities on how they are promoting inclusivity among employees, who are typically also ratepayers, and ensuring that the company reflects the communities it represents. Ameren has prioritized creating a workforce that is "engaged, diverse, and innovative," and it seeks to "reflect the diverse experiences and perspectives in the communities it serves." <sup>16</sup> In order to better understand this goal, we have engaged Ameren and other utilities on improving the disclosure of employee diversity relative to service territories, as this would provide context to companies' progress on their diversity goals. We have seen such disclosure provided in other industries, including from Huntington Bancshares, which has disclosed data on how the firm's colleague base compares with the population of states where it operates. This disclosure helps to clearly identify where community engagement and diversity efforts can be enhanced.

**Outcome/next steps:** Continue to engage Ameren on providing contextual data on its goal to reflect service territories.

## Measuring outcomes in listed real assets

The Nuveen Global Clean Infrastructure Impact strategy seeks to provide long-term capital appreciation while giving investors exposure to clean infrastructure companies that are seeking to improve environmental challenges and operational characteristics to achieve intentional, positive and measurable real-world outcomes.

OUTCOMES						
SDG ALIGNMENT		Metric	Portfolio	Company		
7 AFFORDABLE AND CLEAN ENERGY	Energy	Energy or electricity consumed, renewable %	25.3%	25.3%		
- <del>\</del> \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		Energy or electricity consumed, renewable (MWh)	1,942	53,678,783		
		Energy or electricity produced, renewable (MWh)	35,072	831,302,567		
13 GLIMATE	Climate change	CO2e avoided (Mt)	20,776	398,753,550		
12 RESPONSIBLE CONSUMPTION AND PRODUCTION	Circular economy	Operational hazardous waste generated (Mt) (/M sales)	31	1,396,000		
		Operational waste recycled %	26.4%	26.4%		
		Operational waste recycled or re-used (Mt)	389	2,747,387		
6 CLEAN WITER AND SANTARTON	Water	Water consumed or withdrawn (m³)	322,813	13,890,325,300		
		Water discharged (m³)	17,152	14,132,700		
		Water recycled (m³)	51,225	1,149,640,000		
		Water recycled %	23.7%	23.7%		

Holdings as of 31 Dec 2023 with latest available reported or estimated data from Net Purpose or MSCI. It should not be assumed that holdings as of the given date were held by the portfolio throughout the duration of the preceding year or any other period. Portfolio metrics represent the portfolio's proportion of issuers' total outputs, company metrics represent the issuers total outputs.

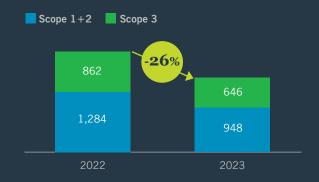
Accurate and timely data is crucial for monitoring the progress of our investment strategies toward their sustainable objectives and providing transparency to our clients. To this end, Nuveen leverages innovative data providers to credibly assess and report on the real-world outcomes of our listed real assets strategies."

Maximilian Hass Impact Analyst, Responsible Investing



#### Portfolio carbon intensity

(mt CO2e/ million \$ in sales)

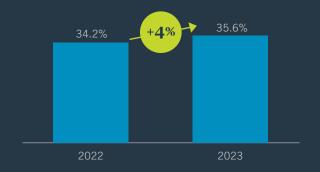


## Portfolio covered by a science-based target % of market value



#### Women on boards

Weighted average



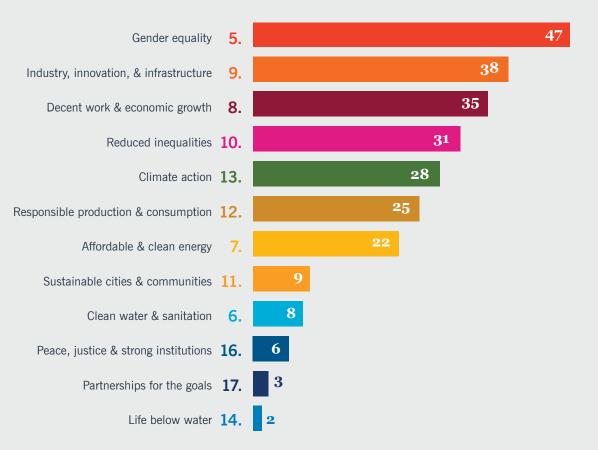
## Portfolio covered by a science-based target % of holdings



## Our investments align closely with the UN Sustainable Development Goals (SDGs)



Number of holdings aligned and strongly aligned with the SDGs<sup>11</sup> as of 31 Dec 2023





5.	Gender equality	\$94.7M
9.	Industry, innovation, & infrastructure	\$75.2M
8.	Decent work & economic growth	\$74.9M
10.	Reduced inequalities	\$73.6M
13.	Climate action	\$52.5M
12.	Responsible production & consumption	\$48.6M
<b>7.</b>	Affordable & clean energy	\$38.1M
11.	Sustainable cities & communities	\$18.3M
6.	Clean water & sanitation	\$14.0M
16.	Peace, justice & strong institutions	\$12.2M
<b>17</b> .	Partnerships for the goals	\$4.7M
14.	Life below water	\$3.7M

## Global Real Estate Carbon Reduction (GRECR)

Market environment ▶

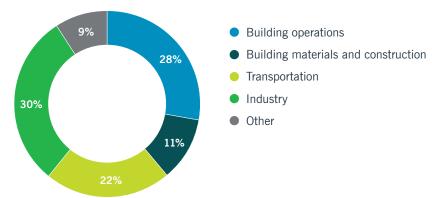
Case studies ▶

Sustainability KPIs ▶



The construction and operation of the built environment — defined generally by the U.S. Environmental Protection Agency (EPA) as "the man-made or modified structures that provide people with living, working and recreational spaces"— is responsible for almost 40% of carbon emitted globally as "final" energy (energy that is delivered or transmitted to end users, such as household electricity, indoor heating fuel and gasoline at the pump).¹7 For the real estate industry, a leading contributor to this large footprint, reducing reliance on fossil fuels and energy usage overall is a critical part of society's efforts to tackle climate change.

#### Global CO2 emissions by sector



A pillar of our investment philosophy for the Global Real Estate Carbon Reduction strategy is our belief that investors do not have to sacrifice financial returns for improved sustainability outcomes.

#### This view is driven by three factors:



#### Tax incentives

Governments in many countries legislate favorable tax treatment to incentivize the development of renewable power generation capacity and adjacent technologies that can be added or retrofitted to existing assets. In the U.S., for example, the Inflation Reduction Act of 2022 introduced tax credits designed to facilitate the transition to cleaner energy, renewable power and reduced GHG emissions. Among the technologies and projects typically targeted for tax incentives are solar panels, wind turbines, battery storage and EV charging stations. In the real estate space, property companies may take advantage of tax credits to add renewable power generation to the buildings they own. While renewables installation has already generated attractive returns on capital for property companies, tax incentives enhance these returns. To illustrate, companies in our investment universe are able to generate internal rates of return of approximately 10% on these projects.



#### Regulation Both current and future

Meanwhile, real estate assets worldwide are often subject to regulatory requirements related to energy efficiency. For example, in the United Kingdom, commercial property owners are prohibited from signing a new lease on a property unless the building is deemed sufficiently energy-efficient based on specific, measurable criteria. We expect other countries and states to establish or tighten similar rules over the next five to six years to increase the likelihood of meeting national or statewide targets for net-zero GHG emissions.



#### **Tenant behavior**

Research shows that tenants will pay higher rents for more energy-efficient buildings with lower operating emissions and certified environmental credentials. This willingness has fed into the investment market, as potential buyers of less energy-efficient properties often deduct necessary environmental improvement capital expenditures from their purchase price offer. As a result, higher-emitting assets are more likely to be subject to a valuation penalty, even if a property technically meets today's minimum energy-efficiency standards. In some cases, the capital needed to upgrade an asset enough to be attractive to any tenant is so high that investing in the upgrade doesn't make economic sense. Properties that fall into this category are called "stranded assets."

## How can real estate companies reduce their carbon emissions?

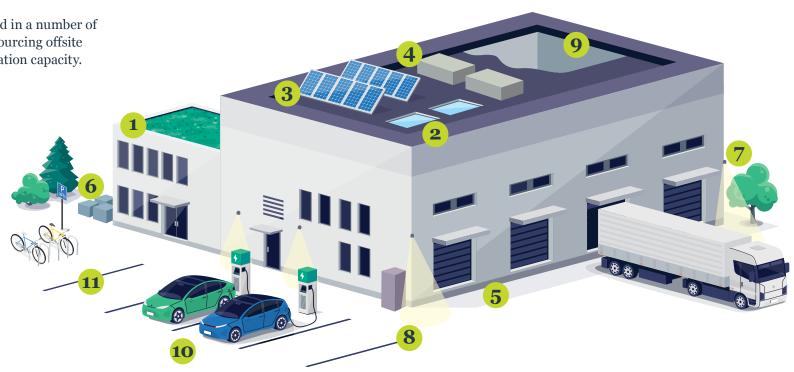
#### Broadly, two types of actions:

• Reduced energy use via efficiency improvements (e.g., more efficient lighting, heating systems and insulating materials)

 Decreased reliance on fossil fuels, which can be achieved in a number of ways, such as by removing gas boilers from buildings, sourcing offsite renewable electricity or adding on-site renewable generation capacity.

#### Industrial real estate example

- 1. Reflective cool roofs
- 2. Skylights with natural lighting
- 3. Roof-top solar panels/photovoltaic cells
- 4. Energy efficient, low-emission HVAC system
- 5. Dock shelters with bottom cushion and gap sealed levelers
- 6. Smart energy meters
- 7. Sensor-controlled LED lights
- 8. Energy monitoring in real-time
- 9. Low-emitting insulation, sealant and paints
- 10. Hybrid/electric vehicle (EV) charging stations
- 11. Carpool, hybrid vehicle and bicycle parking





GLOBAL REAL ESTATE CARBON REDUCTION

## Case studies

**CROMBIE REIT** 

TAG IMMOBILIEN AG

SUN COMMUNITIES, INC.

LINK REIT

to engagement is based in materiality and feasibility.
Going beyond stated targets and commitments, we engage with companies to better understand their pathway to decarbonization and encourage them to adopt best practices."

Allison Markowski Analyst, Responsible Investing



Listed real estate is a capitalintensive sector with an influential
sector-specialist shareholder
base. Our targeted engagement
program seeks to influence
expectations for ownership. We
engage both with companies
we own and those we don't own
where we often see greater scope
for improvement."

**Crispin Royle-Davies**Co-Portfolio Manager, Listed Real Assets



### **Crombie**





### Sustainable cities and communities

GRECR CASE STUDY: CROMBIE REIT (Crombie)



UN SDG ALIGNMENT

**Company description:** Canadian REIT with a portfolio consisting of retail and mixed-use properties in urban and suburban markets across Canada.

Engagement topic: Following the approval of their emissions targets by the Science Based Targets Initiative (SBTi), Nuveen engaged with Crombie to better understand the implementation pathway planned for achieving the necessary emission reductions. Despite having published ambitious emissions targets, the company had yet to disclose the emissions inventory informing their target baseline and lacked a credible decarbonization strategy. Nuveen recognizes that a lack of transparency in these areas dampens the accountability demonstrated through target-setting by raising questions surrounding target feasibility and rigor. Assessing Crombie's progress against industry best practices, Nuveen encouraged management to further enhance the company's carbon reduction strategy by transparently reporting their full emissions inventory, and better outlining their action plan for achieving the emissions reductions necessary to meet their goals.

**Outcome/next steps:** In November 2023, Crombie disclosed its Climate Action Plan, including a full emissions inventory and a robust carbon reduction strategy.





### Sustainable cities and communities

GRECR CASE STUDY: TAG IMMOBILIEN AG (TAG)



UN SDG ALIGNMENT

**Company description:** German real estate company involved in ownership, development, and management of residential properties in Germany and Poland.

Engagement topic: Embodied carbon, or the full lifecycle emissions of a building from construction to demolition, can account for up to 70% of some properties' total emissions. In the race to net zero, stakeholders are calling on the real estate industry to begin measuring and mitigating these indirect emissions, particularly for those companies involved in development operations. Given its recently acquired development business, we have engaged TAG on its decarbonization strategy to better understand how embodied carbon is being addressed. TAG emphasized the need for a more tailored approach, acknowledging the differences between their Polish and German portfolios and the market-specific challenges that must be overcome. The company discussed its intent to realize operational emissions reductions while reasonably mitigating embodied carbon. Although this demonstrates a thoughtful approach, Nuveen continues to encourage the company to better define and execute on the group-level strategy by fully incorporating all business lines into forward-looking goals and business planning.

**Outcome/next steps:** Continue to engage TAG on efforts to address embodied carbon and the integration of its Polish portfolio into its group-level decarbonization strategy.





### Sustainable cities and communities

GRECR CASE STUDY: SUN COMMUNITIES, INC.



UN SDG ALIGNMENT

**Company description:** American REIT investing in manufactured homes, recreational vehicles, and marinas in the United States, the United Kingdom, and Canada.

Engagement topic: In 2023, Sun Communities published emissions targets, committing to achieve carbon neutrality by 2034 and net zero emissions by 2045. While commending the company for their time-bound commitment, Nuveen believes that a credible carbon reduction strategy requires transparency and accountability beyond stated ambition. In ongoing engagement with the company, we have encouraged the company to strengthen the credibility of their strategy by enhancing transparency and establishing milestones to enable stakeholders to assess progress over time. Receptive to our feedback, Sun Communities shared their intent to expand their data coverage and climate risk analysis to better inform their strategy. The company also discussed the feasibility of incorporating emissions targets into its executive compensation program to incentive leadership and enhance accountability from the top down.

**Outcome/next steps:** Sun Communities has since expanded its emissions inventory and use of climate scenario analysis, leveraging them to better define both its short- and long-term emissions reduction priorities. We will continue to engage with Sun Communities as they work to establish a baseline for their emissions targets and further develop their transition strategy.





### Sustainable cities and communities

**GRECR CASE STUDY: LINK REIT** 



**Company description:** Hong Kong-based REIT investing in retail and mixed-use assets across China, Australia, Singapore and the U.K.

Engagement topic: Recent years have seen a notable increase in climate-related regulatory developments in the Asia-Pacific (APAC) region. One policy tool of particular relevance for building owners and developers are building energy performance standards. As these standards increase in scope and stringency, Nuveen recognizes the considerable opportunity these policy developments create for investee companies in advancing their own decarbonization strategies. Consequently, we continuously engage building owners to understand their role in the policymaking process and encourage transparency. To better understand how their political activity supports their Net Zero strategy, Nuveen engaged with Link REIT on the topic. As one of the largest real estate investment trusts operating across the APAC region, Link noted their engagement across various jurisdictions to promote improved carbon regulations, green building codes, and guidance/incentives surrounding embodied carbon. We have encouraged the company to enhance disclosure to better demonstrate alignment between their policy-related activity and their stated climate-related ambitions.

**Outcome/next steps:** Continue to engage Link on the company's political activity and reporting in order to better understand the risks and opportunities it presents as relating to the execution of their long-term climate strategy.

## Measuring outcomes in listed real assets

The Nuveen Global Real Estate Carbon Reduction strategy aims to provide long-term capital appreciation and current income by investing in real estate companies that have either achieved carbon neutrality, or have a target to or track record of reducing greenhouse gas emissions in a manner that is aligned with the Paris Agreement.

OUTCOMES				
SDG ALIGNMENT		Metric	Portfolio	Company
7 AFFORDABLE AND CLEAN ENERGY	Energy	Energy or electricity consumed, renewable %	30.9%	30.9%
7 AFFIGURES AND CITAL DESCRIPTION OF CITAL DESCRIPT		Energy or electricity consumed, renewable (MWh)	313.1	24,168,823

Holdings as of 31 Dec 2023 with latest available reported or estimated data from Net Purpose or MSCI. It should not be assumed that holdings as of the given date were held by the portfolio throughout the duration of the preceding year or any other period. Portfolio metrics represent the portfolio's proportion of issuers' total outputs, company metrics represent the issuers total outputs.

The average change in emissions intensity achieved by companies owned in the portfolio at the end of December 2023 was -2% over the proceeding 9 months"

#### Carbon reduction analysis

The top left chart shows the progression of emissions intensity of positions held in the strategy from the point of conversion in March 2023 to the Global Real Estate Carbon Reduction strategy to the end of 2023. Emissions intensity of positions held in the fund increased by 5%. However, it is important to note that emissions intensity changes in a portfolio are driven by two things: first, the change in emissions intensity achieved by each company during this period, and second, the mix of companies owned in the strategy. Some property types have higher emissions intensities (e.g. data centres) than others (e.g. self storage). Using this methodology, we can decompose the +5% change into these two factors: the average change in emissions intensity achieved by companies owned in the portfolio at the end of December 2023 was -2% over the proceeding 9 months; the mix of companies owned in the strategy more than offset this and caused a 7% increase in emissions intensity. The combined result was a 5% increase. Over time, we do not expect the mix effect to be systematically positive or negative, but we do expect individual companies in fund to continue to reduce emissions intensity over time.

To demonstrate this long run trend further, the bottom right hand chart shows that the three year average Scope 1+2 emissions intensity has dropped by 7.3% per year between 2019 and 2022 for companies held in the strategy as at the end of 2023.

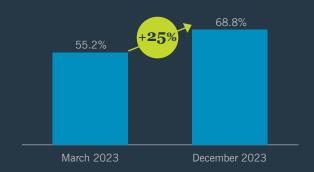
#### Portfolio carbon intensity

mt CO2e/ million \$ in sales



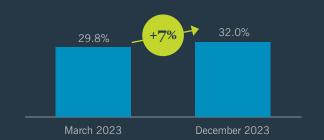
#### Portfolio covered by a science-based target

% of market value



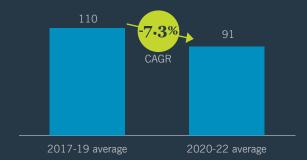
#### Women on boards

Weighted average



#### Portfolio scope 1+2 carbon intensity

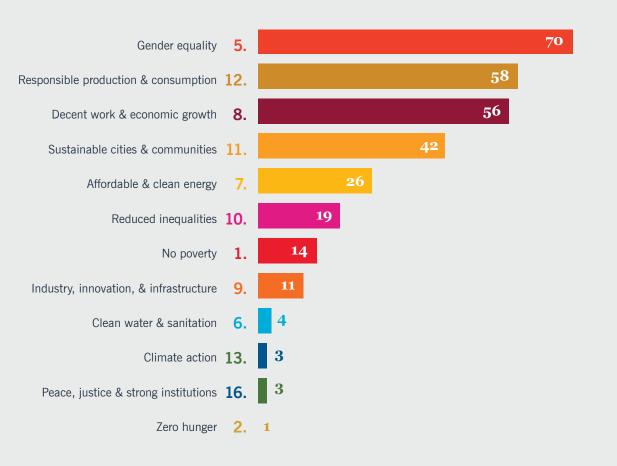
December 2023 portfolio weights - mt CO2e/ million \$ in sales



## Our investments align closely with the UN Sustainable Development Goals (SDGs)



Number of holdings aligned and strongly aligned with the SDGs<sup>11</sup> as of 31 Dec 2023





Gender equality	\$21.3M
Responsible production & consumption	\$16.8M
Decent work & economic growth	\$16.4M
Sustainable cities & communities	\$16.0M
Affordable & clean energy	\$8.9M
Reduced inequalities	\$6.4M
No poverty	\$4.8M
Industry, innovation, & infrastructure	\$3.5M
Clean water & sanitation	\$0.8M
Climate action	\$0.5M
Peace, justice & strong institutions	\$0.3M
Zero hunger	\$0.1M
	Responsible production & consumption Decent work & economic growth Sustainable cities & communities Affordable & clean energy Reduced inequalities No poverty Industry, innovation, & infrastructure Clean water & sanitation Climate action Peace, justice & strong institutions

## Additional information

EU Sustainable Finance Disclosure Regulation (SFDR) ▶

Glossary ►





## EU Sustainable Finance Disclosure Regulation (SFDR)

Nuveen's listed real assets team markets its strategies across the world, including the European Union. The team has two Article 9 strategies under the scope of the EU Sustainable Finance Disclosure Regulation.

According to the SFDR, a sustainable investment means an investment in an economic activity that contributes to an environmental or social objective, provided that the investment does not significantly harm any environmental or social objective and that the investee companies follow good governance practices.

Nuveen's listed Real Assets Global Carbon Reduction strategy seeks to invest in real estate companies that have achieved greenhouse gas emissions neutrality, or demonstrate consistent greenhouse gas emissions reduction, and/or set greenhouse gas emissions reductions targets aligned with maintaining global warming below 2°C. The strategy tracks Carbon Footprint (CO2e/EUR million invested), the GHG intensity of investee companies (metric tons CO2e/EUR million sales) and the percentage of its proprietary carbon reduction criteria for the purposes of measuring the attainment of the sustainable investment objective.

Nuveen's Global Clean Infrastructure Impact strategy seeks to invest in clean infrastructure companies that are solving environmental challenges and improving operational characteristics such that positive, direct, and measurable environmental outcomes are achieved. The strategy tracks renewable electricity produced (MWh), renewable electricity consumed/purchased, expressed as a weighted average of sales (MWh/EUR million sales), water consumption expressed as a weighted average of sales (m3/EUR sales), tonnes of hazardous waste and radioactive waste generated by investee companies per million EUR invested, expressed as a weighted average (metric tons/EUR million EVIC) for the purpose of measuring the attainment of the sustainable investment objective.

Both strategies consider principal adverse impacts, employing a range of processes and published their second periodic disclosures report in September 2024, which is available on Nuveen's website.



## Glossary

**Best-in-class** Selecting issuers that demonstrate better ESG characteristics within a particular sector, industry or peer group, and achieve a rating above a defined threshold.

**Capital Expenditure** Funds used by a company to acquire, upgrade, and maintain physical assets such as property, industrial, buildings, or equipment.

Carbon capture and storage Carbon capture and storage (CCS) is a way of reducing carbon dioxide (CO2) emissions, which could be key to helping to tackle global warming. It's a three-step process, involving: capturing the CO2 produced by power generation or industrial activity, transporting it; and then permanently storing it deep underground.

**Carbon pricing policy** Carbon pricing is an instrument that captures the external costs of greenhouse gas (GHG) emissions – the costs of emissions that the public pays for, such as damage to crops, health care costs from heat waves and droughts, and loss of property from flooding and sea level rise – and ties them to their sources through a price, typically expressed per ton emitted.

**De-carbonization** The term used for removal or reduction of carbon dioxide (CO<sub>2</sub>) output into the atmosphere, the active reduction of carbon footprint. In line with this development, investment portfolios can also be decarbonized.

**Embodied carbon** Also known as embodied greenhouse gas (GHG) emissions—refers to the amount of GHG emissions associated with upstream—extraction, production, transport, and manufacturing—stages of a product's life.

**Fossil-fuel based demand** The consumption of energy that is generated from fossil fuels such as coal, oil, and natural gas, which are primary contributors to greenhouse gas emissions and global warming.

*Greenhouse gas (GHG) emissions* The release of certain gases into the earth's atmosphere that creates a "greenhouse effect", in which heat becomes trapped and global temperatures rise. While emissions can result from natural causes, they are primarily the result of human activities, especially the burning of fossil fuels for energy and transportation.

*Inflation Reduction Act of 2022* A U.S. federal law aimed at curbing inflation by reducing the deficit, lowering prescription drug prices, and investing in domestic energy production and manufacturing while promoting clean energy.

*Intergovernmental Panel on Climate Change* (*IPCC*) The IPCC was created to provide policymakers with regular scientific assessments on climate change, its implications and potential future risks, as well as to put forward adaptation and mitigation options.

**Low-carbon solutions (LCS)** LCS are products, services, and technologies that have a limited carbon footprint and can serve as alternative energy sources or tools for decarbonizing operations and consumption.

**Natural capital stock** Natural capital can be defined as the world's stocks of natural assets which include geology, soil, air, water and all living things. It is from this natural capital that humans derive a wide range of services, often called ecosystem services, which make human life possible.

**Net-zero economy** An economy that has transition to net-zero greenhouse gas emissions, typically through the adoption of renewable energy, energy efficiency, and carbon offsetting practices across all sectors.

**Net zero GHG emissions** Net zero means cutting carbon emissions to a small amount of residual emissions that can be absorbed and durably stored by nature and other carbon dioxide removal measures, leaving zero in the atmosphere.

**Net zero properties** A building that is highly energy efficient, does not emit greenhouse gases directly from energy use, and is powered solely by clean energy.

**Onshoring** The process of relocating manufacturing operations back to the company's original country, often for economic, political, or sustainability reasons.

**Paris agreement** A legally binding international treaty on climate change. It was adopted by 196 Parties at the UN Climate Change Conference (COP21) in Paris, France, on 12 December 2015. It entered into force on 4 November 2016. Its overarching goal is to hold "the increase in the global average temperature to well below 2°C above pre-industrial levels" and pursue efforts "to limit the temperature increase to 1.5°C above pre-industrial levels."

**Positive load growth** The increase in energy demand or electricity load, typically indicating economic growth or an expansion of a power grid.

**Power purchase agreements** A power purchase agreement ("PPA") is generally the primary contract between the public and private sector parties which underpin a power sector PPP. It is typically between a public sector purchaser "offtaker" (often a state-owned electricity utility, in jurisdictions where the power sector is largely state operated) and a privately-owned power producer.

**Rate of decarbonization** The pace at which carbon emissions are reduced across an economy, sector, or company, typically measured against specific targets or goals.

**REIT** A real estate investment trust (REIT) is a company that owns and typically operates income-producing commercial real estate, such as apartments, shopping centers, offices, hotels and warehouses, or mortgage loans secured by such properties.

**Responsible investing** Involves considering environmental, social and governance (ESG) issues when making investment decisions and influencing companies or assets (known as active ownership or stewardship). It complements traditional financial analysis and portfolio construction techniques.

**Scope 1 emissions** Cover direct emissions from sources owned and controlled by the company, such as heating units in our office buildings.

**Scope 2 emissions** Include indirect emission from the consumption of purchased electricity, steam, heat and cooling for our offices.

**Scope 3 emissions** Cover indirect emissions such as tenant emissions, business travel, and purchased goods and services (e.g. emissions from new construction).

**Securitization** The process of taking an illiquid asset, or group of assets, and through financial engineering, transforming them into a security.

**Substitution effect** The decrease in sales for a product that can be attributed to consumers switching to cheaper alternatives when its price rises.

The Sustainable Development Goals (SDGs) Also known as the Global Goals, they were adopted by the United Nations in 2015 as a universal call to action to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity.

**Transition fuel** Refers to a substitute low-carbon fuel (natural gas) for higher content fossil fuels (coal and oil) to reduce CO2 emissions in the near future.

- 1 Natural capital stock is the world's inventory of natural resources, including geology, soil, air, water and all living organisms.
- 2 Managi and Kumar (2018)
- 3 CPI analysis & NGFS (2022)
- 4 Unequal climate impacts on global values of natural capital. Bastien-Olvera et al. Nature 2023.
- 5 AP News, 5 June 2024
- 6 The state and trends of carbon pricing 2024. World Bank Group.
- 7 The net-zero transition: What it would cost, what it could bring. McKinsey & Company. January 2022.
- 8 In the U.S., securitization, a state-enabled policy tool, enables utilities to refinance coal plant debt by offering long-term bonds to investors to pay off short-term debt. The bonds are secured by customer payments (a near-certain source of cash flow) and thus receive high credit ratings (99% of the bonds are rated AAA), with low interest rates.
- 9 Bloomberg New Energy Finance (BNEF)
- 10 The Future of Rail: Opportunities for energy and the environment. International Energy Agency (IEA). 2019.
- 11 Ellen Macarthur Foundation. 2020.
- 12 https://www.wecenergygroup.com/csr/cr2022/wec-corporate-responsibility-report-2022.pdf#pagemode=bookmarks
- 13 https://www.wecenergygroup.com/home/generation-reshaping-plan.htm
- 14 https://www.wpr.org/economy/wec-energy-we-energies-utility-plans-stop-using-coal-fuel
- 15 https://www.iea.org/reports/global-methane-tracker-2024/what-did-cop28-mean-for-methane
- 16 https://s21.q4cdn.com/448935352/files/doc downloads/2024/04/2023-diversity-inclusion-report.pdf
- 17 Global Status Report. 2017. UN environment
- 18 https://www.crrem.eu/embodied-carbon-of-retrofits/

For term definitions and index descriptions, please access the glossary on nuveen.com.

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#### Important information on risk

Past performance is no guarantee of future results. All investments carry a certain degree of risk, including the possible loss of principal, and there is no assurance that an investment will provide positive performance over any period of time. Certain products and services may not be available to all entities or persons. There is no guarantee that investment objectives will be achieved.

Portfolios within each strategy are subject to certain risks, such as market and investment style risk. Please consider all risks carefully prior to investing. While risks are associated with investing in any strategy, some of the risks include, but are not limited to the following: Because its social screens exclude some investments, the strategy may not be able to take advantage of the same opportunities or market trends as strategies that do not use such criteria.

Responsible investing incorporates Environmental Social Governance (ESG) factors that may affect exposure to issuers, sectors, industries, limiting the type and number of investment opportunities available, which could result in excluding investments that perform well.

Nuveen considers ESG integration to be the consideration of financially material ESG factors within the investment decision making process. Financial materiality and applicability of ESG factors varies by asset class and investment strategy. ESG factors may be among many factors considered in evaluating an investment decision, and unless otherwise stated in the relevant offering memorandum or prospectus, do not alter the investment guidelines, strategy or objectives. Select investment strategies do not integrate such ESG factors in the investment decision making process.

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