



REDWOOD  
GROVE  
CAPITAL



# 2023 Climate Impact Report



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3/21/2023 | Palo Alto

Climate research and analysis has been an integral part of Redwood Grove Capital's (RGC) investment process since its inception in 2016. RGC's process has always had two distinct and equally important parts – fundamental value analysis and climate impact analysis. The results of our value analysis that incorporates climate economics are visible in our market-beating results and are discussed in quarterly letters. With this report we explain the results of our climate analysis that extend beyond investment returns. On the following pages we dive into the impact our portfolio companies have on climate through their operations and products and compare them to market benchmarks.

Redwood Grove Capital's full climate research relies on a qualitative and quantitative analysis to understand companies' impact on climate and their climate economics. RGC looks at a wide range of factors, including but not limited to a company's capital spending, lobbying efforts, financial filings, academic and NGO research, net zero Targets, strategic positioning, and corporate structure. This information is used to evaluate the impact of both climate change and the transition to a low-carbon economy on companies' businesses and outlook. RGC marries this work with a fundamental, bottom-up financial analysis to identify companies that are both undervalued and have unpriced growth due to forecasted climate trends.

**This impact report has two parts; a company-specific summary of the broader climate research and a net zero analysis of RGC's portfolio climate impact.** The net zero analysis allows for standardized comparability among portfolios and indexes. The summary of the broader analysis, while more detailed does not allow for comparability. Combined we hope that our clients and prospective clients will have a better understanding of the work we do at RGC. We believe that only a multi-faceted analysis can provide a meaningful insight into our portfolio's climate impact. Importantly, this report focuses only on the climate side of our work and does not address the fundamental analysis done on investments which is an equally important part of our research.

The format of this report does not allow us to discuss all issues and metrics helpful in understanding net zero performance of our portfolio. However, we believe that climate disclosure from companies and asset managers alike calls for more transparency. Because of that, we decided to disclose our full methodology in a separate white paper "Net Zero Data: Challenges and Opportunities." We also provide an extended and comprehensive discussion of biases and limitations of climate data in another paper called "CDP and Net Zero data biases and limitations." We hope, that this report together with those white papers will provide not only a better understanding of the work RGC does to analyze a company's climate impact and the subsequent economics but also cast new light on such disclosures in general.

## Executive Summary

- The 2023 edition of the RGC Climate Impact report uses climate data from the 2022 CDP dataset and financial data for our companies as of the end of 2022.
- In addition to CDP data, we also manually verify our companies' alignment with net zero goals. Using a variety of sources, we augmented CDP data and determined that 79% of RGC's portfolio is classified as Aligned or has already reached their goal of net zero, another 13% is on a path there, and only 8% is Not Aligned. In comparison, based on CDP data alone only 47% of the Russell 1000, 35% of the Russell 1000 Value and 3% of the Russell 2000 is classified as Aligned or Net Zero
- RGC portfolio companies set on average more ambitious interim CO<sub>2</sub> emission reduction goals than their benchmark peers.
- There is an even bigger difference in longer term (by 2050) reduction targets in RGC's portfolio relative to the benchmarks.
- Our portfolio emits 123 mtCO<sub>2</sub> per \$1m of revenue. It makes our portfolio significantly more efficient than comparable indices. The efficiency of Russell 1000 is 483 mtCO<sub>2</sub>/\$1m, Russell 1000 Value is 612 mtCO<sub>2</sub>/\$1m, and Russell 2000 is 1,953 mtCO<sub>2</sub>/\$1m.
- At the end of 2022, 45% of the portfolio was composed of companies focused on fighting climate change (Mitigators), 25% of companies helping us adapt to it (Adaptors), and 29% of companies setting the standards for climate consideration into their strategy and operations (Corporate Leaders).
- Alignment, CO<sub>2</sub> emissions reduction ambitions, and efficiencies all improved for the RGC's portfolio over 2021 numbers.

## Net Zero Methodology

In the United States, the Carbon Disclosure Project (CDP) is the leading provider of corporate carbon emissions disclosures and reduction targets with the widest coverage and most detailed data. By using this dataset, RGC is able to standardize a comparison of portfolios against any benchmark or competitor.

RGC uses the Net Zero Asset Management's Initiative classification system to categorize companies based on their efforts to reduce carbon emissions.

### Net Zero Asset Management (NZAM) classification

The Net Zero Asset Managers Initiative is an international group of asset managers who support investing practices aligned with the goal of net zero greenhouse gas emissions by 2050 or sooner. With over 220 signatories and \$57 trillion in assets under management, it is emerging as a standard in reporting for asset managers. NZAM has identified five categories of a company's net zero commitment:<sup>1</sup>

- **Net-Zero:** The company has already reached its net zero targets.
- **Aligned:** The company has a plan aligned with net zero targets.
- **Aligning:** The company is in the process of aligning.
- **Committed to Aligning:** No steps have been taken but a commitment has been made.
- **Not Aligned:** No commitment was made to align.
- **Not Material:** Industries with no impact on climate and thus not classified by NZAM.

RGC presents a seventh bucket for companies that are not reporting to CDP—"Missing Data." CDP does not gather data directly to answer NZAM questions, so a signatory is required to interpret the level of commitment through the company's annual CDP report and other sources. To standardize and scale this process, RGC mapped CDP's questions to the NZAM categories. This standardization allows for an equal comparison between portfolios and indices.<sup>2</sup> While a helpful framework, corporate carbon disclosure is still in its early stages, and the results can be incomplete due to limitations around reporting standards.<sup>3</sup>

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<sup>1</sup> Details on these categories can be found in RGC's white paper entitled, CDP and Net Zero Data: Challenges and Opportunities.

<sup>2</sup> The mapping used by RGC is explained in our accompanying white paper titled: CDP and Net Zero data biases and limitations.

<sup>3</sup> We only signal problems here. For more information please see our white paper titled: CDP and net zero data biases and limitations.

## Classification Tilts

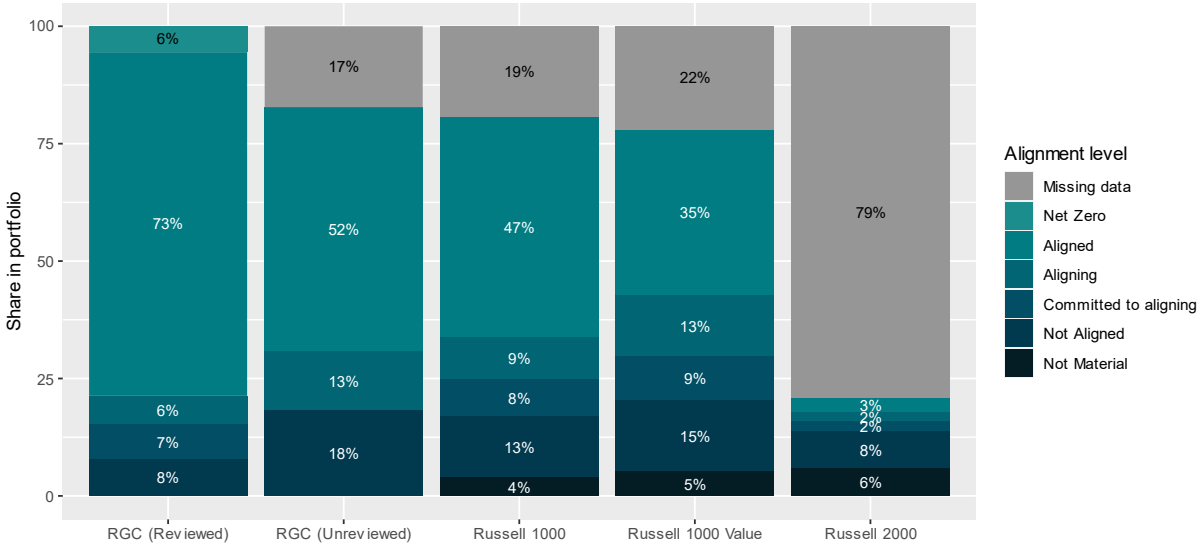
CDP data is not yet standardized, mandatory, or audited which can cause misleading comparisons. While Redwood Grove's portfolio compares well to its benchmarks, it is helpful to understand that there are at least five unintended tilts in the data that can lead to misleading conclusions.

- 1. Market Capitalization:** large-cap companies are meaningfully more likely to report data to CDP. While 80% of the companies in the Russell 1000 report data to CDP, almost 80% of companies in the Russell 2000 do not report data.
- 2. Index Weighting:** the large-cap reporting bias is exacerbated by an index weighting issue. The most likely to report large companies are also the most heavily weighted in indices.
- 3. Sector Weighting:** certain industries can more easily cut their emissions and therefore are more likely to comply with NZAM criteria.
- 4. Data Errors:** Based on publicly available information RGC found instances of corporate data misreported in CDP.
- 5. Stale Data:** CDP data is due in the middle of the year and typically captures the company's prior year GHG emissions and targets.

# Redwood Grove Capital's Portfolio

Based on the mapping between CDP data and NZAM categories alone Redwood Grove's portfolio is over 50% aligned with Net Zero Asset Manager's Targets. This compares favorably to the two most relevant benchmarks (the Russell 1000 Value and Russell 2000) which are 35% and 3% Aligned. Approximately 13% of RGC's portfolio is Aligning and the remaining 35% is either Not Aligned or is does not report to CDP. However, the Not Aligned or Missing Data portion of the portfolio reveals some of the challenges of an incomplete data set, particularly when investing in mid- and small-cap companies. In RGC's portfolio, the Missing Data bucket includes mid-cap companies like Array Technologies, a solar tracker company; Aspen Aerogels, a company that makes insulation for EV batteries; and Willdan, an energy efficiency improvement company. In Array's case, in addition to manufacturing a product that is clearly helping mitigate global emissions, they have also committed to greenhouse gas reduction targets, but they have not yet submitted data to CDP. The Not Aligned category includes Gibraltar, a company that generates over half its revenue by manufacturing solar trackers and agricultural greenhouses. As a concentrated portfolio, re-categorizing these companies significantly impacts the portfolio's performance. The below graph shows RGC's portfolio based on just the mapping and after a more detailed review. Of note, RGC does not review the holdings in the benchmarks though we believe a review would not have a significant impact. For more information on the reviewed analysis of RGC's portfolio see our white paper titled CDP and net zero data biases and limitations.

**Figure 1.** Companies in Russell indices and RGC portfolio divided into NZAM categories weighted by their index/portfolio shares. Source: RGC



## Comparison Among Aligned Companies

Aligned companies focus on reaching the goal of net-zero emissions by 2050. The categorization does not attach any value to the path the company intends to take to reach that goal. While often overlooked the specific pace and path of corporate emission reductions is equally important. There

are two benefits to this level of analysis. First, the additional analysis allows for the differentiation of best-in-class Aligned companies. Second, it allows RGC to track a company’s progress relative to its goals. There is no penalty for failing to meet net zero targets. It is unclear how or even if the market will respond to missed or pushed out targets. RGC’s analysis allows for more and earlier dialogue with portfolio companies about their greenhouse gas emission reduction progress well before the final target date.

CDP requires signatories to specify all emissions reduction targets and to disclose base and target emissions in absolute terms and a target year. The below data looks at all reporting companies in CDP’s database. It depicts the year targets were set (in light green) and the year of the first target (in dark green). The first target date does not necessarily reflect plans to reach net zero. Instead, they are often an interim target representative of a partial reduction. Most of the targets were set over the last 3 years with target dates ten years out or more. Very few companies have described precise paths of emission reductions between the year set and the target year. We use linear approximations to estimate their reduction paths so it may deviate from the company’s internal projections.

**Figure 2.** Years when targets were set and their target dates. All reported in CDP database targets were taken into account. Source: CDP, RGC

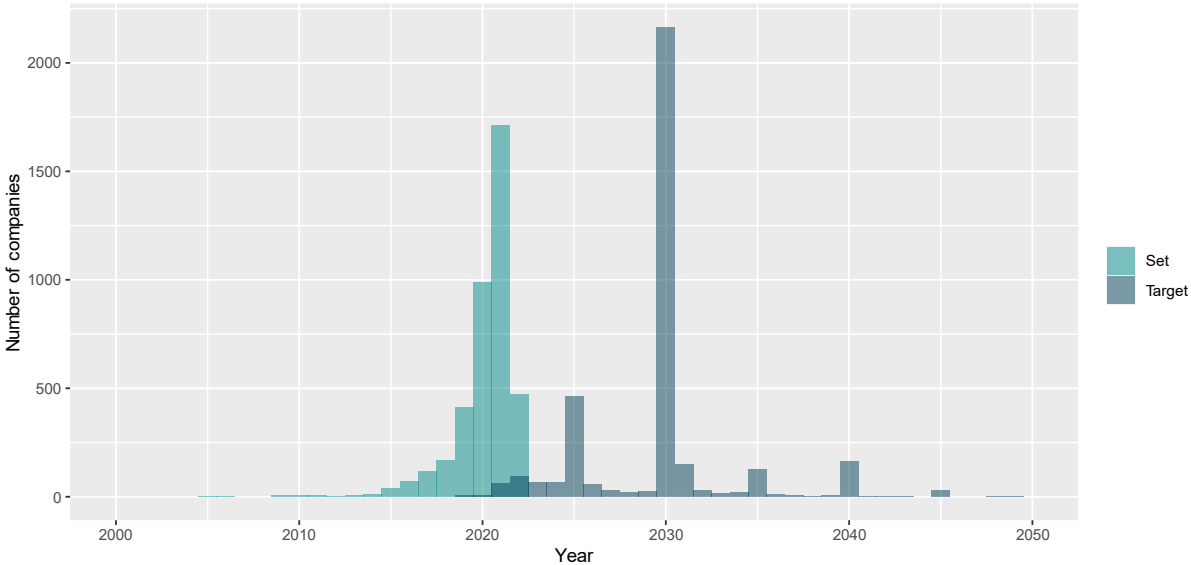
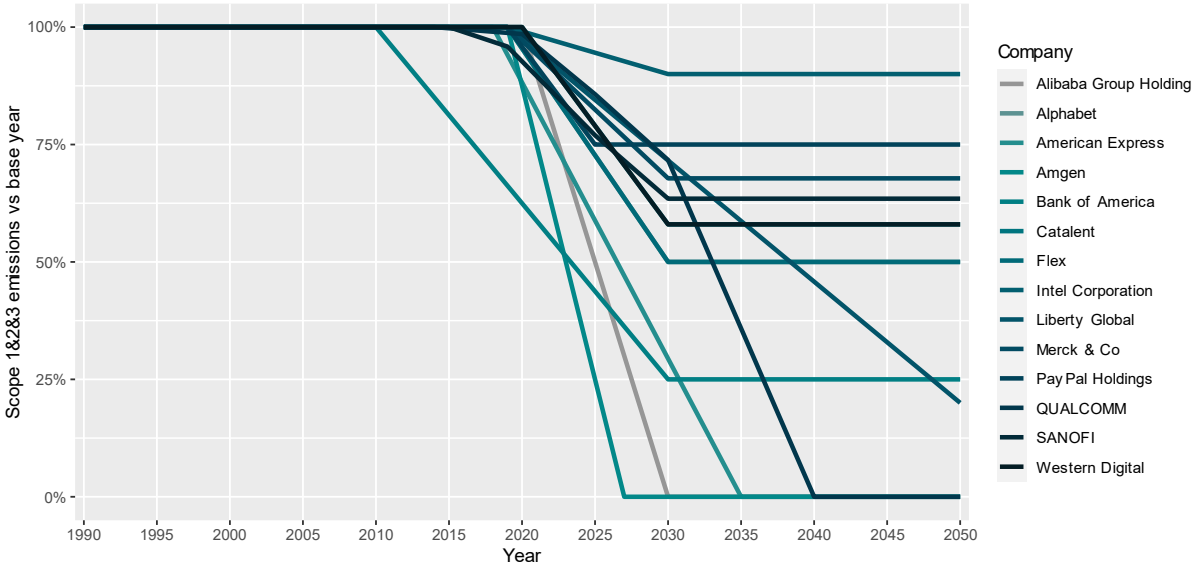


Figure 3 shows RGC’s portfolio companies based on targets set by the companies using a linear model. The below chart gives a visual of company commitments to reduce greenhouse gas emissions. Not shown are future targets that may get set, so the company’s emission reductions end at their current target level. Companies have varying plans and strategies to reach net zero and the below graph does not illustrate the methods for emission reductions which can vary in important ways. Some take the difficult path and adjust their operations to be more efficient and less pollutive. For example, Alphabet’s GHG reductions are designed to come from renewable energy projects that Alphabet has commissioned. Alphabet is currently working to produce enough carbon-free electricity 24/7 so they will not need to use electricity from a fossil fuel source at any point. Other companies are reliant on



carbon offsets to reach their net zero goals. The veracity and impact of those offsets can vary significantly. For more information, RGC has written about the carbon offset market [here](#).

**Figure 3.** CO2 absolute Scope 1, 2, and 3 emissions reduction ambitions for companies RGC portfolio. All scopes were summed up into one reduction curve. Only companies covered by CDP are shown. Source: CDP, RGC



### Scope 1, 2... and 3

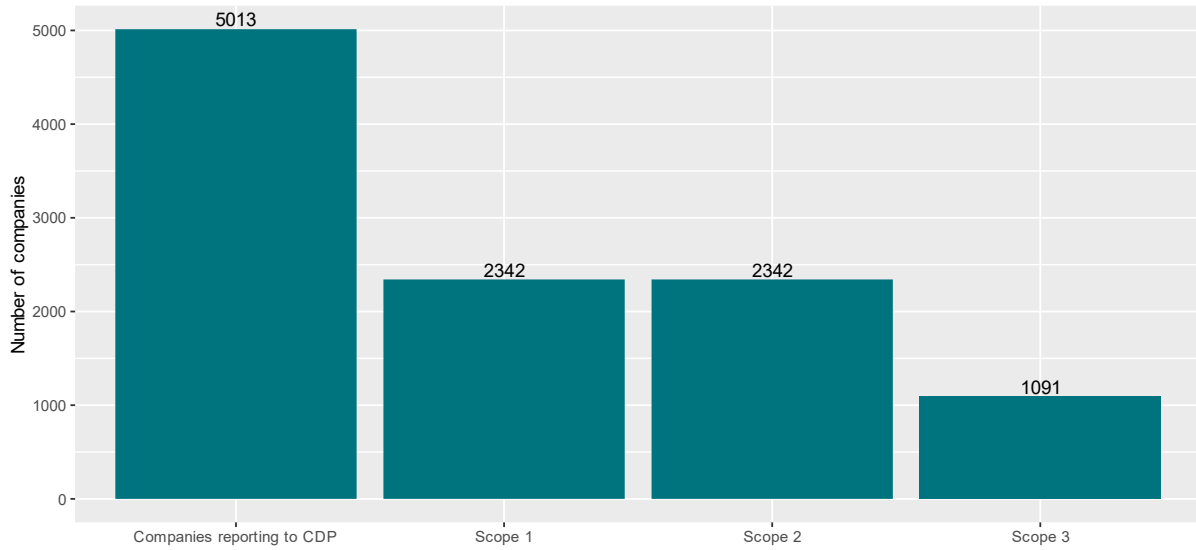
Companies can meet their net zero targets by reporting on just Scope 1 and 2 emissions. Less than half the companies that report on Scope 1 and 2 also report Scope 3 emissions (see figure 5 below). Scope 3 emissions, which capture an important part of global emissions, are broadly seen as the most challenging to measure and can be the least accurate. There is no standardized methodology for counting them. Potentially misleadingly, companies that do include Scope 3 often appear to have less ambitious targets than those that just include Scope 1 and 2. Because of the complexity of measuring Scope 3 emissions, CDP breaks Scope 3 emissions into 15 categories. Of the 1091 companies that report Scope 3 emissions targets to CDP, there are 451 variations on what companies are including in those targets. This is unlike Scope 1 and 2 which just have one category for reductions. As a result, Scope 3 reporting is not highly comparable.

For comparability and accuracy reasons, RGC has opted to look at only Scope 1, and 2 emissions.<sup>4</sup> **The results of the analysis show that RGC’s portfolio is not only more Aligned than its comparable benchmarks but the underlying portfolio is targeting faster emissions reductions (see figure 5).** It is worth noting that RGC believes that companies that set short-term attainable targets with aligned capital spending are more likely to achieve their goals than companies that set a longer-term and more aggressive targets with no clear plan to achieve them. However, because future targets are not accounted for, companies with specific interim goals may appear worse than companies with say 2050 net zero targets with no strategy to meet them.

<sup>4</sup> RGC did an analysis of Scope 3 emissions in our white paper titled: CDP and net zero data biases and limitations.

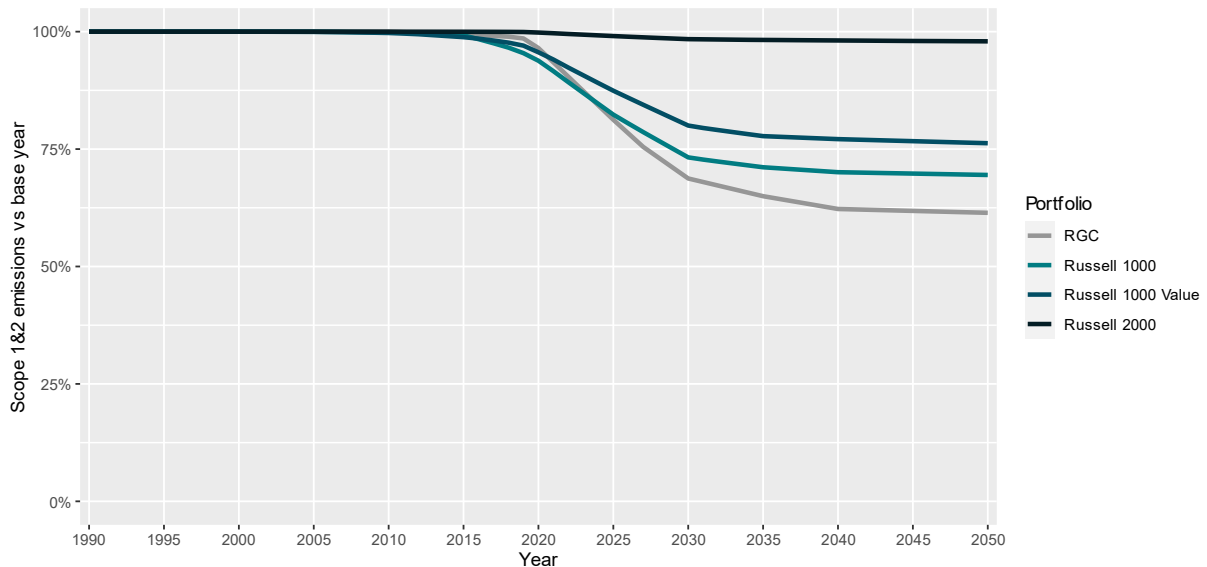
**Figure 4.**

The number of companies reporting to CDP and the number of those that report targets in Scopes 1, 2, and 3. Only targets allowing the creation of target curves according to our methodology are included. Source: CDP, RGC



**Figure 5.**

CO<sub>2</sub> absolute Scope 1&2 emissions reduction ambitions for companies in Russell indices and RGC portfolio. Shares in indices/portfolio were used as weights. Companies not reporting to CDP and those with no targets were assumed to have constant emissions. Source: CDP, RGC



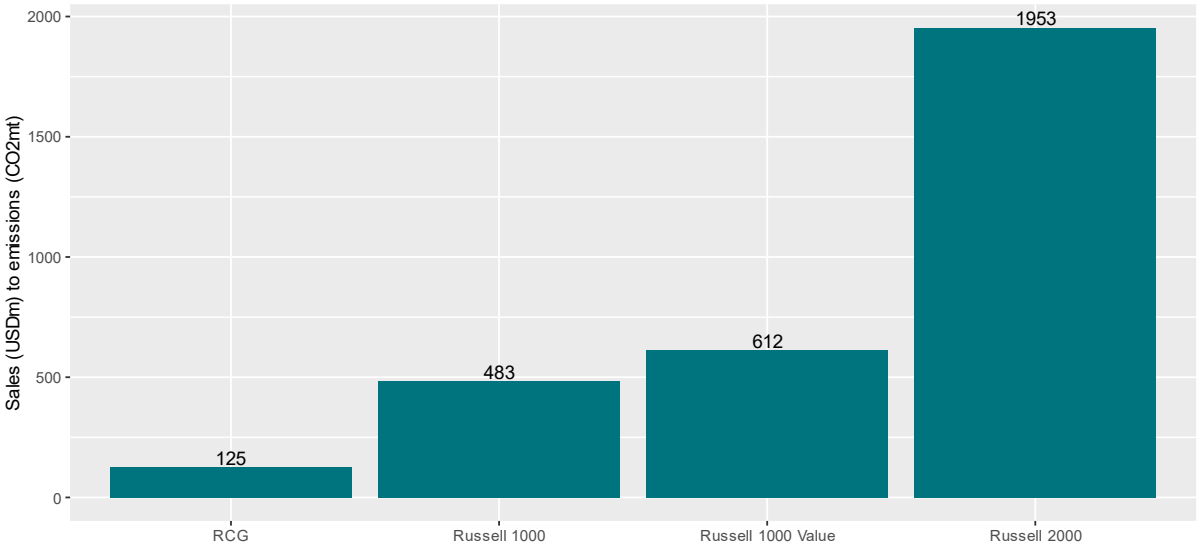
## Portfolio efficiency

A portfolio's carbon efficiency is another way to look at its impact. Carbon efficiency measures how much CO<sub>2</sub> is required to generate a unit of output. RGC looked at CO<sub>2</sub> efficiency against a company's revenue and four profitability measures: gross margin, net profit, gross profit, and EBITDA. Each of the four profitability measures raised challenges around standardized data. Many companies report negative profitability numbers and some sectors do not report certain profitability measures at all.

RGC also discovered that the overall relative results did not change materially between revenue or profitability measures. Because of the ubiquity of revenue, RGC opted to use revenue as a measure of economic unit output. This is an imperfect measure of economic output but preferred for comparison across large groups and with other publications that also tend to rely on revenue for this purpose.

Below is a graph of RGC’s portfolio carbon efficiency on an absolute basis. In this case, the lower the value the more economic units (revenue) is produced for every ton of CO<sub>2</sub> emitted by the company. By this measure, RGC’s portfolio is over four times more efficient than its three most comparable benchmarks, Russell 1000, Russell 1000 Value, and Russell 2000. If RGC were to remove just one portfolio holding, Portland General, RGC’s portfolio would be twice as efficient. As Portland General has some of the most aggressive decarbonization goals in the country, this demonstrates how much individual names and exposure to carbon-intensive sectors can impact the results.

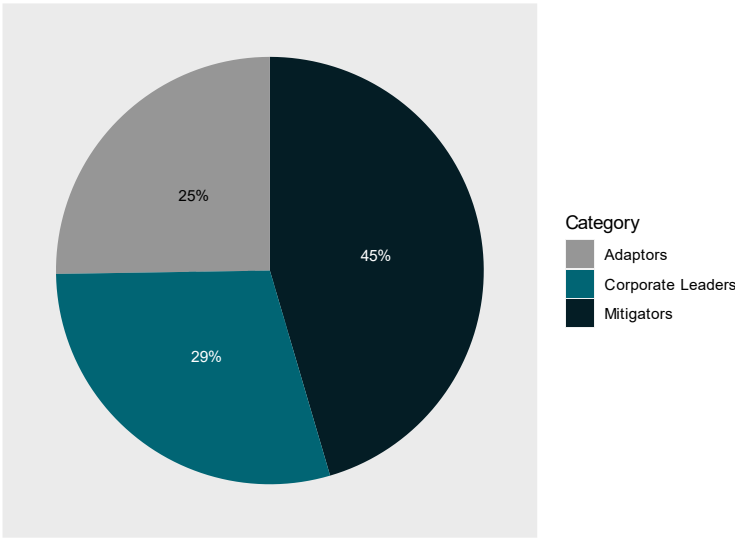
**Figure 6.** CO<sub>2</sub> efficiency of RGC’s portfolio and selected indices measured as emissions to sales. Source: CDP, RGC



# Summary of Net Zero Research of Portfolio Holdings

RGC plans to publish an annual climate impact report. Based on the first year, we are pleased to show that the portfolio is more efficient per economic unit, and has more NZAM aligned companies than comparable benchmarks with reduction goals that are more aggressive than those of peers. However, we remain mindful that a company’s net zero targets do not capture the totality of its economic positioning relative to the secular trend of climate change. As a result, we have included a company-by-company summary of the qualitative research RGC performs. Even this is just a bit-sized summary of the research that is performed and does not include any mention of the fundamental research which is done congruently.

**Figure 7.** The composition of the RGC portfolio divided into three major buckets: mitigators, adaptors, and corporate leaders. Source: RGC



## AMGEN

**Corporate Leader:** Since 2008 Amgen management has set scope 1 and scope 2 carbon reduction targets. Amgen also established its third set of environmental goals. With a \$200 million budget, they expect to become carbon neutral by 2027. They have a Corporate Responsibility and Compliance Council which reports directly to the board of directors.

**Adaptation:** Increased temperatures associated with climate change increases ground-level ozone and particle pollution which causes airway inflammation and lung tissue damage. This in turn increases both the number of people affected by asthma as well the severity and frequency of symptoms. Amgen’s new drug Tezepelumab, a drug recently given “Breakthrough Therapy” status by the FDA will be introduced in 2023 and is expected to generate \$3 billion in annual sales. It is a potential first-in-class medicine blocking TSLP, an epithelial cytokine, critical in the initiation and persistence of airway inflammation. Blocking TSLP may prevent the release of pro-inflammatory cytokines by immune cells

resulting in the prevention of asthma exacerbations and improved asthma control. Due to its activity early in the inflammation cascade, tezepelumab may be used by a significant portion of the population of patients with severe and uncontrolled asthma irrespective of patient phenotype or T2 biomarker status. Tezepelumab is being developed by AstraZeneca in collaboration with Amgen. Meets UN's Sustainable Development Goals (SDGs) 9 and 12.



**Mitigation:** Transition to net zero economy calls for growing energy production from renewable sources. Solar energy is the fastest-growing renewable source. Array manufactures utility-scale tracking systems for solar panels. Trackers increase power production of solar power plants by up to 28% not only making the use of resources such as land and solar modules more efficient but also lowering the cost of solar energy and accelerating its adoption. Array's trackers work in power plants with a total installed capacity of 45GW. Those trackers help to reduce CO2 emissions by 15M metric tons every year by increasing the output of plants. Moreover, Array's single-motor design minimizes the number of parts reducing the need for maintenance and extending the powerplant's lifespan.

**Corporate Leader:** By 2025, Array has committed to deliver 90,000 MW of additional solar power, reduce direct emissions intensity by 30%, and source 50% of energy it consumes from renewable energy sources. In keeping with SDGs 7, 11, and 13.



**Mitigation:** Transportation is responsible for 24% of greenhouse gas emissions globally. Electric battery-powered vehicles seem today as the most viable way forward. Low range is one of the biggest obstacles in the mass adoption of electric vehicles. Aspen Aerogels manufactures carbon aerogels that help reduce thermal runaway and propagation in EVs. General Motors and Toyota are already large customers that use their aerogels in their EV models. They are also developing a high silicon content anode material to replace graphite in batteries. More than 10% of US greenhouse emissions come from heating and cooling. Improving insulation can reduce those emissions by 30%. Aspen manufactures Spaceloft, an insulation material of the lowest available on the market thermal conductivity. This material is perfectly suited for insulating buildings with no space for traditional bulky insulation materials. It is perfectly suited for applications in older or historic buildings and all designs where for visual or practical reasons traditional materials cannot be used. In keeping with SDGs 7, 11, and 13.



**Corporate Leader:** American Express is in a sector that we believe has limited material exposure to climate change. As a result, we look more heavily to their corporate leadership to help inform our sustainability analysis. American Express has made strong statements on climate change, acknowledging publicly it is “one of the biggest challenges of our time” and have committed to limiting its greenhouse gas emissions in line with the recommendations of the Intergovernmental Panel on Climate Change. Since 2018, the company has been Carbon Neutral, with 100% of its power needs being met by renewable energy. This has been validated by The Carbon Neutral Protocol. 50% of their operations are certified by LEED, Greenmark, and NABERS Green Buildings. They have targets to reduce energy consumption by 35% across managed operations by 2025. They are a part of the Carbon Disclosures Project (CDP) 2019 “A list” for climate leadership. They provide a service that will measure the carbon footprint of all corporate travel and provide offsets for their corporate clients. Fun Fact: Their Iconic Green Card has gone green, made entirely of reclaimed marine plastic. Their most recent CDP Score was an A-.

**Mitigation:** American Express has a Green Insights analytics program to calculate the company’s carbon footprint from travel. This allows companies to collect and report their CO<sub>2</sub> data. In keeping with UN SDG 12.



**Corporate Leader:** Alibaba is expected to be a leader in carbon emissions reduction as it pledges to be carbon-neutral in Scope 1 and 2 by 2030 ahead of China’s national goals to decarbonize its economy. The company was the largest buyer of clean energy in China and reached the highest data center power efficiency level in Asia. Alibaba’s efforts allowed it to cut 620k metric tons of CO<sub>2</sub> emissions only in 2022. In addition, Alibaba has a unique expression of using its extensive reach to encourage over 1 billion Alipay users through the Ant Forest to take greener steps in their daily lives by rewarding green behavior. The company calls this the “Scope 3+” approach and targets to reduce carbon dioxide emissions by additional 1.5G metric tons. They recently raised a 1 billion dollar sustainability bond, the proceeds of which are being used on energy efficiency and renewable energy. They partnered with Unilever on the Waste Free World Initiative which developed AI that can sort plastics for recycling.

**Mitigation:** China has been the largest investor in clean technologies since at least 2018. Much of that investment has been in venture capital. Alibaba’s VC arm, Capital Partners, is one of China’s largest VC firms investing in clean tech firms including Xpeng, a leading luxury EV company in China. In keeping with SDGs 13, 12, 15, and 8.



**Corporate Leader:** Bank of America set a target to reach its operational environmental goals by 2020, which includes becoming carbon-neutral and purchasing 100% energy from renewable sources. They reached this goal a year ahead of schedule in 2019. Their updated targets include: maintaining carbon neutrality for operations (scope 1 and 2), purchasing 100% zero-carbon electricity, reducing location-based GHG by 75%, reducing potable water by 55%, and encouraging 70% of global vendors to reduce GHG emissions. In addition, they are members of RE100 and EV100, were one of the first financial institutions to join the U.S. Department of Energy's Workplace Charging Challenge, and founded Net-Zero Banking Alliance. Brian Moynihan has been very outspoken about Climate Change and in 2020 led an effort at the World Economic Forum to get major corporations to agree to sustainability metrics including a commitment to zero greenhouse emissions by 2050. They have pledged not to invest in new thermal coal mines or expansion of existing mines, new coal-fired power plants, and petroleum exploration in the Arctic, among other environmental considerations. They have published strong position papers on climate risks to their business, "climate change is no longer a far-off risk but rather a global concern with impacts that are already beginning to unfold, including increased frequency and severity of extreme weather conditions, melting glaciers, loss of sea ice, accelerated sea level rise and longer, more intense heat waves and droughts." BoA committed \$1T of capital towards low-carbon transition and 1.5T towards reaching UN SDGs by 2030. Their 2050 goals include full carbon neutrality in the financing, operations, and supply activities. Their most recent CDP score was an A-.

**Mitigation:** Bank of America has invested \$200 billion in low carbon and sustainability businesses since 2007. They have raised their goal to an additional \$445 billion invested in these businesses by 2030. Of the top 10 banks in the world, Bank of America was one of two that loaned more money to low-carbon solutions than fossil fuels. They have issued more than \$6 billion in Green bonds more than any other U.S. financial institution. In keeping with UN SDG 8 and 9.

## Catalent

**Adaptation:** Catalent is a "science-based company and understands the urgency of minimizing [its] impact." Catalent is an innovative manufacturer of products that alter cells and genes. This new area of pharma requires new technologies to create pharmaceutical products. Moderna, a leading vaccination company using mRNA to produce vaccines, has Catalent manufacture their vaccine and other products. Importantly, Catalent has a budget to execute hundreds of projects to reduce the carbon footprint of the company. In 2022 they initiated over 100 projects. Their current goal is to reduce Scope 1 and Scope 2 emissions by over 40% in the next 5 years. This is ambitious since they are growing rapidly and have many manufacturing sites. As is being discussed, the innovation that allows humanity to address the pandemic with a quickly produced vaccine saved millions of lives. Further, the CDC among other health organizations has said that climate change will increase the number of people affected by certain diseases, including Dengue, Malaria, Lyme Disease, Asthma, Cholera, and others. The increased prevalence and impact of these diseases will be mitigated by the development

of new biologic vaccines. As a leader in the manufacture of biologic treatments like these, Catalent will be an important component of bringing these vaccines to market. In keeping with SDGs 3.



**Corporate Leader:** Fiserv recently appointed Neil Willcox as head of Corporate Social Responsibility and committed to assessing climate-related risks and opportunities and providing disclosures consistent with the Task Force on Climate-Related Financial Disclosures (TCFD) standard. They have announced that they will set greenhouse gas reduction targets in early 2023. As a data processing company, data centers represent one of the biggest opportunities to reduce GHG emissions. They have taken steps including consolidating 30 data centers and 75 office spaces and targeting LEED or similar certifications for all new real estate. They currently measure their greenhouse gas emissions and perform a climate risk assessment for their real estate assets. Based on conversations with management, we believe they are pivoting strongly toward more significant leadership in the space.

**Mitigation:** Digital payments and cashless payments protect trees, reduce greenhouse gas emissions associated with cash transportation, and are broadly more sustainable. Fiserv's core business digital payments help its customers operate more sustainably. In keeping with SDGs 11.



**Mitigation:** Flex owns Nextracker, the market leader in solar tracking systems. Transitioning to a net zero economy calls for growing energy production from renewable sources as currently power generation accounts for 25% of humanity's emissions. Solar energy is the fastest-growing renewable source. Nextracker manufactures utility-scale tracking systems for solar panels. Trackers increase power production of solar power plants by 16-28% not only making the use of resources such as land and solar modules more efficient but also lowering the cost of solar energy and accelerating its adoption. Nextracker claims the highest power production increase out of all tracker manufacturers thanks to its proprietary tracking software. Nextracker trackers work in power plants with a total installed capacity of 70GW. Those trackers help to reduce CO2 emissions by 23M metric tons every year by increasing the output of plants. In addition to Nextracker, Flex is a company behind car electrification and solar inverters. They manufacture multiple components used in electric vehicles and charging stations together with components of assisted, autonomous, and connected driving solutions. Those products help to tackle the 27% of GHG emissions caused by transportation. In keeping with SDG 7, 11, and 13.





**Adaptation:** Extreme weather events often cause damage to the electric grid and lead to power outages. The number and intensity of these events grow as the climate changes. Moreover, the green transformation of power generation increases the share of intermittent renewable sources in the generation mix while charging of battery-powered electric vehicles provides an additional load on the grid. All those factors lead to a rapidly growing number of power outages in the US. Generac is the leader in backup power solutions owning 70% of the US standby generator market. Standby generators provide households with power when the grid cannot. Generac recently transitioned away from mostly diesel generators to natural gas and propane generators. While not clean these generators do provide a transitional source of electricity.

**Mitigation:** The company is aware of challenges related to climate change and the profits from generator sales have been invested in green solutions such as solar panels, home energy storage, and smart thermostats – components of a smart decentralized grid that is necessary to cope with the consequences of the changing climate. The company is actively pivoting the business toward these new green businesses as they expect future growth to come from these new segments. Ecobee thermostats saved its users 28TWh of energy reducing CO<sub>2</sub> emissions by 19M metric tons since the company launched in 2007. They also offer connected meters to their generators and power packs that allow the grid operator to access that electricity source, including the battery if burdened rather than turning on a coal plant. In keeping with SDG 7, 11, and 13.



**Mitigation:** In our assessment, Alphabet is one of a handful of true leaders in corporate sustainability. Google has several projects to help reduce and manage global greenhouse gas emissions. Their most significant one (economically) is Waymo, the software company looking to power autonomous driving. But, they have several smaller and less well-known projects like EIE Labs which are taking global, disparate data sets, standardize them, and create an easily manageable tools to help decision makers. For example, they created the Environmental Insights Explorer which uses a broad swath of data sources to map the GHG emissions and renewable energy potential for cities to help them meet their goals set by the Paris Accord. They've also created several innovative renewable energy technologies from Makani kite that acts as a mobile windmill to Google X spinoffs Malta which stores energy in molten salt, and Dandelion which greatly reduces the cost of geothermal energy.

Arguably more important, Google, with the help of Rocky Mountain Institute, built the roadmap for corporations to support the development of new utility-scale renewable energy projects. They became one of the first companies to become powered 100% with renewable energy (without the benefit of carbon offsets). They are now working to make sure that every electron they use is from renewable source, no other company is as aggressive on this front. This road map and pathway are currently used by most corporations in the purchase of renewable energy. Corporate demand is the most significant source of renewable energy demand in the United States.

Their leadership is material both to the planet and to the company's bottom line. If combined, global data centers result in an equivalent amount of GHG emissions as the world's 6<sup>th</sup> largest country. Google is at the forefront of deploying Artificial Intelligence (AI) to reduce energy usage. They had their AI company DeepMind increase the efficiency of their data centers by 40%. In keeping with UN SDG 7,9 and 13.



**Mitigation:** As demand for data services rises exponentially (e.g., internet traffic grew 15x from 2010 to 2020), Intel's focus on energy-efficient solutions has been critical in keeping data center energy use flat over the same time – the company aims at increasing the power efficiency 10x by 2030. Semiconductors are in many ways the backbone of any clean tech revolution. For example, they are twice as prevalent in Electric Vehicles than in Internal Combustion Engines and are a key component in renewable energy and interconnected systems like smart grids and cities. Mobileye, a camera and LIDAR company and a subsidiary of Intel provides autonomous driving solutions for automakers.

**Corporate leader:** Intel wants to achieve carbon neutrality in 2040, and use only renewable energy by 2030. The company invests in line with these goals. In 2021 alone their investments saved 162M kWh of energy, an equivalent of 115k metric tons of CO<sub>2</sub>. Those efforts are validated by Barron's calling Intel the most sustainable company in the US and US EPA ranking Intel #3 in the Green Power Partnership list. In keeping with SDGs 7, 6, 9, and 13.

## NORDSTROM

**Corporate Leader:** The climate trend that most directly affects retail is changing consumer behavioral patterns. As consumers become more "environmentally aware" they will change their purchase patterns. JWN's management team has demonstrated increasing leadership around its sustainability strategy. Online shoppers have a dedicated area to shop sustainably-sourced clothing throughout the Nordstrom platform. This innovative solution for a department store helps JWN meet growing customer demand for sustainable products. It also helps the company better understand (and adapt to) how sustainability drives consumer purchase decisions.

**Mitigation:** Global fashion is responsible for 8-10% of greenhouse gas emissions. Nordstrom has launched many initiatives to reduce greenhouse gas emissions in the fashion industry. They launched "See You Tomorrow" which bought and sold secondhand apparel, shoes, and accessories online and in their flagship store. This increases the life of clothing and cuts down on overall greenhouse gas emissions. This resale market is expected to triple in the next three years. Nordstrom also partnered with Rent The Runway where they provide return boxes for members. They also accept clothing donations in their stores or by mail, where they manage, sort, and donate clothes to local charities to avoid placing lightly used clothes in landfills. In a joint effort with Nike, JWN is trying to innovate the production of new clothing from used clothes. In addition, management has been a leader in reducing

stores' greenhouse gas emissions and 100% of their packaging is now recyclable. In keeping with UN SDG 12.

## LAZARD

**Corporate Leader:** For the past 14 years Lazard's annual Levelized Cost of Renewable Energy report is an industry standard, tracking and reporting on the declining average costs of renewable energy. They also put out a report on hydrogen and the cost of storage which has been widely adopted by industry insiders. They long had an ESG policy but more recently launched two new ESG funds in their asset management business. They do not have a siloed ESG team but rather incorporate the ESG investment principles across all lines of business. They do not rely on ESG metrics for their investment process. They recently were the M&A advisors to Emerson Electric on the acquisition of OSI, a company that helps energy companies transition to renewable energy sources. Their restructuring group specializes in Energy companies. For example, they are advising Transocean (floating off-shore drill rigs) on bankruptcy. The Lazard Climate Center provides insights into the financial effects of climate change and the energy transition on companies and markets. The Center's initial work is the most comprehensive analysis to date on how markets are currently viewing firm-level emissions. Lazard is also a signatory of CDP, Net Zero Asset Managers Initiative, and Institutional Investors Group for Climate Change. In keeping with SDGs 8.



LIBERTY GLOBAL®

**Corporate Leader:** Management has been strong on climate. Liberty is the first cable company to set ambitious Scope 1, 2, and 3 targets. In 2018, Liberty's overall energy efficiency improved by 27% (per terabyte of data traffic generated). Electricity consumption remained relatively flat, falling by 1% compared to 2017, and they decreased total emissions (scope 1, 2 & 3) by 36%. In 2018, they set science-based targets, in line with the COP 21 Paris agreement, committing to reducing their Scope 1 and 2 emissions by a minimum of 50% by 2030 and 80% by 2050 from 2012 base year. In keeping with UN SDG 7 and 11.



**Corporate Leader:** Merck has ambitious goals to achieve carbon neutrality across its operations by 2025 (Scopes 1 and 2) and a 30% reduction in its Scope 3 emissions by 2030. It is also targeting 100% renewable energy for its purchased electricity by 2025, a 15-year acceleration from its previous 2040 goal. They also created a Low Carbon Transition Playbook (LCTP) to develop strategies to reduce GHG emissions throughout the company. All new facilities are required to comply with an Energy Design

Guide and Energy Conservation Planner. Purchased facilities are evaluated for energy efficiency and assessed against an energy scorecard.

**Mitigation:** Climate change’s consequences go far beyond temperature and weather. Warming increases the level of air pollution that is expected to cause 15% of new cancer cases according to the University of San Francisco. Extreme heat events are also especially dangerous for people with cardiovascular diseases that affect nearly half of Americans. Merck offers class-leading cancer and cardiovascular drugs that can alleviate the impact climate change can have on those people. In keeping with SDG 3.



**Mitigation:** In 2021 Portland General shut down the Boardman coal plant 20 years before its expected end of life offsetting the energy production with the Wheatridge Solar / Wind / Storage farm. They did this despite Boardman providing about 15% of the utility’s overall energy. Portland General has committed to reducing GHG emissions by 80% by 2030, 90% by 2035, and 100% by 2040. Hand in glove, that plan is to triple their renewable energy resources by 2030. On the whole, Portland General has one of the most aggressive plans to reduce GHG emissions through investments in renewables of any utility in the country. Their plan which we’ve discussed with management is working towards an earnings accretive “energy transition.” Portland’s Wheatridge Solar / Wind / Storage powerplant is the first of its kind utility-scale facility in North America showing another profitable way to deploy climate-friendly technology. PGE’s transformation not only proves that it is possible but also that increasing renewable share (now close to 40%) does not have to lead to decreased grid reliability – the opposite, Portland’s grid is among the most reliable in the US.

**Corporate leader:** Portland not only paves the way for other utilities for green transformation. They are as focused on making their internal operations net zero as they are on transforming their generation. They want to electrify 60% of their car fleet by 2030 including 100% of smaller vehicles by 2025. In keeping with SDG 7, 11, and 13



**Mitigation:** Every year cash handling emits 4M metric tons of CO<sub>2</sub>. Through offering convenient digital wallets, simple merchant acceptance, and online payments PayPal accelerates the transition to electronic currencies and thus reduces emissions caused by cash circulation.

**Corporate Leader:** PayPal has established ambitious Science-Based Targets to transparently track progress towards the long-term goal of net-zero across their value chain by 2040 and medium-term science-based targets aligned with limiting temperature rise to no more than 1.5 degrees Celsius. 98% of their data centers are powered by renewable energy with a goal to reach 100% by 2023. PayPal also

intends to influence its suppliers and make at least 75% of them adopt science-based targets by 2025. In keeping with SDG 11 and 12.

## Qualcomm

**Mitigation:** Qualcomm has spent billions on research to develop 5G technology. As a result, they own a significant amount of the worldwide 5G patents. Any 5G product, regardless of who manufactures it owes a licensing fee to Qualcomm. The company also manufactures and sells, what we believe to be the best 5G chipset and modems. 5G plays a critical role in creating a more efficient society because the promise of technology is about connecting an entire area's infrastructure to the internet. The main improvement from 5G is not about getting your mobile phone to work faster (which it will), it is the system it creates of a billion devices all working together. One of the most anticipated areas of systemic change driven by the new technology is creating a more connected and efficient infrastructure, particularly in cities. Smart sustainable cities need a telecommunication infrastructure that is stable, secure, reliable, and interoperable to support the enormous number of IoT devices. The Internet of Things is a network of rapidly growing computing devices with built-in sensors and software to connect with each other and share data. This enables billions of devices equipped with smart sensors to connect with each other, collect real-time information, and send this data, via wireless communication, to centralized control systems. These systems, in turn, manage traffic, enable autonomous vehicles, reduce energy and water usage, and improve the efficiency of a wide range of urban operations and services. Ericsson estimates that 5G and IoT implemented to their full potential can reduce global GHG emissions by 15% by increasing the efficiency of infrastructure, transportation, utilities, etc. Qualcomm also contributed to energy use reductions of computer power by creating the framework for mobile computing. Handheld devices are all by necessity much more energy efficient than those plugged into an energy source – many tasks can be done today on a smartphone consuming 5W instead of on a laptop taking 15-60W or desktop 60-250W. 5G antennas and systems are currently much more energy intensive than 4G systems, but Qualcomm is the leader in energy efficient 5G technology. In keeping with SDGs 7, 9, 11, and 13.



**Corporate Leader:** Small-cap financial companies do not tend to have sustainability reports due to the time and resources needed to complete one. In the case of a company like B. Riley we instead rely on conversations with management, evaluating how they allocate capital and their business plan. B. Riley is a financial firm that both rolls up smaller firms that are accretive to their business and invests in companies that have exceptionally high free cash flow. In the past few years, they have sold many of their fossil fuel energy assets, redeploying capital toward the retail auction market, an area growing quickly as retailers are increasingly liquidating assets in bankruptcy. Part of the liquidation business (Great American Group) includes an energy asset group with expertise in valuing and auctioning compression equipment, frack tanks, pipeline equipment, drilling, and well service equipment, well

logging tools, pressure pumping units, saltwater disposal wells, rental tools, transportation assets, wireline services, valves, and tubular goods. As the energy sector faces economic headwinds, Riley is involved in the liquidation and auction of their assets. One of the fundamental reasons we like Riley is their primary investment strategy, one of their sponsored SPACs is an investor in the Eos Battery technology one of the first battery companies to get costs below \$95 a kilowatt hour. They also own over 30% of Babcock and Wilcox, a publicly traded renewable energy and emissions control company. In keeping with UN SDG 7 and 9.



**Mitigation:** Gibraltar operates in several segments that help us mitigate climate change. Its renewable energy segment is focused on manufacturing mounting systems and parts used in solar installations. Solar energy is the most promising and fastest-growing renewable source. With 135MW installed in the US, it saves 210M metric tons of CO<sub>2</sub> every year growing by more than 20% year over year. Gibraltar also manufactures parts of roofs. Roofs are crucial for energy-efficient houses as they are responsible for 25% of heat losses. This is a significant number as 20% of GHG emissions in the US come from heating, cooling, and powering houses. Improving the insulation of roofs can on average reduce houses' energy consumption by 11%.

**Adaptation:** Gibraltar's residential segment offers house components shielding from weather, ventilation, and air systems. As the weather is becoming more extreme and volatile, more and more houses need solutions like that to keep the comfort and safety of inhabitants at a high level. Moreover, higher temperatures make people living further north install air conditioning where Gibraltar's products are also necessary. In keeping with UN SDG 7 and 9.



**Corporate leader:** We believe Sanofi is a leader among its pharmaceutical peers. While Sanofi has a thoughtful sustainability report with greenhouse gas emissions reduction goals, we are more impressed by their commitments in their annual report, a legal filing made to all investors. In their 2018 report, they identify five major environmental challenges related to their business; greenhouse gas emissions and climate disruption, water, pharmaceuticals in the environment, waste, and biodiversity. The company goes into detail, outlining goals originally made in 2010 and updated in 2015. Sanofi is working to "halve carbon emissions by the end of 2025 and reach carbon-neutral status by 2050 on our scope 1 & 2 (industrial, R&D and tertiary sites, including the medical rep fleet)." We have found it very rare that companies are willing to discuss climate risks in their annual reports, and even fewer are willing to outline emission reduction goals and corresponding plans. In 2020 Sanofi, put out a detailed report on the risks and opportunities related to Climate Change. They outline the company's physical, reputational, regulatory, and financial risks. They also developed an action plan using Science Based Targets to address these risks and reduce GHG emissions.

**Adaptation:** Warmer temperatures, like the ones we are already seeing, create more hospitable environments for disease transmission. According to a recent peer-reviewed paper titled *Global Expansion and Redistribution of Aedes-borne virus transmission Risk with Climate Change*, by professors at The University of Florida, Stanford University, and Virginia Polytechnic and State University, by 2050, the range for infectious diseases like dengue, Zika, and Yellow Fever will include 385-725 million more people. By 2080 it will be 900 million people. Based on those numbers, Morgan Stanley estimates that there will be \$50-125 billion of incremental vaccinations. Sanofi is a leading manufacturer of tropical disease vaccinations. To look at the impact of just one, the *Aedes aegypti* mosquito is the primary carrier of Yellow Fever (as well as Zika, Dengue, and other diseases). Its geographical range will increase to cover much of North America by 2050, exposing up to 55M more Americans to these diseases. Sanofi currently has the only FDA-approved vaccination for yellow fever. Yellow fever is just one disease that will spread further as the planet warms. In addition, Sanofi has one of the most robust pipelines of vaccines and the ability to manufacture them at scale. This is an example of the innovation which we think will contribute to the growth of new products that will be essential for humans to function in an increasingly hot climate. In keeping with UN SDG 3.



**Adaption:** Damage caused by climate-related disasters is growing every year. Extreme weather creates \$100bln-300bln of damage in the U.S. a year, the equivalent of 8-20% of total construction spend in the US. As a result, it has reached a point where expected growth in storm damage can be a meaningful driver for construction and may also smooth downside risk in an economic slowdown. In addition, as sea levels rise, additional spending will be required to repair damage and build adaptive infrastructure to protect existing assets. Examples of this impact have already begun. New York City has a \$20bln plan and Miami has committed \$800mln to adapt to rising seas. The 2018 National Climate Assessment projects that the cost of sea level rise alone will be \$118 billion per annum by the end of the century. United Rentals (URI) is the largest U.S. construction equipment rental company. It has 11% of the national rental market, over \$7 billion in sales, and an outsized presence in the Gulf of Mexico. 2017's two "1-in-500-year storms" (Irma and Harvey) caused United Rentals' EBITDA growth to be approximately 25% greater than expected. Traditional thinking is that these storms are one-time events, and do not contribute to future growth. In contrast, we project these disasters will, tragically, become more common. URI will continue to help repair these assets, as well as play an important role in adaptation strategies to protect and relocate coastal real estate.

**Mitigation:** URI is working to provide tools that will enable their customers to reduce the GHG emissions of their equipment. URI has an emissions tracking feature that provides customers with a report on greenhouse gas emissions based on engine usage. They also offer tools that help renters reduce idle time, increase utilization, and share benchmarks to encourage efficiency improvements.

**Corporate Leader:** United Rentals was the first equipment rental company to announce a goal of GHG reduction, with a 35% reduction target by 2030. URI actively invests in electric or hybrid equipment that constitutes 20% of its rental fleet. In keeping with UN SDG 9 and 11.



**Mitigation:** Artificial Intelligence, IoT and the era of big data are creating new opportunities for societal efficiency. Artificial Intelligence's ability to create system efficiencies, will help develop clean power, smart transportation options, sustainable production, smart cities and homes, and sustainable land use. The "fuel" for AI is data. That data needs to be stored, much of it in the cloud. Mobile, automotive, and IoT-driven demand is also expected to grow from 1.2x to 2.4x. As a result, NAND (solid state storage) growth is expected to reach 40-45% CAGR over the next years. Western Digital has approximately 14.5% of the NAND market and together with Seagate Technologies is the leading manufacturer of Hard Disk Drive (HDD) storage. Moreover, WD noticed the benefits of NAND memories in comparison to legacy HDD technology and invested heavily in this space. NAND drives are not only faster and more reliable than HDDs – they are also more power efficient consuming 3x to 15x less energy depending on the workload. This is important as data centers are responsible for 6% of the world's GHG emissions and storage is responsible for 11% of the energy consumed by those centers.

**Corporate Leader:** Western Digital relies on the greenhouse Gas Protocol the most widely used protocol to understand and measure corporate greenhouse gas emissions. They, in partnership with the World Resources Institute, have set aggressive targets to reduce GHG emissions. In 2018 their power-saving program reduced energy usage by 970 kWh. They have reduced electricity consumption per petabyte manufactured by 30% since 2016. Which led to a 30% and 16% reduction in HDD and NAND emissions from 2016 to 2018. In 2020 they reduced energy usage by 3.8%, Scope 1 emissions by 5.2%, Scope 2 emissions by 6.3%, and energy intensity by 25%. In keeping with UN SDG 9 and 11.



**Mitigation:** Climate change and the transition to green energy sources require multiple changes in utilities and grids. The future is electric and to deliver increasing amounts of power utility companies need to rebuild their distribution infrastructure. Decentralization of generation, difficult-to-predict renewable sources, the inclusion of energy storage, and grid resilience to extreme weather conditions demand new know-how and skills from utilities. Willdan is a small-cap energy solutions provider and sustainability consultant. Their core energy and sustainability services feature electric grid optimization, energy efficiency, energy planning, and energy design assistance. As a consultant, primarily to utilities, they create customized solutions to their clients' energy needs and sustainability goals. While heavily skewed toward California, they have a nationwide footprint, specializing in energy engineering, renewable generation, electric vehicle fleets and infrastructure, program management, microgrids, financing, data analysis, and software development. According to Willdan, their projects



have resulted in the avoidance of ~5.4M metric tons of CO<sub>2</sub> emissions. In keeping with UN SDG 7, 9, and 11.

## RGC Partnerships

# The Net Zero Asset Managers initiative

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*301 signatories with USD 59 trillion in AUM*





# REDWOOD GROVE

CAPITAL

**Redwood Grove Capital LLC**

530 Lytton Ave  
2nd Floor  
Palo Alto, CA 94301

[IR@redgrovecap.com](mailto:IR@redgrovecap.com)