REDWOOD GROVE CAPITAL

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## Falling Iguanas

One of my (Ted) favorite family activities is hiking. A few years ago on a winter hike, my then six-year-old daughter started to shiver. I tried to distract her by turning her attention to the woods. After looking around she asked empathetically if the animals got cold. I explained that animals evolve for their environment, developing all kinds of protection for their climate, from non-migratory birds puffing their feathers out to trap heat (a technique that Patagonia only recently figured out), to putting on weight and burrowing underground.

I was reminded of that conversation when a cold front hit Florida, dropping temperatures to 30 degrees Fahrenheit. Often sleeping in trees, Iguanas become entirely immobile when the temperature drops below 45 degrees causing them to fall from their perch. Residents of Southwest Florida were asked to watch for falling reptiles to avoid injury. I interpreted this as further evidence that our climate is increasingly unstable (what more do you need that iguana's falling en masss out of trees?) However, various politicians, social media personalities, and other climate deniers used the cold front as evidence that climate change is either overstated or even a "hoax." Senator Jim Inhofe famously used a Washington D.C. cold front to make this point on the floor of the Senate. Having heard that the prior year was the hottest on record, the Senator introduced what he presumably felt was contradictory evidence. Holding up a snowball he proudly asked the chair, "In case we have forgotten, do you know what this is? It's a snowball just from outside here. So it's very very cold out. Very unseasonable."[1] Senator Inhofe then threw the snowball on the Senate floor and rested his case.

Most people know that weather is short term in nature and climate is measured over longer periods, typically 30 years, relying on averages. Less well known is that climate change not only increases the average temperature, it also expands the range of potential weather in a particular area. So, a cold front, just as heavy rain or heat waves can all be exacerbated by climate change. Highly unusual weather events are often the distribution "tails" widening.

It is easy to discount confusion between weather and climate as "silly" comments from non-serious or misleading people, yet climate denialism's impact is quite real. This was seen in 2023 with the continued rise of anti-ESG and anti-sustainable investment movements. Certain state laws banned public pensions and state treasuries from doing business with banks or investment managers that incorporate climate risk into their policies. Banned activities include managing any investment products or lending practices that account for climate risks. One recent study from Wharton Business School concluded that the subsequent banning of financial institutions (including Bank of America, Goldman Sachs, Citigroup, and JP Morgan among others) was so broad that just the cost of issuing municipal debt in Texas alone increased between $303 and $532 million in 2022.[2] The study did not attempt to quantify the impact of restricting climate science as an investment input. Another study, using the same methodology as Wharton, concluded that the overall cost to the six states that implemented these new more restrictive anti-ESG laws were costing the states over a billion dollars in increased interest costs.

[1] https://www.washingtonpost.com/news/the-fix/wp/2015/02/26/jim-inhofes-snowball-has-disproven-climate-change-once-and-for-all/
[2] https://econsultsolutions.com/wp-content/uploads/2023/01/Sunrise-ESG-boycott-Impact_FINAL.pdf

Presumably seeing these costs to the state, many of the banned financial institutions have been re-instated but the ban has already caused the desired ripple effect. Redwood Grove maintains a healthy dose of skepticism about many ESG investment products and welcomes some additional scrutiny due to concerns about green-washing. However, it was surprising to see how quickly large asset managers pivoted from "green-washing" to "green-hushing."

The speed of change seemed to reveal how few asset managers were committed to sustainable investing. Vanguard quickly dropped out of the Net Zero Asset managers alliance,[3] and others walked back their previous sustainability statements. This shift at the investment manager level also had an impact at the corporate level. In 2023, one in five companies surveyed by Ernst and Young declined to release their sustainability reports. This was a three-fold increase from 2022.[4] These sustainability reports are often symbolic in nature. Choosing to not publish them is a statement about a company's willingness to publicly acknowledge the problem. This rise in green hushing and refusal to incorporate climate's economic impacts, however, is we believe the proverbial "weather."

Conversely, both the economics of climate change and the ability to quantify them is a long-term secular trend. The American Economic Association, a 23,000-member organization of academic economists with strong ties to MIT, Harvard, Chicago, Columbia, Stanford, and Princeton, held their annual meeting the first week of January. The most popular topic, according to a New York Times article on the gathering, was climate change. Papers presented at the annual gathering covered, "the local economic impact of wind turbine manufacturing, the stability of electricity grids as they absorb more renewable energy, the effect of electric vehicles on housing choices, how wildfire smoke strains household finances. Others analyzed the benefits of a sea wall for flood risk in Venice, the economic drag of uncertainty about climate policy, the flow of migrants displaced by extreme weather, how banks are exposed to emissions regulations, and the impact of higher temperatures on factory productivity — just to name a few."[5] These are examples of what Redwood Grove means by the "economics of climate change." In the recent past, there was an understanding among economists that carbon created an economic externality, but the specifics and mechanics were not analyzed closely. That has begun to change, maybe in part due to the accelerated (and forecasted) impact of climate change in recent years.[6] As Noah Kaufman, a research scholar at the Columbia Center of Global Energy Policy said "Economists need to catch up to the policymakers. It's unfortunate that we didn't produce this literature decades ago. But given that we didn't, it's pretty exciting and a unique opportunity to try to be helpful now."[7]

Redwood Grove welcomes the additional research on the economics of climate change. We believe economists and the market have just started the long journey to better understand climate economics. Political stunts and denialism on the other hand are just like the weather. This contrast may best be summed up by Senator Whitehouse's response to Senator Inhofe's performative snowball act, "you can

[3] https://www.reuters.com/business/sustainable-business/vanguard-quits-net-zero-climate-alliance-2022-12-07/

[4] https://subscriber.politicopro.com/article/2023/11/an-esg-backlash-spurs-a-new-corporate-strategy-greenhushing-00128372

[5] https://www.nytimes.com/2024/01/23/business/economy/climate-change-economics.html?smid=nytcore-ios-share&referringSource=articleShare

[6] https://www.nytimes.com/2023/10/13/opinion/climate-change-excessive-heat-2023.html#:~:text=Global%20warming%20may%20have%20accelerated%20in%20the%20past%2015%20years&text=First%2C%20the%20rate%20of%20warming,nine%20warmest%20years%20on%20record.

[7] https://www.nytimes.com/2024/01/23/business/economy/climate-change-economics.html?smid=nytcore-ios-share&referringSource=articleShare

believe every single major American scientific society, or you can believe the Senator with the snowball."[8]

## Weather or Climate

"Is it weather or climate," has become a shorthand question at Redwood Grove to parse if something is a short-term disruption or a long-term secular trend. As value investors, Redwood Grove looks for long-term growth at valuations that reflect a short-term disruption. In our last two letters we talked about the recent additions PGT Innovations and Westrock.[9] Our analysis included climate driven trends, ranging from regulatory changes, consumer behavior, and increasing physical damage that helped us underwrite long-term growth. In the second half of 2023, both were acquired at a premium by strategic buyers who were attracted to this long-term growth despite the short-term cyclical challenges.

Other areas of the market currently appear to have a similar dynamic. Solar appears to have headwinds over the next six months to a year that are fully reflected in the underlying valuations. Zoom out a bit and as measured by gigawatt hours added, utility scale solar annual development has grown 9-fold in the past decade.[10] The US Energy Information Agency forecasts that solar and wind will drive growth in electricity generation for at least the next two years.[11] Renewables, and particularly solar, are projected to increase their share in energy generation in the United States at the expense of traditional sources such as coal and natural gas.[12] This growth is based on the economics, renewables are one of the lowest cost sources of electricity.[13] While capacity has grown exponentially, costs have declined at approximately 10% CAGR annually since 2010.[14] Even with this growth, solar is only expected to be 7% of total electricity generation by the end of 2025 leaving ample opportunity to continue replacing fossil fuels.

This growth outlook contrasts with 2023's rapid decline in valuations. The MAC Global Solar Index was down 26.37% in 2023, compared to the S&P which grew 26.26%.[15] Of course starting valuations matter. In our 2020 fourth quarter letter, we discussed our concerns of the sector's elevated valuations. However, since then valuations have reset materially lower and, in some instances, appear to have swung too far in the other direction.

The decline in valuations has been driven by a variety of reasons. A tariff moratorium on solar panels importers from Southeast Asia that have been deemed to be circumventing Chinese tariffs is scheduled to end mid-2024. The upcoming Presidential election creates the risk of a roll back of the IRA. Utility (and residential) solar companies have seen a recent decline due to rising rates and a desire to see more specifics around IRA benefits before moving forward with planned projects.

Having talked with management teams in the renewable energy space, Redwood Grove believes demand is only delayed a few quarters as power pricing agreements adjust to reflect the increased costs of leverage (or interest rates come back down). Renewables remain some of the cheapest forms of new electricity regardless of interest rates. 2024 will likely be a volatile year in renewables as the US

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8 https://www.scientificamerican.com/podcast/episode/climate-skeptic-senator-burned-after-snowball-stunt/

9 A full list of investments for the fund or time period is available upon request.

10 https://www.seia.org/solar-industry-research-data

11 https://www.eia.gov/todayinenergy/detail.php?id=61203

12 https://www.eia.gov/outlooks/steo/pdf/steo_full.pdf

13 Hydro and Nuclear can have lower costs per kilowatt hour but additional capacity opportunities are constrained.

14 https://emp.lbl.gov/sites/default/files/utility_scale_solar_2023_edition_slides.pdf

15 https://www.invesco.com/us/financial-products/etfs/product-detail?audienceType=investor&ticker=TAN

Presidential election and solar tariff reviews will create uncertainty. However, the IRA was designed with a change of administration in mind and having created many manufacturing jobs, many in rural and Republican leaning states, it will be hard to unwind. Finally, the need to transition to a low carbon economy has only increased in urgency despite the political crosswinds. 2024 appears to be a particularly attractive moment to have renewable stocks like Array Technologies and NextEra Energy Partners.

## Closing Thoughts

I recently had dinner with a friend who is a Hunkpapa and Oglala Lakota and had served as the Special Assistant to the President for Native American Affairs. She continues to live on her tribe's reservation in the Dakotas. Her family has lived in the broader area for the past 10,000 years. My conversation with her reminded me that one can always zoom out, see things from an even longer-term perspective. She shared with me her frustration that many Native American teachings about ecology and conservation are often dismissed by the scientific community because they are learned first-hand over hundreds of generations of living on the land instead of through scientific research. She highlighted that while traditional science is important, it is often a micro-view looking at one aspect of an ecosystem with controlled variables. *The whole picture can get lost in the specifics*.

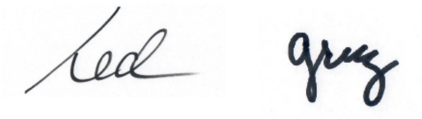
While we believe the science of climate change is an important tool to forecast the future, it is limited by its inability to see past the specifics. For example, the UN IPCC report which is the basis for much of the scientific community's talking points about the impacts of climate change is, by climate scientists own admission, severely flawed. It requires unanimity and is hampered by many scientists fearing accusations of being alarmist. What gets published is in fact not the mean forecast but rather the one that everyone can agree on. Importantly, the need for unanimity results in the exclusion of many "tipping points" because their interconnectivity and feedback loops are hard to model. This means that much of the shared outlook for our future understates the timing and impacts of climate change. Zoom out a bit and it really does not matter tremendously if the Greenland ice sheet melting tipping point is in 2040 or 2050. All that really matters is that it melts.

There is little question in our assessment that the urgency and impacts of climate change are more severe than what is understood by the market today. Expanding the aperture is important. We are inspired to see increased cross discipline analysis of climate change, particularly among economists. Janet Currie, the incoming president of the American Economic Association, recently said, "Not only economists but everybody else is realizing that this is a first-order problem and it's affecting most people in some way. That inspires everyone to want to work on it using their own particular lens."[16]

Redwood Grove is about to celebrate its seven-year anniversary. While there is still much work ahead, we are grateful for our growth and success to date. Our goal, as always, is to build an investment firm that incorporates the impacts of climate change in the long term, driving returns and capital around improving the outlook for the planet. Thank you for your trust in us.

[16] https://www.nytimes.com/2024/01/23/business/economy/climate-change-economics.html?smid=nytcore-ios-share&referringSource=articleShare

With gratitude,



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