

CALLING FOR A CLEAN, JUST TRANSITION

PART 2

GREEN AMERICA



This *Calling for a Just, Clean Transition, Part 2* report builds on prior versions of Green America's *Clean Energy Calling Reports*, which analyzed renewable energy use and greenhouse gas emissions of the major telecommunications companies, AT&T, Verizon, and T-Mobile.

Calling for a Just, Clean Transition, Part 1 covered the disproportionate damage caused by fossil fuels to historically disinvested communities and the climate and delved into the goals of the energy justice movement, including working to ensure that the benefits of the transition to clean energy accrue to those most harmed by fossil fuels.

In this continuation, Green America investigates the status of clean energy use by the major telecom companies and ventures to assess the performance of their energy procurement on key metrics of energy justice.

In keeping with Green America's mission to harness economic power by holding corporate actors accountable, this report aims to catalyze climate advocacy which prioritizes equity as central to, and embedded in, any definition of success for climate progress. Without meaningful efforts to ameliorate injustices relative to climate and energy, climate action risks ignoring opportunities to rectify harm to communities burdened by legacies of injustice and misses the mark on fully advancing societal good.

EXECUTIVE SUMMARY

The big telecom companies, AT&T, Verizon, and T-Mobile use massive amounts of electricity and bring in enormous revenues.

In 2021, AT&T had \$168 billion in revenues, Verizon \$133 billion, and T-Mobile \$80 billionⁱ. With such significant revenues, these companies have the opportunity to exert a great deal of influence over how electricity is generated and used. They also have a great deal of responsibility to the communities they serve and in particular, those communities where energy impacts are highest. Where this energy is produced from fossil fuels, it results in mining and drilling, polluting emissions from power plants, toxic waste, and construction of pipelines in vulnerable communities, which therefore bear the brunt of the pollution created to benefit these companies. By contrast, renewable energy that provides clean power to communities most harmed by fossil fuels and creates economic opportunities for people underrepresented in the energy sector can help to create a truly just, green energy sector.

Powering cell phone towers, servers, and other telecom infrastructure is very energy intensive. Collectively, the three telecoms use about 36 million megawatt hours of energyⁱⁱ, enough energy to power all the households in New York City.

The three telecoms' electricity use is a major source of their climate emissions. To reach net zero emissions, each company needs to adopt a 100% renewable energy goal for powering their

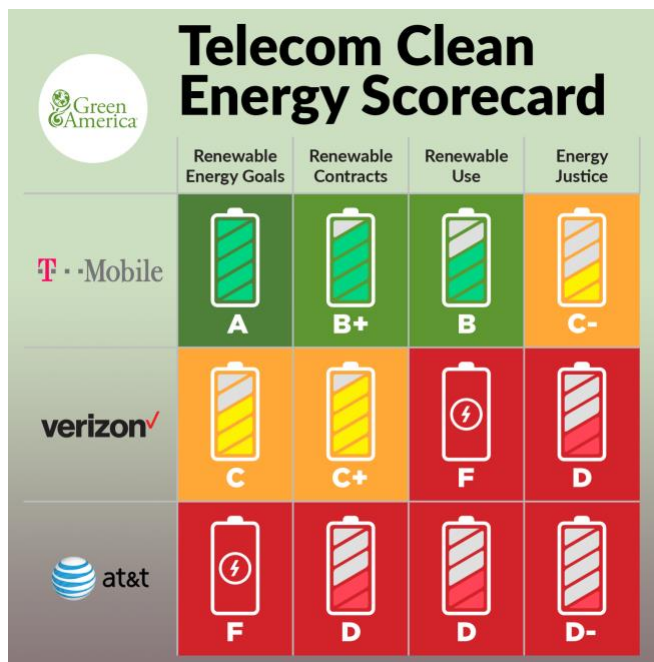
own operations. **Green America is urging all three companies to adopt and meet a goal of 100% energy from wind or solar power by 2025.**

- T-Mobile made a commitment to 100% renewable energy by 2021 and announced reaching its goal at the end of 2021. However, approximately 50% of this renewable energy is from unbundled RECS, which do not guarantee new solar or wind installationsⁱⁱⁱ.
- Verizon made a commitment to 50% renewable energy by 2025 and is making clean energy purchases that may enable it to reach this goal.^{iv}
- AT&T does not have a clean energy goal but has entered into several large clean energy contracts that may advance the company to an estimated 25% renewable energy.
- Since Green America launched our Hang Up on Fossil Fuels Campaign in 2018, the three major telecom companies have made several of the largest corporate clean energy purchases ever.
- All three companies have net zero goals, but like many major corporations, commitments around scope 3 (indirect emissions) goals are often vague or do not come close to addressing their full impacts.
- All three companies are also engaged in energy efficiency measures that help to prevent overall energy use from increasing, even as customers place more demand on their networks.

It is not enough to simply purchase renewable energy. Large purchasers like telecoms also need to make a commitment to and ensure that their energy purchases support [energy justice](#). Renewable energy purchases should benefit communities and workers most harmed by fossil fuels and incorporate these communities and workers into the process of siting and construction decisions. Women and Black, Latino, and Indigenous populations, who have traditionally been excluded from energy sector jobs, need greater representation at all levels of energy companies. Based on our research, we did not find evidence that any telecom is prioritizing energy justice in their RFPs for renewable energy. Based on their current contracts, each has, at best, a mixed record in supporting energy justice so far. T-Mobile is the best of the three, but still has a long way to go.

Overall, on renewable energy contracts, goals, use, and energy justice measures, Green America rates the three telecoms as follows (refer to the scorecard):

In prior versions of this report, Green America provided one overall grade for each company, but as we look more



closely at the full impacts of each telecom's energy use, it is apparent that one grade would not tell the whole story. For example, T-Mobile has a goal of 100% renewable electricity, and is using the highest percentage of renewable energy, yet the company still has much work to do around issues of energy justice and equity.

As the impacts of climate change increase, and as disinvested communities continue to bear the burden of societal reliance on fossil fuels, the telecom sector needs to do more to advance both renewable energy and energy justice. All three telecoms need to contract for 100% renewable energy that puts new wind and solar on the grid and need to ensure that these renewable energy purchases further energy justice.

Acknowledgements

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THE CLIMATE CRISIS

The climate crisis is no longer looming—it is here. The latest report from the Intergovernmental Panel of Climate Change (IPCC) states that human induced climate change is deeply impacting communities, the environment, and the economy^v. The disruption scientists foretold for decades is no longer a distant projection, and even politicians previously aligned with climate-denial factions acknowledge that sea-level rise and other climate impacts are a significant problem^{vi}.

In the US during the past year, hurricane Ian devastated large swaths of Florida, wildfires raged in California, and a deadly record-breaking heat wave hit the Pacific Northwest. A renewed sense of urgency, and the passage of the Inflation Reduction Act, as well as an influx of resources from the Biden administration presented hope, and a slim window of opportunity. But in order to deflect the most devastating impacts of climate change, climate scientists in the 2021 Assessment Report IPCC agree we must slow the rate of global warming to no more than 1.5 degrees Celsius/2.7 degrees Fahrenheit above pre-industrial levels^{vii}—and that this intervention is becoming increasingly unlikely, given the rate at which the developed world continues to emit greenhouse gases and the tepid commitments made at the UN COP 26 and COP 27 Conferences. All actors, including the largest corporations, need to accelerate the transition to renewable energy as an important step in addressing climate change.

RENEWABLE ENERGY'S ROLE AS A CLIMATE SOLUTION

The accelerating climate crisis calls for a dramatic reduction in the emission of greenhouse gases, with the UN calling for renewable energy to power 80 percent of electricity by 2030^{viii}.

Electric generation created by fossil fuel combustion is a major driver of climate change. In the US, generating electricity accounts for 25 percent of all greenhouse gas emissions nationwide. With 60 percent of electric generation coming from fossil fuels in the US, it is essential that the country shift rapidly to renewable energy sourced from wind and solar power^{ix}.

As we have noted in previous versions of this report, renewable energy provides both a cleaner environment and economic opportunity, including job creation. Our goals for increasing the amount of renewable energy usage will be buoyed by major companies like the telecom industry demanding their energy contractors move to renewable sources. It's an ambitious and necessary proposition. The US must install 85 GW of renewable energy (solar and wind) each year through 2035 to achieve emissions reductions targets of 80% reduction in carbon emissions in the energy sector by 2030 and 100% decarbonization by 2035^x. The Solar Energy Industries Association (SEIA) has set a target for solar to make up 30% of U.S. energy generation by 2030, an increase from the previous target which the association says better aligns with the urgency of climate change and growing federal support for climate action^{xi}.

The rapid expansion of renewable energy over the past decade has largely been driven by a decline in cost. The cost of wind and solar power installations dropped dramatically, resulting in a much higher rate of installation for both technologies. In 2013, less than 10 MW of solar and wind capacity were added to the grid. By 2020, that number jumped to 35 GW of added capacity^{xii}. But that expansion is not enough to meet the Paris climate goals^{xiii}.

Due to the COVID-19 pandemic, supply chains were disrupted. At the same time, there were doubts that existing renewable energy incentives would be extended. The passage of the Inflation Reduction Act (IRA), which includes incentives for wind and solar power to reduce the cost of each, should spur a dramatic increase in wind and solar energy. Onshore wind and solar installations could expand by 40% by 2030^{xiv}. US greenhouse gas emissions could fall approximately 40% as well^{xv}. At the same time, the IRA fails to adequately prioritize on energy justice; it includes support for existing fossil fuels and nuclear power that will harm frontline communities and has faced opposition from energy justice advocates as a result. The IRA also does not go far enough; the US will still fall short of its Paris Climate Agreement goals notwithstanding the legislation. Clean energy advocates will need to mobilize to ensure that the potential for renewable energy is fully realized, including a dramatic expansion of renewable energy purchases by large corporations, while fossil fuels, and other harmful technologies, are phased out.

RENEWABLE ENERGY INDUSTRY BENEFITS

The renewable energy industry is growing and the benefits go beyond clean power production that reduces the rate of energy sector pollution. The industry is also beneficial economically.

- A recent report, *Clean Jobs, Better Jobs*, found that clean energy jobs on average pay an hourly wage that is roughly 25 percent higher than the median, and that clean energy jobs pay more than fossil fuel jobs^{xvi}.
- Jobs in the clean energy sector are also more likely to be unionized than in the economy overall – although there is ample room for growth – which leads to better pay and benefits^{xvii}.
- Clean energy jobs also employ more people; three times as many as fossil fuel extraction and generation^{xviii}.

The telecom sector and other large-scale energy purchasers will benefit economically from large-scale clean energy purchases as well. Consultant McKinsey & Company notes in its assessment of the potential for renewable energy in the telecom sector that energy makes up five percent of operating expenditures, and as energy usage increases with 5G, energy efficiency measures and renewable energy could lower costs by 15 to 20% per year^{xix}. When T-Mobile announced its commitment to 100% renewable energy by 2021, the company noted that the move would save it nearly \$100 million over 15 years^{xx}.

SOCIAL JUSTICE IN CLEAN ENERGY

Shifting from fossil fuels to renewables is a key component to advancing environmental justice. Fossil fuel extraction, combustion, and waste disproportionately impact communities of color, especially Black, Latino, and Indigenous communities. Impacts from fossil fuel plants are contributing factors to higher mortality rates in these communities as they are more exposed to pollution and experience significant health impacts.

In the transition to renewables, it is also essential to ensure that jobs and business opportunities in wind and solar industries benefit those communities which have borne the brunt of fossil fuel's negative impacts and been excluded from the economic benefits of the energy sector. Currently, women of all races, and Black, Latino, and Indigenous peoples are underrepresented in the clean energy workforce. While each telecom company reports internal efforts to diversify their workforces, they are not necessarily taking into consideration the communities where projects are placed. And when solar and wind facilities are built in or near vulnerable communities, those communities must have key roles in the process and obtain benefits from the installations.

For more information on the metrics Green America and allies developed to assess the environmental justice progress of companies' procurement practices, please refer to [Part I](#) of this report.

TELECOMMUNICATIONS SCORECARDS: ENERGY AND JUSTICE PERFORMANCE OF THE BIG THREE

Like many large corporations, the three largest telecommunications companies - Verizon, AT&T, and T-Mobile (which merged with competitor Sprint in 2020) - are under pressure to enhance Environmental, Social and Governance (ESG) performance. The rise in popularity of corporate ESG presents an opportunity to encourage more environmentally responsible and equitable choices of energy use by the telecoms, and to measure public proclamations against action. In this report, we compare the big three telecom companies' commitments and performance around energy source type and corresponding emissions and will assess the extent to which the three companies' energy procurement choices foster energy justice. Given the critical importance of transparency to judging social responsibility, a designation of "weak performance" will be given where information is lacking concerning a particular criterion.

What is evident from our research is all three companies have a great deal of work to do to make progress on energy justice. T-Mobile, which responded to Green America's survey, reports some efforts towards energy justice. Verizon and AT&T, which did not respond to Green America's survey, do not appear to be making significant efforts. While each company has commitments to internal diversity and inclusion measures, and overall supplier diversity,

our research of the companies' websites or reports show little if any commitment to energy justice markers in their clean energy purchases.

ENERGY JUSTICE MARKERS

Green America's request for proposal ([RFP](#)) [Criteria List](#) is designed to be comprehensive and useful in guiding companies to foster energy justice when deciding on energy procurement contracts. While much of the data underlying these criteria may not yet be collated or publicly available, we have identified several criteria to serve as markers that address four of the core problems creating energy injustice: impacted communities' decision-making power, energy production siting, energy burdens, and inequitable distribution of clean energy economic opportunities (divided into supplier diversity and internal company diversity, equity, inclusion and justice metrics and initiatives)^{xxi}. Telecoms should contract for energy from companies that make improvements around the following RFP criteria:

1. **Decision-making power:** Form Oversight Boards and Technical Advisory Groups that are composed of environmental justice communities and frontline leadership. Environmental and energy justice advocates consistently stress the importance of ensuring participation - an aspect of procedural justice^{xxii} - by impacted communities, with meaningful opportunities to influence decision-making. The ability (or inability) to influence processes by which decisions are made directly informs the extent to which siting, energy burdens, and economic opportunities create just (or unjust) outcomes.
2. **Sourcing and Siting:** Commit to use only regenerative and non-extractive clean energy solutions that reduce pollution in environmental justice communities. Formally exclude waste-to-energy incineration and woody biomass power from what is considered renewable, even if these sources of energy meet state renewable performance standard guidelines. Energy sources that continue to burden EJ communities with on-site pollution are diametrically opposed to energy justice. Where siting of renewable energy (for example, hydropower) creates impacts to local, disadvantaged and/or environmentally overburdened communities, this should also be mitigated and where possible, avoided.
3. **Energy burdens:** Ensure energy affordability and offer low-income energy assistance to under-served and environmental justice communities. This includes (but is not limited to) supporting rooftop solar on public and affordable housing; supporting community solar projects; and other actions to reduce the energy burden on lower- and middle-income households, ensuring accessibility to renewable energy. Energy burdens are one of the most tangible problems facing families in low-income and BIPOC communities, and energy companies providing residential energy are directly positioned to provide more equitable access through a variety of programs and investments.
4. **Economic opportunities (entrepreneurship):** Strive for a minimum of 30% subcontracts within the next five years to be with minority-and women-owned or managed

companies. Develop plans to increase the minimum threshold as minority- and women-owned or managed businesses in the sector increase. Report out publicly on progress in achieving this goal. The clean energy sector is advancing, while perpetuating existing inequities in economic opportunity. A commitment to energy sourcing that relies on increased business with minority and women-owned or managed vendors can foster progress toward energy equity. For publicly traded companies, this means incorporating minorities and women into positions of leadership, including in the C-suite and on boards.

5. **Economic opportunities (inclusive workplaces):** Incorporate diversity, equity, inclusion, justice, and belonging (DEIJB) throughout its workforce and across leadership roles or must have stated goals to increase diversity and reform culture in the sector with measures for accountability. Energy companies should be advancing toward truly inclusive and equitable workplaces internally, including accountability measures, to support progress in a traditionally male and white-dominated industry.

METHODOLOGY

For our assessment of the telecommunications companies (AT&T, Verizon, and T-Mobile) we relied on publicly available data from their websites and reports as well as data reported to CDP on climate emissions and energy as of November 1, 2022. We also sent surveys to each of the telecom companies regarding their energy usage and any measures they are taking regarding energy justice. Only T-Mobile provided information in response to the survey.

For our assessment of the energy companies that contract with the telecom companies to provide renewable energy we relied on publicly available data as of March 1, 2022.

Regarding the assessment of energy justice measures, information about markers of energy justice is not typically collated centrally. Our assessment relies on publicly available information on energy company websites, ESG/Sustainability Reports, data reported to the CDP and news articles concerning company practices, projects and impacts as of March 1, 2022. Each company receives a rating based on this information, from strong performance to poor performance, on each criterion.

Each energy company was provided an opportunity to review and provide supporting or contradicting data prior to publication. Several companies responded. In most cases, they provided new data that was made public after our March 1, 2022 cutoff. That data was referenced in endnotes. The energy justice scoring for telecoms companies is derived from the aggregation of scores issued to the energy companies from which they procure electricity as well as any energy justice practices that the telecom companies cited in publicly available materials or through survey responses. The telecom companies were also provided with the opportunity to review the data about their energy usage and energy justice measures included in this report.

There is one important distinction to note with regard to issues of stakeholder consultation, decision-making power, and siting. This distinction is between consultation with disadvantaged, disinvested, and overburdened communities around measurably negative impacts from siting of polluting facilities (legitimate issues of energy justice), versus influence by and concession to “NIMBY”^{xxiii} opposition around speculative claims by influential and advantaged communities (for example, the typically espoused but unfounded claim that a clean energy facility adjacent to a wealthy, white community will cause a depression in property values or hurt tourism). Where we assess energy companies’ practices around decision-making power and siting as “mixed”, “weak” or “poor”, it is specifically within the former context, reflecting actual energy justice issues.

CLEAN ENERGY PROGRESS MARKERS

When looking at the progress made by telecoms in adopting renewable energy from wind and solar, we considered several sources of information.

- Telecom companies’ own announcements of renewable energy contracts – these are documented on their websites, in press releases, and in corporate social responsibility (CSR) reports.
- Telecoms’ disclosures on their websites, press releases, or in CSR reports of the percentage of overall energy use contracted that is renewable energy and the mechanism through which the renewable energy is purchased, whether that is a power purchasing agreement, virtual power purchasing agreement, market-rate purchases, renewable energy credits, or another mechanism. Different forms of contracting for energy can produce different benefits in terms of displacing fossil fuels.
- Telecoms disclosures to CDP detailing usage of renewable energy, the percentage of overall energy usage that comes from renewable energy, and scope 1-3 greenhouse gas emissions.

CLEAN ENERGY GOALS VS. NET ZERO GOALS

There is much discussion among industry and policy professionals about the best ways to reduce a company’s emissions. Some companies are setting goals to reach 100% renewable energy purchases to power themselves. This could include solar, wind, geothermal, and energy storage. These commitments are verifiable based on the company’s energy contracts. Net zero pledges are admirable in theory, but the levers a company uses to meet the goals must be transparent and verifiable. For example, carbon offsets, including planting trees, is one lever often used to reach net zero targets. However, recent studies have found that while planting trees is a good thing to do, many of these ambitious projects fail to achieve meaningful carbon reduction for numerous reasons^{xxiv}. Using offsets also enables companies to continue polluting

already burdened communities by deriving electricity from fossil fuels, perpetuating environmental injustice and undermining greenhouse gas reduction goals.

Within the telecom sector, companies are claiming that the use of their technologies by customers, such as enabling increased teleworking or smart IoT and edge computing technologies, results in significant climate emission reductions. These claims are based on a number of assumptions and any gains are based on estimations. In order to effectively reduce climate emissions, corporate net zero goals need to be achievable, verifiable, and based on proven strategies.

One significant source of greenhouse gas emissions in the telecom sector is from electricity purchased from third parties to operate servers, cell phone towers, and other telecoms infrastructure. Therefore, an important pathway to lowering emissions is to switch energy usage from fossil fuels to renewable sources. In order to do their part in ensuring the world meets a target of 1.5 degrees Celsius of warming, telecoms need to ramp up their renewable energy purchases to 100% of energy used by 2025.

AT&T

CLEAN ENERGY GOAL: F

CLEAN ENERGY CONTRACTS: D

CLEAN ENERGY ONLINE/IN USE: D

ENERGY JUSTICE: D-

CORPORATE ANNOUNCEMENTS ON RENEWABLES

AT&T does not have a 100% renewable energy goal. The company announced entering into contracts for a total of 1.7 Gigawatts of renewable energy from wind and solar by spring 2022.

- AT&T first announced a purchase of 520 Megawatts of wind power from NextEra Energy Resources in 2018, with wind installations in Oklahoma and Texas^{xxv}.
- In 2019, the company announced Virtual Power Purchase Agreements (VPPAs) for a mix of wind and solar power with Invenergy and Duke Energy Renewables^{xxvi}.
- In 2020, AT&T announced a purchase of 500 megawatts of clean, solar electricity from Invenergy's Samson Solar Energy Center in Texas through VPPAs^{xxvii}.

- In 2022, AT&T announced it was purchasing an additional 155 megawatts (MW) of solar power from Vitol in Maryland and Pennsylvania through VPPAs^{xxviii}.

Even when these contracts come online, AT&T will still have a long way to go to reach 100% renewable energy.

It appears that AT&T enters into Virtual PPAs^{xxix} with energy companies, with most of its energy contracts sited in the Midwest. The most recent contracts in the Mid-Atlantic will provide some geographic diversity in the company's purchases.

AT&T has stated that as of 2022 its renewable energy contracts total more than 1.7 gigawatts, but the company has not specified timelines for all its new wind and solar projects to come online. The company has stated that the Samson solar energy project in Texas will come online in 2023 and Vitol projects will come online in Maryland in 2022 and Pennsylvania in 2023. Renewable energy from new contracts should begin to appear in the company's actual energy data as reported to CDP in coming years.

The company has a goal of net zero emissions by 2035 for scope 1 and 2 emissions only, but no clean energy goal to explain how it will reach those reductions. The company does state in its most recent CSR summary that “[t]o demonstrate transparency and credibility, we’re working to reduce Scope 1 and 2 GHG emissions 63% by 2030 (2015 base year) – a science-based target aligned with a 1.5°C pathway,” but does not state how much of this reduction will come from transitioning to renewables.

AT&T's reported scope 3 emissions equal over 3.6 million metric tonnes CO₂e, but the company's assessment of scope 3 emissions is notably incomplete in its CDP reporting. The company's plans to reach net zero do not appear to incorporate equity^{xxx}. In addition, AT&T states that it may rely on carbon offsets to reach its net zero target. This is concerning since there is a wide range of quality in carbon offsets and AT&T does not provide specifications regarding the quality of its potential carbon offsets^{xxxi}. As noted, carbon offsets potentially and historically can result in disproportionate concentrations of fossil fuel impacts to already-burdened communities^{xxxii}.

AT&T's net zero goal would gain credibility if the company set a short-term goal of reaching 100% renewable energy by 2025, particularly since operational energy usage is an important percentage of the company's overall carbon emissions. As stated by the company in its 2022 CDP report, “Scope 2 emissions account for the majority of our total operational emissions. Our most strategic decision in this area is to engage in long-term strategic renewable energy contracts, which will help reduce dependence on fossil fuel-based electricity.”

While the company does not have a specified goal for reducing scope 3 emissions, it has announced a 10X Carbon Reduction Goal, which appears to center around end users of AT&T

technologies reducing their carbon footprints with AT&T's services equal to 10X AT&T's scope 1 and 2 emissions^{xxxiii}. Progress towards this goal will be estimated.

CDP DISCLOSURES^{xxxiv}

In 2021, AT&T used 16,978,058 megawatt hours (MWh) of energy, a 1.60% decrease from the previous year.

- Renewables comprised 2,383,999 MWh of its total usage.
- As of 2021, renewable energy used in AT&T's operations equaled 14 percent of its total energy consumption.
- AT&T warns in its disclosures that "If innovations in battery storage technology do not keep pace with our demands, and we are not able to reliably and cost-effectively store renewable energy, we may need to continue to use fossil fuel-based energy."

AT&T's total reported Greenhouse Gas Emissions for 2021 are 9,179,567 metric tonnes CO₂e (997,129 from scope 1, 4,550,580 metric tonnes CO₂e from scope 2, and 3,631,858 metric tonnes CO₂e from scope 3), which is equivalent to the energy use of 1,156,286 homes in one year (using the US EPA Greenhouse Gas Equivalency Calculator). But this is a significant undercount as AT&T's scope 3 emissions are not completely calculated or disclosed by the company.

AT&T CONTRACTORS' RECORDS ON RENEWABLE ENERGY

The companies from which AT&T is or will be contracting for renewable energy span the range from being majority fossil fuels based (Duke Energy) to largely renewable (Invenergy). It does not appear that AT&T is preferencing energy companies with a strong renewable energy track record for its clean energy purchases.

Invenergy did not report the sources of its power production or emissions with the Carbon Disclosure Project for 2020; it does, however, show on its website that the majority of its energy production capacity (17,276 MW) comes from wind power. The amount of solar capacity (5,982 MW) is roughly equivalent to its natural gas-fired capacity (5,964)^{xxxv}.

Duke Energy Renewables is owned by Duke Energy, a company that derives the majority of its energy production from fossil fuels^{xxxvi}. Only 7% of Duke's overall portfolio was from renewable energy sources (hydropower, wind and solar). The majority of the energy it produced in 2020 came from natural gas (79,843,000 MWh), which resulted in 32,815,779

metric tons of Scope 1 emissions. The company's nuclear capacity (not a clean energy source^{xxxvii}) produced roughly the same amount of electricity as its gas-powered plants: 76,672,000 MWh. Coal-burning - notorious for its high-pollution impact - accounted for 41,661,184 metric tons of emissions, producing only 43,928,000 MWh (almost one metric ton of pollution for every MWh generated). The company also generated 76,000 MWh of electricity by burning oil, which caused 62,833 metric tons of emissions to be released. As a result, Duke Energy earned an energy score of "F" from the Sierra Club in 2021^{xxxviii}.

NextEra Energy reported an energy portfolio for 2020 which derived 27% of production from renewables (largely wind, and some solar). A large proportion of the company's energy production (nearly 50%) came from natural gas, which generated 103,070,000 MWh of electricity and resulted in 39,537,695 metric tons of Scope 1 carbon emissions. Nuclear power, which should not be considered a clean energy source, was also responsible for a significant portion of NextEra's power production, with 49,869,000 MWh being delivered from this source. An additional 2,425,082 metric tons of carbon emissions were produced by burning coal, in order to generate 4,417,000 MWh in electricity. Oil (160,000 MWh) and biomass (21,000 MWh) comprised the remainder of sources, which created 114,359 and 11,905 metric tons of Scope 1 emissions, respectively.

Vitol is an international company with a "market-leading position in crude oil and products" and a goal to "consolidate market share as demand rises for the next decade" and is "invested in producing assets in Ghana and the Americas." The company delineates its strategy to consolidate its position in LNG and LPG, and investments in accompanying infrastructure in developing economies as "transitional energy solutions," and characterizes its investments in carbon markets, biogas, hydrogen, CCS and waste-to-biogas, along with only a 1.2GW goal around solar and wind, as "sustainable energy solutions^{xxxix}." Vitol states that approximately 75% of its scope 1 emissions (19 KTCO₂E in 2020 and 10 KTCO₂E in 2021) arise from shipping activities and reported no direct emissions as a result of power generation. While the electricity AT&T purchased from Vitol is derived from its relatively small renewable portfolio, the company's heavy current investments and plans to continue investing in fossil fuels and false solutions is problematic. Vitol's CDP disclosures were not available.

AT&T'S AND ITS CONTRACTORS' RECORDS ON ENERGY JUSTICE

Green America has not found any publicly available criteria from AT&T regarding energy equity and community impact considerations in its renewable energy contractor selection process.

When requested, the company has not provided such information. To determine commitment and progress toward energy justice for AT&T, we reviewed the energy justice markers of each of the companies AT&T uses to procure renewable energy.

Invenergy's publicly available information around the energy justice markers identified above suggests a mix of progress and areas for improvement. Invenergy's web tab on "Communities" does not explicitly make commitments to environmental justice or historically marginalized populations and does not report a process for consultation with EJ communities on siting. While its 2020 Impact Report^{xl} highlights community involvement around several sites, they relate to charitable donations seemingly unrelated to the projects themselves; additionally, reduction of energy burdens is not specifically iterated as an initiative. At least one recent article concerning a natural gas power plant planned by Invenergy for construction in Allegheny County, PA, included commentary from a community organizer for the Mountain Watershed Association, who stated that a "major concern with the proposed facility is its proximity to low-income environmental justice communities," and noted that "this facility was proposed in a more affluent area, and approval was denied. Now they've shifted the plant closer to people already at a higher risk for environmental harms^{xli}."

AT&T reports planning to contract with Invenergy's Samson Solar Energy Center in Texas, as well as wind-generated electricity from an unknown site(s). Invenergy reports that the development of the Samson site - projected to be the largest solar farm in North America - has included above-average participation of women within the company^{xlii}.

Indeed, Invenergy's stronger performance relates to recent progress on its internal diversity initiatives; its Impact Report states that 41.9% of its new corporate hires in the U.S. were women, and 23.3% of its corporate new hires in the U.S. were people of color in 2020. Overall, however, racial homogeneity is apparent: as of 2020, Invenergy's workforce is comprised of 24% women and 16% "people of color"; it should be noted, however, that "people of color" was used as an umbrella term including all non-white employees^{xliii}. The company launched a Diversity, Equity & Inclusion Committee in 2020, focused on building a more diverse and inclusive workforce. Internally, the company hosts several affinity groups for employees, including groups for "Black and Brown" employees, women, veterans, and those identifying as LGBTQ+, and is involved in career development training aimed at encouraging women and minority youth to pursue STEM careers. Subcontractor goals around diversity were not specifically delineated in the 2020 Impact Report^{xliv}.

Duke Energy, the Duke Energy Renewables' parent company, does offer several programs aimed at reducing energy burdens for low-moderate income families. Website information concerning siting makes mention of environmental impacts but does not specify commitments to reduce or avoid impacts on environmental justice communities, or to consult

with/encourage input from impacted communities. A recent statement by the company asserts that early consultation with EJ communities is a focus, calling EJ a “business imperative”; however, the formation of the Duke Energy Accountability Coalition in 2020 suggests that Duke’s commitment may be reactive. A representative for Friends of the Earth stated that “Duke has polluted communities of color and repeatedly exploited its low-income, captive ratepayers by pushing through rate schemes and service disconnections that hit struggling families the hardest^{xlv}.”

Specifically, in 2020, a representative from Appalachian Voices reported that during the COVID-19 pandemic, “Since the state-mandated shut-off moratoriums triggered by the pandemic have lifted, Duke Energy shut off power to more than 37,000 households in North Carolina and Florida alone.” Such actions cast doubt on the efficacy of the company’s assistance programs and commitment to reducing energy burdens. Additionally, a coalition has formed specifically in North Carolina to hold Duke to account for improper coal ash disposal, continued proliferation of fossil fuel produced power, and leveraging lobbying dollars to increase electric rates for customers^{xlvi}. Indeed, Duke’s legacy around coal ash disposal in North Carolina is a well-documented environmental justice harm^{xlvii}.

Duke’s performance around diversity and inclusion appears to be better than its environmental justice and energy burden records. The Duke Energy Foundation provides workforce development grants with a current preference for minorities and women as recipients, presumably with the intent of increasing diversity within the energy sector^{xlviii}. The company espouses a commitment to diverse leadership, recruitment from HBCUs, and professional development^{xlix}. On the question of contracting, Duke’s website states “Duke Energy has spent more than \$1 billion annually over the past five years with minority-, women-, veteran-, service-disabled veteran-owned and federal HUBZone certified businesses. The spending has grown an average of 10 percent per yearⁱ.” In terms of employee demographics, however, Duke’s metrics track with the low representation endemic to the energy industry: in 2020, 23.3% of its workforce was “female”, and 18.8% of its employees were categorized as “race/ethnicity.”, presumably reflecting a race or ethnicity other than white. These percentages were roughly static, as compared to 2019ⁱⁱ.

NextEra Energy performed relatively well on all energy justice markers, engaging in several best practices. The company appears unique in that it describes dedicated tribal relations staff, who consult with Indigenous communities with respect to construction and development siting impacts. The company cites that its approach to stakeholder consultation was highlighted by the Advisory Council on Historic Preservation in its 2019 Early Coordination with Indian Tribes Handbookⁱⁱⁱ.

As noted, a large proportion of NextEra's production portfolio is derived from natural gas, a fuel source frequently billed as "cleaner" than oil and coal, but not without emissions and extraction-derived pollution carrying potential health risks. NextEra recently sold a gas pipeline in Texasⁱⁱⁱ with a stated intention to increase its renewable investments; the pipeline, which spans an area including the heavily burdened Houston area, however, will presumably continue to operate. This begs the question of whether a company profiting from a sale of polluting power/distribution that continues to impact overburdened communities should get "credit" for such an adjustment to its portfolio. The company owns several natural gas pipelines throughout the United States, as well as natural gas-powered electric plants. It appears, however, that many of these assets are sited in rural areas with small populations; a further assessment of specific demographics would be necessary to delve more deeply into siting impacts^{iv}.

According to its 2021 Sustainability Report, NextEra Energy companies and employees committed more than \$5M in emergency assistance funds to the most vulnerable members of communities due to COVID-19, though it is unclear whether this directly resulted in decreased energy burdens. The company also reported that disconnections were suspended for six months, late fees were waived, payment extensions granted, and financial assistance extended. In addition to its SolarTogether program, which allocated a (unspecified) portion of solar-generated energy to low-income customers, the company maintains a Care to Share program for payment support to customers in crisis. Of note, however, is that Florida Light & Power (one of NextEra's subsidiaries) was listed among Florida energy utilities that fall far below the national and southeast state averages for energy efficiency program usage and savings, which increases the likelihood of high energy burdens on Black and Latino households^v.

With respect to workplace economic opportunity, NextEra reports having aimed recruiting efforts at HBCUs, and women/minority-focused industry associations; it also reported that its 2020 summer intern program was composed of over 78% women and minorities. NextEra includes a link to an extensive Code of Ethics, which does outline an anti-harassment policy, extending to sexual harassment and identity-based harassment^{vi}. The company has a D&I Council and ERG groups, and states a commitment to D&I. Compared to industry trends, NextEra performed better than its peers concerning ethnic diversity in the workforce; 21% of the workforce was Hispanic/Latino, 10% Black or African American, 4% Asian and 2% other minorities (62% of its workforce was white). The demographic makeup of management, however, was more consistent with industry trends, with 73% of senior roles going to white employees, 14% Hispanic/Latino, 6% Asian, and only 4% Black, and 2% other minorities. Only 24% of the company's employees were women, and women made up only 25% of those in management.

Also on the subject of economic opportunity, NextEra reports a Supplier Diversity Program involving proactively promoting and seeking opportunities to work with small, disadvantaged, women, and minority-owned businesses, among others; it also reports having been a founding member of the Florida State Minority Supplier Development Council. The firm also reportedly seeks out diverse partnerships among banking partners. NextEra reported a goal of increasing

supplier diversity and specifically, to triple spending with Black-owned businesses by 2022. Additionally, the company committed to over \$100 million for investments focused on racial equity. Of course, progress toward these goals remains to be seen.

Vitol, given its heavy investment in crude oil production and distribution, gas infrastructure and production, and promotion/advancement of false solutions, can be reasonably expected to create issues with energy justice. Vitol states that it engages directly with all relevant stakeholder groups on an ongoing basis, and considers the press, NGOs and “the public” to be among indirect stakeholders. Although its ESG report states that “there are mechanisms via our website for any member of the public to raise an issue with us^{lvii},” the only mechanism the researchers could locate was a generic “contact us” form^{lviii}, not accessible directly from its page concerning stakeholder engagement. The company also states that it “discloses information to impacted communities”; this does not suggest decision-making power, and is problematic given the potential harm around the types of activities Vitol conducts^{lix}.

Siting issues are quite likely to impact disadvantaged communities, given Vitol’s fossil fuel investments and transport. The company has been criticized for a lack of transparency around human rights, specifically around its involvement in the Nigerian oil sector, which is notoriously plagued by opacity around social and environmental harm^{lx}. Vitol’s contribution to the problem of environmental racism in West Africa was specifically called out in a scholarly article on the subject^{lxi}. The company’s ESG report admits to oil spills and human rights violation^{lxii}. The company faced a lawsuit as recently as March 2022 for an alleged price-fixing scheme that involved a 2015 gas refinery explosion in California^{lxiii}.

Although the company does not serve residential electricity customers, the aforementioned lawsuit around a price-fixing scheme suggests its activities could have a negative impact on energy burdens.

The researchers were unable to find any indication that the company tracks or prioritizes supplier diversity.

Vitol’s 2022 Environmental & Social Framework contains a general commitment to ensuring a diverse and discrimination-free workplace^{lxiv}. An even more general statement on its website restates a vague commitment to diversity^{lxv}. Vitol makes the following statement: “Regarding diversity, we simply do not have enough women in senior commercial roles. Regrettably, this problem is common across our industry so hiring senior women is not a solution. Instead we are focusing on hiring, developing and nurturing female talent at an earlier stage in their careers^{lxvi}.” Although the company states that it utilizes recruitment techniques to attract diverse candidates, it explicitly notes targeting them for entry-level roles^{lxvii}. The researchers did not find metrics on demographics across the company. The company’s “meet our team” page features several people apparently from underrepresented identities at management levels or below; none of the company’s leadership is displayed^{lxviii}. Vitol’s CEO, Russell Hardy, is a white man^{lxix}.

CONCLUSION

Given its sourcing from Duke, Invenergy, Next Era and Vitol, and the issues described above, AT&T's energy procurement choices carry mostly negative implications for energy justice. Both Duke and Invenergy are problematic in terms of what is arguably the most direct metric of energy justice - the extent to which fossil fuel-burning energy production sites harm environmental justice communities. Consultation with communities appears to be lacking in both instances, and information regarding amelioration of energy burdens is either missing, or suggestive of conflicts with low-to-moderate income (LMI) ratepayers. Though both companies may have fared better with regard to providing economic opportunities for women and people of color, information was too insufficient and/or contradictory to make a blanket statement to that effect. Invenergy did report strong progress with regard to internal hiring and diversity and inclusion initiatives, and Duke did report strong performance relative to diverse supplier procurement. Overall, Next Era rated relatively well on several energy justice markers.

T-MOBILE

CLEAN ENERGY GOAL: A

CLEAN ENERGY CONTRACTS: B+

CLEAN ENERGY ONLINE/IN USE: B

ENERGY JUSTICE: C-

CORPORATE ANNOUNCEMENTS

T-Mobile and Sprint merged in August 2020 and T-Mobile now reports out on energy usage and climate progress for the entire company. T-Mobile is the most transparent of the three telecom companies disclosing its energy and emissions data to the Carbon Disclosure Project, listing details of its energy consumption and renewable projects in its CSR report, and providing a response to Green America's survey regarding clean energy usage and energy equity measures sent to the three major telecoms.

T-Mobile previously announced a goal in 2018 that the company would be using 100% renewable energy by 2021 and reports having met that goal at the end of 2021.^{lxx}

While T-Mobile deserves credit for achieving its goal, it is incorporating unbundled Renewable Energy Credits as a significant portion of its 100% renewable energy plan. Unbundled RECs can be a way of “guaranteeing” renewable energy usage without putting new renewable electricity on the grid^{lxxi}. While these RECs are Green-e certified, it is still hard to assess their precise environmental benefits. For 2021, the company reports to CDP having purchased unbundled RECs representing 4,014,081 MWh out of total renewable energy purchases of 7,806,077 MWh, or over 50% of its total renewable energy purchases^{lxxii}.

T-Mobile states that it has “seven operational renewable projects active in 2021: Solomon Forks, Red Dirt, Otter Creek, White Mesa, and Maryneal wind farms, and Greensville and Myrtle solar farms... [and that it] also procured green power directly from utilities in regulated and deregulated markets, received bridge RECs from a future renewable project, and procured unbundled RECs^{lxxiii}.” The wind and solar farms that T-Mobile contracts with are dispersed throughout the country, which can help to create greater environmental benefits for local communities.

T-Mobile is the only telecom company that reports supporting community solar projects. In 2021, it reported signing 37 community solar projects which represent greening local energy grids with more than 2.1 million MWh over 25 years in Maine, Massachusetts, Colorado, Minnesota, New York, and Oregon^{lxxiv}. While this represents a small percentage of the company’s overall energy usage, it is a start.

T-Mobile has a goal of reducing Scope 1 and 2 emissions 95% by 2025, and states it has already met this goal, which is the equivalent of the electricity needed to power 350,000 homes. For Scope 3 emissions, the company set a goal of reducing these emissions by 15% per customer by 2025 compared to a base year of 2016, and has reached a 15% reduction^{lxxv}. The scope 3 goal does not, however, address absolute emissions, and is limited to emissions intensity^{lxxvi}.

CDP REPORTING^{lxxvii}

In 2021, T-Mobile reported total energy consumption of 8,028,396 MWh. Renewable energy comprised 7,806,077 MWh, roughly 97% of T-Mobile’s energy consumption. T-Mobile reports the highest renewables use in its operations of any of the three telecom companies, although as noted above, the company uses a high percentage of unbundled RECs to reach its 100% goal.

T-Mobile reports that its scope 1 and 2 emissions “decreased by 96% in 2021 compared to 2020, largely driven by the achievement of our 100% renewable electricity commitment. T-Mobile’s total gross revenue also increased by 17% compared to 2020.” Total emissions declined from 8,945,209 metric tonnes CO₂e in 2020 to 7,334,090 metric tonnes Co₂e in 2021, a more than 18% decline. While this decline represents progress, T-Mobile’s emissions are still significant; 7,334,090 metric tonnes Co₂e is still the equivalent to the energy use of 823,824 homes for one year (using the US EPA Greenhouse Gas Equivalency Calculator).

T-MOBILE CONTRACTORS' RECORDS ON RENEWABLE ENERGY

T-Mobile's contractors reported a range of clean energy investments, from Origis and Avangrid, with 100% and nearly 90% renewable energy respectively, to industry laggards like Southern Company.

Among the T-Mobile-associated energy companies with mixed portfolios (conventional + renewables) assessed, **Avangrid** emerged as a leader^{lxxxviii}. As Avangrid reported in its 2021 CDP report, an impressive 88% of electricity generated by Avangrid in 2020 came from renewable energy sources, largely wind (19,372,000 MWh), with 274,000 MWh coming from solar, 121,000 MWh from hydropower, and 73,000 MWh generated by “other renewables.^{lxxxix}” Avangrid did generate 2,798,000 MWh of power using natural gas, resulting in 1,143,533 metric tons of CO₂e Scope 1 emissions, and reported 29,886 metric tons of CO₂e emissions from “other renewables,”; the specific sources are unclear. The company reports goals of achieving 100% emissions-free energy by 2040, a 35% decrease in Scope 1 greenhouse emissions intensity by 2025 compared with 2015, and to be Scope 1 carbon neutral by 2035^{lxxx}.

Engie's energy portfolio included 28% renewables, with the large majority of renewable energy (36,539,000 MWh) coming from hydropower, and 10,140,000 MWh from wind. A smaller segment of its power was generated by solar (2,841,000 MWh), and only 146,000 MWh came from geothermal power. Gas was its primary fuel source (67,911,000 MWh), which resulted in 26,104,949 metric tons of Scope 1 emissions. Engie's second-largest non-renewable production source was nuclear (34,557,000 MWh). Coal-burning produced 10,672,000 MWh for Engie, resulting in 9,262,491 metric tons of Scope 1 emissions; another 413,929 metric tons of emissions were released via the generation of 7,440,000 MWh from “unspecified non-renewable sources.” Biomass incineration generated 6,120,000 MWh, resulting in an estimated 4.3 million metric tonnes of CO₂e in emissions. A relatively small portion of oil-burning generation (874,000 MWh) resulted in 541,584 metric tons of emissions, and non-biomass waste incineration created 73,318 metric tons of pollution to produce 240,000 MWh of electricity^{lxxx}.

Enel Green Power^{lxxxii}, part of the Enel Group^{lxxxiii}, did not report on its specific performance to the Carbon Disclosure Project. The subsidiary reports having a primarily renewable portfolio, with 7.48 GW solar, 16.85 GW wind, 27.84 GW hydroelectric and 0.92GW geothermal capacity. The company also has a small proportion of biomass energy capacity: 0.06 GW^{lxxxiv}, which Green America, and a number of environmental allies, do not consider a truly renewable source of energy.

Parent company, Enel S.p.A., reported 50.87% renewable electricity generation for 2020, with the majority of this coming from hydroelectric sources (62,437,000 MWh). A significant proportion of its clean electricity came from wind (30,992,000 MWh), with smaller segments of its renewable portfolio generated through geothermal (6,167,000 MWh) and solar (5,763,000 MWh). After hydropower, the most significant source of electricity generation reported by Enel S.p.A. was derived from gas (55,258,000 MWh), which was responsible for 25,459,270 metric tons of CO₂e Scope I emissions. A significant proportion of Enel's production came from nuclear (25,839,000 MWh), as well. Coal-burning by the company produced 12,953,000 MWh of electricity, resulting in 13,156,072 mtCO₂e of pollution. Another 5,977,124 metric tons of carbon pollution were produced through oil combustion, which generated 7,496,000 MWh of power. Lignite (soft coal) was burned to produce 202,000 MWh of electricity, emitting 222,983 mtCO₂e of pollution. Enel responded to Green America's request for review, noting that its 2021 report reflected an increase in "emission free production" to 62%, and that the company plans to exit coal generation and gas generation by 2027 and 2040, respectively^{lxxxv}.

Puget Sound Energy (PSE) reported its estimated fuel mix for 2019 in its 2021 ESG report as follows: 35% coal, 31% natural gas, 23% hydroelectric, 9% wind, 1% solar, less than 1% nuclear, and less than 1% "other" (biomass, non-biogenic and petroleum)^{lxxxvi}. A chart delineating the emissions in PSE's Greenhouse Gas Emissions report for 2020 shows that the majority of the Scope I carbon emissions were produced by its natural gas/oil combustion (57%), which generated 2,701,528 metric tons of carbon dioxide. An additional 43.4% of the company's Scope I carbon emissions were derived from coal, which resulted in 2,073,414 metric tons of carbon pollution^{lxxxvii}.

Duke Energy Sustainable Solutions, a subsidiary of Duke Energy, does not appear to have an ESG or Sustainability Report separate from the parent company, or to have reported to the CDP. The subsidiary, launched in 2021, identifies a business model whereby "From financing to planning, and construction and installation to management, Duke Energy Sustainable Solutions offers advanced technology and the latest breakthroughs to create smart and sustainable solutions, empowering companies to make a measurable impact, help reduce emissions and gain resiliency with future-focused solutions tailored to their business model, industry and specific location^{lxxxviii}." It is unclear the extent to which these projects create emissions, and how much power, in aggregate, they generate. The website states 5,100+ MW of capacity is owned and operated by the company^{lxxxix}. Metrics for the Duke Energy parent company are summarized above under the section describing AT&T's energy procurement.

T-Mobile invests in the Puget Sound Energy Green Direct program, which draws green power from the Skookumchuck Wind Energy Project (a project of Southern Power, owned by

Southern Company). **Southern Company**, the parent company for Southern Power, lists only 12% renewable energy in its portfolio^{xc}. The large majority of the electricity generated was derived from natural gas (94,056,000 MWh), which produced 37,387,344 metric tons of carbon pollution. Coal combustion created a comparable level of carbon pollution (32,857,105 metric tons) in order to produce roughly a third of the amount of electricity (33,239,000 MWh). Oil combustion by Southern Company accounted for an additional 50,731 metric tons of carbon by generating only 101,000 MWh of electricity for customers. An additional 31,799,000 MWh were generated by nuclear power. Southern Company's renewable sources accounted for 7,874,000 MWh from hydropower, 7,193,000 MWh from wind, and 5,876,000 MWh from solar power^{xci}.

Southern Power, a subsidiary of Southern Company, provides renewable power to commercial, municipal and industrial customers using capacity from solar (2,395 MW), wind (2,533 MW), and "alternative fuel technologies" including storage and fuel cells (180 MW)^{xcii}. The majority of its portfolio, however, stems from pollution-emitting natural gas (7,380 MW) located in Georgia, North Carolina and Alabama^{xciii}. The company's packaging of natural gas-powered electricity through its "clean energy" subsidiary suggests an antiquated and fossil fuel-friendly positioning which raises red flags.

Dominion Energy reports only 4% renewable energy in its portfolio, with 3,900,000 MWh having been generated by solar, 1,220,000 MWh by hydropower, and 305,000 by wind^{xciiv}. Most of Dominion's electricity production was derived from gas (54,135,000 MWh), which resulted in 21,884,305 metric tons of Scope 1 carbon emissions. Nuclear power generated almost as much electricity for the company (48,573,000 MWh), and a smaller portion of the electricity Dominion generated was derived from coal combustion (12,204,000 MWh), which resulted in 11,244,072 metric tons of carbon pollution. Dominion reported using biomass incineration for electricity as well (788,000 MWh). Finally, the company burned oil to produce 115,000 MWh of electric power, resulting in an additional 105,858 metric tons of carbon emissions^{xciv}.

Origis Energy is a large-scale solar developer that also provides energy storage and develops "solar + storage" projects for commercial, municipal and utility customers. Though Origis did not submit information to the CDP, it can be assumed that direct emissions from power production are non-existent or negligible, due to its 100% renewable portfolio^{xcvi}.

Leeward Energy also exclusively develops renewable energy, with a portfolio consisting of wind, solar and storage^{xcvii}. The company explicitly states that it develops emissions-free electrical generation projects, and did not submit data to the CDP^{xcviii}.

Apex Clean Energy's energy portfolio includes wind, utility-scale solar, energy storage, distributed energy resources (solar), and green hydrogen^{xcix}. While the first four sources of energy can be assumed to be emissions-free, there is debate among clean energy advocates and environmental justice activists about the application of green hydrogen concerning its inefficiency, cost, potential to spur continued investment in fossil fuel infrastructure, and potential environmental justice concerns^c. According to Apex, the green hydrogen fuel production it produces is powered solely by wind, and is intended to “advance the decarbonization of the transportation and industrial sectors^{ci}.”

T-MOBILE AND ITS CONTRACTOR'S RECORD ON ENERGY JUSTICE

Of the three Telecoms companies assessed, T-Mobile's energy choices appear most progressive in terms of energy justice impacts but are still far from sufficient. The company responded to Green America's survey and reported that its engagement with communities around renewable energy siting consisted of meeting with community leaders, ribbon cuttings, and engaging with local schools and colleges. None of these activities mean that T-Mobile is ensuring that local communities benefit from renewable energy. T-Mobile did report that one of its contracted clean energy projects is with Duke Energy, which is expected to spend 21% of development dollars with women and minority-owned businesses, but overall Duke Energy rated poorly on our energy justice markers.

In terms of workforce diversity, T-Mobile reports that it is engaged in a NextTech program to diversify the wireless workforce and is also leading a Diversity in Clean Energy (DICE) Roundtable to explore workforce diversity in the clean energy sector; the need for this highlights the fact that diversity is currently lacking in the sector^{cii}. T-Mobile also notes in its 2021 CSR report that it has an External Diversity and Inclusion Council and that it conducts community engagement, but the company does not provide specifics regarding the scope or impact of this council^{ciii}.

T-Mobile also reports siting its largest wind projects in EPA subGrid regions with emissions factors 13-24% higher than the national average, and notes that its renewable energy projects are sited across the US; this could help to alleviate pollution burdens in communities with cumulative impacts^{civ}.

T-Mobile's support for community solar is also a positive step by the company in advancing energy justice.

We evaluated the energy companies T-Mobile contracts with renewable energy based on our energy justice markers.

Avangrid, with a nearly 90% clean energy portfolio, has nevertheless been the subject of siting concerns around a transmission project in Maine^{cv}. The transmission line is controversial for its environmental impacts and the projection that it would serve existing hydroelectric power capacity and thereby fail to contribute to new carbon-free generation^{cvi}. The concerns around the Maine transmission project, however, do not seem to be rooted in environmental *justice* issues. In New York, an Avangrid-proposed transmission project appears to have garnered community support, including from environmental justice groups, which suggests successful efforts to consult with affected residents^{cvi}.

A proposed merger of Avangrid with PNM Resources in New Mexico to move toward carbon-free power was modified in part to help ameliorate energy burdens^{cvi}. The company's 2020 Sustainability Report states that it suspended shut-offs for nonpayment, late-payment fees and security deposits for customers in response to the COVID-19 crisis in 2020^{cix}. Additionally, the company's Connecticut subsidiaries distributed \$441,540 in grants aimed at helping community and neighborhood organizations statewide improve energy efficiency and reduce their energy costs.

Avangrid's reporting on its internal diversity metrics was the most detailed among the energy providers assessed. Internal diversity for 2020 was reported as follows, among all employees: 76.9% white; 7% did not provide; 5.8% Black; 6.3% Hispanic/Latino; 2.5% Asian; two or more races 1.2%; American Indian or Alaskan Native 0.3%; male 71.9%; female 28.1%. Among senior leadership, metrics were: 70.5% white; 15.6% did not provide; 7% Hispanic/Latino; 2.3% Black and Asian each; 2% two or more races; 0.3% American Indian or Alaskan Native. 70.9% of leadership were male, and 29.1% were female. There was no option to include non-binary gender^{cx}. While these metrics reflect the trend in the clean energy industry of white, male-dominated participation, Avangrid's transparency should be noted and modeled. Avangrid's resources around internal diversity and inclusion efforts reflect some best practices, including executive training workshops on racism in corporate America, executive goals in unconscious bias training and diversity in succession plans, and employee surveys to measure the culture of inclusion. The company also launched a Diversity, Equity & Inclusion Council and employee community groups including WomENergy, AVAN-Veterans, the AVANGRID African American Council for Excellence, Pride@AVANGRID and the Hispanic Organization for Leadership and Awareness^{cx}.

Avangrid's supplier code of ethics says no discrimination or harassment based on gender or race will be tolerated, which is a step toward equity in entrepreneurship, albeit one with a low

bar^{cxii}. The company did make strides in workforce development, with 50% of its 2020 summer interns identifying as women and 35% as people of color. Avangrid charitable giving included approximately \$1M to support programs and organizations led by women, serving women and girls, and honoring women, women-identified and non-binary persons, particularly with Black, Indigenous and people of color (BIPOC) and underrepresented groups in leadership^{cxiii}.

Engie, an international company which serves corporate and government clients in North America, evidently is not situated to provide relief to residents directly with respect to energy burdens, and publicly available information was not available to ascertain the degree to which it consults with communities on power production siting or whether siting impacts have historically been problematic. It should be noted, however, that the company acquired U.S.-based liquefied natural gas^{cxiv} produced in Corpus Christi, Texas, a historically and notoriously overburdened Black and Latino community^{cxv}. The company website boasts a target for 100% stakeholder engagement by 2020 (but it is unclear whether or how that was reached).

With respect to its internal diversity, Engie commits to an ambitious goal of 50% of management roles held by women across the group of companies by 2030^{cxvi}. Its Sustainability Report, released in July 2021, states that 21.5% of its employees are women, and 24.1% of its managers are women^{cxvii}. The company's North America website states that Engie "led an industry effort with dozens of renewable energy companies making commitments to advance racial justice, including our own commitments^{cxviii}." The company added employee resource groups, including for Black, LGBTQ and women employees, as well as a Diversity & Inclusion Council. Engie also initiated best practices including diversity and inclusion training, childcare and elder care for employees, and adding inclusion as a metric in performance reviews for all employees and managers^{cxix}. Specific information about the company's actual racial and ethnic diversity was not available, however.

Engie did specifically assert a commitment to diverse suppliers; its site states that the company tracks spending with diverse suppliers, including minority-, women-, veteran-, disability-, LGBTQ-, small disadvantaged and HUBZone small-businesses^{cxx}.

Enel Green Power, a subsidiary of an international energy company, explicitly commits to involvement of local communities and providing local benefits in the areas where it sites energy production^{cxxi}. In fact, Enel includes a "premium offer" enabling power purchase agreement partners to participate in a "Creating Shared Value" program, wherein local communities benefit from workforce development, ecosystem restoration and other initiatives^{cxii}. The extent to which this program fosters energy justice for Black, Indigenous People of Color in the U.S., however, is unclear^{cxiii}; Enel Green Power sites in the U.S. are primarily wind and solar farms in the rural U.S.^{cxiv}.

Enel Green Power also specifically calls for a "Just Transition," calling out the need to address energy poverty and facilitate workforce transition for workers in fossil fuel industries^{cxv}. One

international initiative highlighted on its site is aimed at supporting women business owners^{cxvii}, but its procurement manifesto makes no mention of equity or striving to diversify^{cxviii}.

With respect to internal diversity and inclusion, Enel Green Power's commitments appear vague. While the company page on diversity and inclusion asserts that the company works to ensure gender balance and opportunities for women^{cxviii}, specific metrics and goals are not evident, and a glance at the company's management team suggests gender balance is lacking^{cxix}. The company's framing around diversity and inclusion appears to center around equal opportunity, which, of course, is not the same as deliberate processes to ensure equity to rectify historical and current trends of disproportionate power and representation.

Enel S.p.A., parent company to Enel Green power, states a commitment to avoid “the creation of inequalities, based on active listening, openness and creative solutions,” in its letter to stakeholders^{cx}. The company's 2021 Sustainability report iterated a commitment to analyzing community needs around siting, and “constantly listening to the needs of the concerned stakeholders,” including using the SEECA (Social, Environmental and Economic Context Analysis) tool^{cxxi}. This detailed specificity stands out, and the researchers did not locate news which would bely this process.

With a portfolio that includes a large proportion of fossil fuel-derived power, the company is likely to produce siting issues that burden communities. Notably, however, the company does appear to be committed to a just transition. That said, at least one coal-fired plant owned by Enel in Italy was transformed into a gas plant; though less carbon-intensive, gas combustion and extraction indisputably creates environmental justice problems^{cxvii}.

Enel explicitly focuses on energy poverty and access, including infrastructure improvements, to alleviate energy burdens^{cxviii}. Many of its programs and work around energy poverty, however, appear to be international. Although the website states that the company provides energy to homes, this is only in countries outside the US.

Enel's procurement codes contained standard prohibitions against human trafficking, forced labor, corruption and anti-discrimination, but did not explicitly state tracking of supplier diversity or goals to contract with suppliers from excluded identities^{cxix}. In November 2019, Enel implemented its global WeBuy procurement portal where 100% of vendors are required to register and diverse business classifications are voluntary disclosures for US companies^{cx}. The company also states that it has ongoing tenders with “Sustainable K” factor applied to provide vendor incentives to increase diversity, although an Enel web page notes that the K factor criteria is primarily focused on renewable energy use, sustainable supply chain certification and application of circular economy principles^{cxvi}.

Concerning Enel S.p.A.'s internal diversity initiatives, the primary focus of demographic change appeared to be centered on gender. For example, Enel's response to Green America's

assessment included metrics from 2021 indicating that the company's Board is 44% female, and iterated a target of 26.8% female management and 33.4% female middle management by 2024^{cxvii}. The company did report a number of parent-friendly policies, internal inclusion efforts, and peer networks across the identities of gender, disability, LGBTQ+ identification, age and "ethnicity"; lacking, however, were demographics on the workforce or leadership around race^{cxviii}.

Puget Sound Energy (PSE)'s performance on energy justice markers needs improvement. With regard to decision-making processes, PSE's outward-facing communications reflect best practices. For example, an extensive stakeholder engagement process is delineated in its natural gas integrated resource plan^{cxix}. The company also identifies an extensive and inclusive process for garnering stakeholder feedback around its Clean Energy Implementation Plan, including the establishment of an advisory board to advise the company on equitable distribution of burdens and benefits, and community engagement specifically aimed at "highly impacted communities and vulnerable populations^{cxli}." Beyond this specific structure, PSE reports ongoing consultation with tribal communities^{cxlii}, and invites community members to reach out to local representatives based on location^{cxliii}.

The company's stated commitment to tribal consultation on siting, however, is belied by a 2021 lawsuit filed against PSE by tribal, environmental and government interests around an LNG facility^{cxliii}. At least one tribal representative opined that the siting of the facility constituted environmental racism due to its potentially harmful impacts to health, safety, and culturally important natural resources, and a flawed environmental review^{cxliv}. The permit was nevertheless approved, and environmental groups have partnered with tribes to appeal^{cxlv}. It also cannot be ignored or treated as irrelevant to siting issues that 35% of PSE's fuel mix came from coal in 2019^{cxlvi}. Despite plans to wean off coal delineated in the ESG report, continued operation of coal plants will continue to impact the surrounding community dramatically.

PSE offers payment plans, efficiency rebates, and bill-plan programs, as well as directing customers to government-funded assistance programs and jointly funded programs for assistance and weatherization^{cxlvii}. PSE's 2021 ESG also stated it provided \$30.1M to customers struggling with energy bills throughout 2020-21, through COVID Bill-Assistance Programs^{cxlviii}.

Regarding economic opportunities for individuals with underrepresented identities, PSE's public information is quite vague. A perfunctory statement on its website around diversity stands out only for citing support for African American student scholarships for careers in clean energy, and membership in a local pro-diversity business association^{cxlix}. Its ESG report for 2021 contains only a statement asserting compliance with the law regarding anti-discrimination, and general workplace wellness, employee engagement and culture; there are no specific metrics concerning diversity of employees, nor goals associated with the same. Additionally, there is no mention of supplier diversity^{cl}.

Duke Energy Sustainable Solutions appears to be aimed at commercial and municipal customers seeking comprehensive assessments and changes to their energy portfolios, including energy infrastructure, efficient lighting, renewables financing, electric vehicle fleets, microgrids, and storage, among other services. It is unclear how the subsidiary company works to engage communities in which it operates, or the extent to which affected communities might hold decision-making power.

As mentioned, Duke Energy Sustainable Solutions targets corporate and municipal companies in reforming their energy portfolios; siting, therefore, is ostensibly dependent on customer location. The researchers were unable to find information on siting specific to the subsidiary's operations which would indicate presence or absence in communities overburdened by environmental pollution. As the subsidiary does not serve residential customers, it could not be assessed for reduction of energy burdens.

Duke Energy Sustainable Solutions does not provide information on supplier diversity initiatives, and the company's "careers" page redirects to the parent company. It appears that with respect to internal policies around diverse suppliers and workforce diversity are indistinguishable from those of the parent company^{cli}.

T-Mobile invests in the Puget Sound Energy Green Direct program, which draws green power from the Skookumchuck Wind Energy Project (a project of Southern Power, owned by Southern Company). **Southern Company's** heavy investments in fossil fuel power inherently creates issues around energy justice. Its performance on economic opportunities is better. On the subject of stakeholder consultation, the company's website contains a vague statement espousing a commitment to fair treatment and minimizing adverse impacts, and states that it "considers community concerns and leverages our strong community relationships in all our work^{clii}." It did not identify, however, processes or methods by which it engages with stakeholders.

Predictably, Southern Company's reliance on fossil fuels across its portfolio carries siting issues. As recently as 2021, Sierra Club noted that "Southern Company operates some of the largest and dirtiest coal plants in the country with no retirement dates in sight while the utility plans to build more plants that burn so-called 'natural gas,' a product of fracking that releases methane, a potent greenhouse gas," and characterized the company's "net zero by 2050" commitment as "greenwashing" due to its reliance on carbon capture^{cliii}. Later in the year, however, a power industry publication asserted that Southern Company plans to close half of its coal plants by 2028^{cliv}. At least one planned project by the company relies on retrofitting an existing gas facility with carbon capture technology; notably, the project relies on federal tax dollars from the US Department of Energy^{clv}. With plans for such false solutions that continue to rely on a fracked gas supply (the process for which creates environmental injustice at fracking sites), Southern Company's siting performance can be categorized as "poor." The company states a

commitment to environmental justice, including “evaluating the use” of EJ screening tools; considering its portfolio, this would appear to be long overdue for consideration and execution^{clvi}.

With respect to energy burdens, the company cites lower-than-average electric rates, compared to other power companies^{clvii}. The website links to subsidiary programs that provide emergency payment assistance^{clviii}, efficient lighting rebates and free energy audits for seniors^{clix}. Although the company reportedly made community donations and helped residents with payment plans and other emergency assistance as a result of COVID-19, it did not suspend disconnections, instead reportedly helping customers “seek financial assistance” to avoid them^{clx}.

Southern Company’s recent efforts to perform on internal diversity and inclusion appear to be better than its record on siting and stakeholder consultation^{clxi}. In 2021, it published a Moving to Equity report, which detailed a number of best practices including ERGs, diversity, equity and inclusion training, political engagement in support of anti-racism efforts, HBCU hiring, community investments and providing employment opportunities for people re-entering from prison, among others. The company celebrates on its website having been listed among top employers for diversity in recent years^{clxii}. Southern Company reported that women and “people of color” made up 58% of its new hires in 2021, 54% of its promotions went to “women and employees of color” and “workforce representation increased to 43% across levels.” Undermining the company’s claims, however, is that similarly to other companies failing to disaggregate data, “people of color” are referenced as a monolith and grouped together with “women,” and the extent to which historically excluded groups are in leadership positions is not delineated^{clxiii}.

Southern Company has a stated commitment to contracting with diverse suppliers, reporting that it offers programs that help the company seek out small businesses and those owned by minorities, women, veterans, LGBT and disabled individuals. The company also reports the existence of a Supplier Diversity Business Development Program to build relationships among employees and diverse suppliers^{clxiv}. The company made a stated commitment to increase spending with diverse suppliers to 30%, and 20% with minority business enterprises, specifically, by 2025; if achieved, this would represent consistency with Green America’s recommendations^{clxv}.

Southern Power, Southern Company’s “clean energy” subsidiary, similarly does not delineate a process whereby it engages communities in which it operates, despite its large reliance on polluting natural gas capacity. Beyond a generic statement around community engagement^{clxvi}, it does not appear to share decision-making power with communities in which it operates^{clxvii}.

Like its parent company, Southern Power’s reliance on a portfolio of over 50% natural gas is likely to carry siting issues. The subsidiary website does not reference environmental justice or efforts to ameliorate impacts of siting in overburdened communities. The company targets

commercial, municipal and industrial customers, and as such could not be evaluated on the question of energy burden alleviation^{clxxviii}.

Southern Power did not issue a separate ESG or CSR report; its data on supplier diversity and internal workforce demographics is ostensibly aggregated with that of the parent company. Notably, however, until Chris Womack was named President and CEO in January 2023, Southern Power's leadership was almost exclusively white and male-presenting^{clxxix clxx}.

Dominion Energy includes an infographic on its website delineating a public engagement process which includes consultation with community members, natural resource groups, and tribes. Notably, the process outlined appears to begin with the utility, progress to regulators, and then engage community members; this approach may fail to adequately enable communities to truly shape projects^{clxxxi}.

Dominion states that in 2018 it adopted a formal EJ policy, which "sets expectations for company project teams that historically marginalized communities should not be disproportionately harmed by our infrastructure initiatives and should be part of the planning process^{clxxii}." With the implementation of this policy, the company states that it "developed rigorous internal processes to ensure accountability." The company also states that it has dedicated EJ staff and EJ trainings for over 1,000 staff, and that it engages in proactive process to engage with EJ communities^{clxxiii}.

In 2021, the company stated that it was embarking on efforts to conduct deeper consultations with impacted communities, including those with language barriers, communities of color, and tribes^{clxxiv}. The company also states that it reviewed 75 projects in 2021 on EJ criteria^{clxxv}.

These claims, however, are belied by news indicating that the company manipulated data to evade accountability for imposing environmental burdens on the Black community of Union Hill, VA through siting of a compressor station for a gas pipeline^{clxxvi}. A judge agreed with the community opposing the Dominion project, stating "Environmental justice is not merely a box to be checked," and vacated the company's permit^{clxxvii}.

With a gas- and coal-heavy portfolio, it can be assumed that power plant and pipeline siting will negatively impact surrounding communities. The findings around the Union Hill project indicated that Dominion Energy, at least in that case, acted in bad faith in order to pursue a project that would perpetuate environmental racism^{clxxviii}. The pipeline project cited above also reportedly would have impacted indigenous communities, yet was only abandoned after significant and public pushback and an unfavorable court ruling^{clxxix}. With such a record, and the continued operation of polluting power sites and distribution, Dominion's commitments to energy justice around siting is problematic.

Dominion Energy, similarly to all of the energy companies assessed that serve a consumer base, provides financial assistance programs to assist with energy burdens. The specifics about each program reside with the state-based subsidiary websites and vary. For example, the Virginia

page is more extensive^{clxxx}, providing information about several state-run programs as well as a company-provided EnergyShare program, including bill pay assistance, free weatherization and efficiency upgrades. The Utah subsidiary page refers to a standard state-funded programs that receives funding from Dominion customers, employees and shareholders^{clxxxii}.

Dominion Energy expresses a commitment to contracting with “diverse suppliers,” citing both a requirement to include at least two diverse suppliers in competitive procurement processes (or provide a reason why it wasn’t done) and imposing a goal of 20% diverse sub-contracts with prime contractors. The company reports having hosted diverse supplier events to foster connections between sub and prime contractors and reports consistent growth in its diverse supplier spending from 2015-2020. The company’s goal is to increase diverse supplier spending to 20% by 2025^{clxxxiii}. The company does not provide information around any potential goals to concentrate spending among those diverse suppliers that are heavily underrepresented in the energy sector, however.

Although somewhat difficult to locate on Dominion’s parent website, the company’s diversity report was more transparent than others concerning actual demographic metrics, including demographic breakdowns by race with respect to hiring, promotion, and attrition^{clxxxiii}. Overall, the workforce at Dominion was heavily male in 2020 (78%) and white (79.5%). Compared to other energy companies, there was slightly more representation of Black employees (13.2%); however, Black employees’ attrition rate increased by 1.5% between 2016-2020, the highest of all groups. In 2020, 4.5% of the company’s Hispanic employees resigned, which represented the largest proportion within a demographic in that year. The company did state that it is conducting “stay” interviews, a relatively new best practice to enhance workplace experience, and adding benefits to improve culture. The company has ERG groups, including for those sharing the identities of African American, Asian Pacific Islander, Young Professional, Hispanic, Women, LGBTQ+ Veteran, Women and a DiverseAbility group. Their recruitment efforts appear robust, including recruiting from HBCUs and various industry and STEM groups aimed at supporting historically excluded groups^{clxxxiv}.

Duke Energy – as noted previously, Duke Energy rated poorly overall on several energy justice markers [Refer to Duke assessment above in the section on AT&T]

Origis Energy, with a portfolio consisting of solar and storage, has very little information on its website concerning stakeholder consultation, save a general statement indicating work with communities to benefit stakeholders^{clxxxv}. The company does not appear to produce annual Corporate Sustainability Reports. Opposition to one solar farm proposal situated in a historic Black agricultural community suggests that in that case, stakeholder consultation was inadequate^{clxxxvi}.

In a response to Green America, Origis does note that it has a corporate philanthropy, The Origis Foundation, that provided over \$160,000 in community grants where its projects exist.^{clxxxvii} However, philanthropic donations after a project is built do not take the place of community engagement or direct community benefit from a project.

Although objectively speaking, environmental harm surrounding large-scale solar farms pale in comparison to the intensive pollution resulting from fossil fuel combustion or the safety risks associated with nuclear power, Origis faced controversy around the siting of the aforementioned project due to impact to the character of an agricultural, historically Black neighborhood in Northern Florida^{clxxxviii}. While the authors explicitly differentiate between environmentally racist siting of polluting power plants and NIMBY opposition to renewable energy, the complexity of this situation should be noted; the community in question has faced a long history of racially-motivated disadvantage, and the choice to site the solar farm in this community - potentially impacting an African-American burial ground - with apparently inadequate community consultation up front, does track with “the path of least resistance” approach to industrial siting undergirding environmental racism^{clxxxix}.

Origis did note to Green America that due to community opposition to the solar farm in Northern Florida, the company ultimately did engage in dialog with the community that resulted in the project being sited in a location that the community supported^{cx}. This example demonstrates the importance of community engagement at the beginning of the process.

Origis does not provide electricity directly to residential customers, and the extent to which its product contributes to or ameliorates energy burdens is not available information.

Origis does not appear to be a leader with respect to economic opportunities through diversity, equity and inclusion commitments. though without a track record of Corporate Sustainability Reports, it is difficult to assess (although Origis did issue a first ESG report for 2021). Origis states that as part of its Code of Ethics and Business Conduct the company commits to fostering, cultivating and preserving a culture of diversity, equity and inclusion, but did not go into detail as to what steps are being taken^{cxci}. Origis’ leadership team is composed of male-presenting individuals, exclusively, all of whom appear to be white-presenting^{cxcii}. Complete demographic data on the Origis’ workforce was not available; neither was data available on supplier diversity metrics or targets.

Leeward Energy has a stated commitment to partner meaningfully with the communities in which it sites its renewable energy projects^{cxiii}. Like most of the energy companies assessed, the company provides volunteer opportunities for employees and corporate grants to support community programs^{cxiv}. The researchers found no indications of problems with stakeholder consultation.

As recognized previously in this report, companies generating electricity solely from emissions-free renewable energy will never inflict siting damage to surrounding communities comparable to power plants relying on fossil fuel combustion. The researchers found nothing to suggest that Leeward Energy had inflicted siting harm on communities.

With “utility-scale” projects, it appears that Leeward serves corporate and utility customers only, without direct residential supply; there is no mention of energy assistance programs on its website^{cxv}.

Leeward’s website contains a statement against the use of forced labor in its supply chain acquisition, and promises a commitment to using its industry power to eradicate forced labor practices in the supply chain^{cxvi}. Publicly available information, however, did not indicate the extent to which Leeward utilizes diverse suppliers or commits to doing so.

Leeward’s publicly available information contained no data on internal diversity, equity, inclusion and justice metrics or initiatives, and our researchers did not locate a Corporate Sustainability Report (which would typically house this data)^{cxvii}. Information on the company’s leadership across the C- and V-suites showed that five of twelve leaders were women/female-presenting; however, only one of the seven C-Suite executives was a woman/female-presenting^{cxviii}. All of the leaders listed on that page were white-presenting. Leeward’s Board of Directors was composed of five male-presenting individuals and one female-presenting member; all of the Directors were white-presenting, with one male-presenting Director bearing a Spanish last name and acknowledged as Spanish-English bilingual^{cxix}.

Apex Clean Energy expressly addresses the “NIMBY” anti-renewable backlash it has faced, and retells its efforts around stakeholder engagement concerning one project^{cc}; it does not, however, delineate a stakeholder consultation process. The company apparently faced similar resistance from rural local populations around an Ohio wind project^{cci}. The writers again distinguish stakeholder consultation for the purposes of preventing environmental injustices (wherein a project causes health and environmental harm to already burdened communities meeting criteria around health, socioeconomic status, race and other indicators of disadvantage), and the hyperbolic NIMBY-ism that often relies on untrue or inflated claims about impacts to property value. The lack of standard process around stakeholder engagement in Apex’s publicly available information, however, is noted. In fact, Apex’s own press release states that “disinformation . . . trigger[s] fear and anger to divide communities before the benefits of a wind project can be communicated^{ccii}.” Successful stakeholder engagement around projects impacting communities should be conducted before this stage is reached.

As recognized previously in this report, companies generating electricity solely from emissions-free renewable energy will never inflict siting damage to surrounding communities comparable to power plants relying on combustion. The researchers found nothing to suggest that Apex had inflicted siting harm on communities; although the production of green hydrogen can

sometimes carry environmental justice impacts, the researchers were unable to find indications that Apex's projects did so.

Apex states that it supplies energy to utilities, corporations and the public sector; that being the case, it appears that Apex does not directly offer energy affordability programs^{cciii}.

Supplier diversity metrics and commitments, if applicable, were not available on Apex's website. The company did express a commitment to engaging local vendors around its project sites, but this does not appear to be linked to increasing business with historically excluded populations^{cciv}.

Apex does not provide a Corporate Sustainability Report in which metrics on its internal diversity, equity, inclusion and justice efforts might be found, though an undated article on its site stated that the company's workforce was 34% women^{ccv}. Though the company makes generalized statements about a commitment to diversity, the lack of transparency on actual data resulted in a weak score on this point.

CONCLUSION

Given the commitments reported by some of the companies T-Mobile contracts with to consult with communities, take measures to ameliorate siting concerns, and where applicable, ease energy burdens, the telecom company is somewhat ahead of the curve. Although it should be noted that T-Mobile does contract with Duke Energy, Southern Energy (Southern Company), and Dominion (either directly or indirectly), three utilities with a long history of utilizing fossil-fuel power plants and infrastructure. In general, the energy companies chosen by T-Mobile demonstrated varying degrees of commitment to internal diversity and inclusion, and commitments to foster economic opportunity for diverse suppliers, but in aggregate indicated efforts to improve in these areas and the deployment of best practices.

VERIZON

CLEAN ENERGY GOAL: C

CLEAN ENERGY CONTRACTS: C+

CLEAN ENERGY ONLINE/IN USE: F *FAILED TO PUBLICLY DISCLOSE CDP 2022 REPORT

ENERGY JUSTICE: D

CORPORATE ANNOUNCEMENTS

Verizon has a stated goal of reaching 50% renewable energy by 2025. As of November 1, 2022, according to its website, the company entered into 20 renewable energy purchasing agreements (REPAs)^{ccvi}:

- Between 2019 and 2021, Verizon announced thirteen REPAs totaling 1.7 Gigawatts of power. Agreements entered into in 2020 are for projects located in the Pennsylvania Jersey Maryland (PJM) Interconnection and Midcontinent Independent System Operator (MISO) regional market. Prior agreements were located in Illinois, New York, North Carolina, Ohio, and Texas. Verizon says the projects will be operational between 2022 and 2023.
- In January 2022, Verizon announced seven new REPAs for a total of roughly 910 MW of power. Projects will be located in the PJM Interconnection, Texas ERCOT, California, and MISO regional markets. The company states the projects should all be operational by the end of 2023.
- As of 2021, Verizon noted that only 0.3 GW of renewable energy had commenced commercial operation^{ccvii}.
- Verizon also has a goal of 24 MW of renewable energy at on-site facilities by 2025.
- Once all of Verizon's clean energy projects are online, the company states they should generate approximately 2.6 GW of power and result in the avoidance of 4.8 million metric tons of CO₂e annually, the equivalent of removing over 1 million passenger vehicles from the road^{ccviii}.

Verizon has issued four \$1 billion green bond offerings, in large part to help advance its renewable energy goal.

Verizon has committed to achieving “net zero” Scope 1 and 2 emissions by 2035 and to reduce absolute Scope 3 emissions from its value chain 40% by 2035 from a 2019 baseline. Renewable energy is an important part of meeting the company's net zero goals. The company may also rely on carbon offsets but does not specify the extent it will rely on offsets to meet its goal

(please see concerns with carbon offsets on pages 9-10). Like the other telecoms, Verizon states that it plans to help customers save energy and reduce their related emissions. It reports that in 2020, these customer-based “solutions enabled the elimination of 12 million metric tons of CO₂e emissions^{ccix}.” Verizon works with the Carbon Trust to measure the carbon reductions customers achieve through using its products, but the company is not transparent regarding how these emissions were measured. According to the company’s 2021 CSR report, the largest carbon savings (over 50%) achieved by customers was through “telecommuting” which was presumably achieved through using Verizon internet and telecom services^{ccx}. However, telecommuting does not always produce lower emissions, since employees may use more energy at home than they otherwise would and increase travel for leisure^{ccxi}.

CDP REPORTING

In 2022, Verizon appears to have prevented CDP from publishing its 2022 CDP Climate Change report, which contains important disclosures regarding the company’s emissions and renewable energy usage^{ccxii}. Transparency is critical to progress; this blatant lack of transparency earned Verizon a very low grade on Clean Energy Usage.

Based on Verizon’s 2021 CDP data reflecting 2020 operations, which is public, Verizon consumed 11,427,436 megawatt hours (MWh) of energy for its operations, a 4.84% decrease from the previous year. Renewables made up 338,216 MWh, more than double from the previous year, representing roughly 3% of Verizon’s total energy use^{ccxiii}. In its 2020 CSR report, Verizon stated it remains on track to meet its goal despite delays due to the COVID-19 pandemic and that the clean energy projects will be online and operational within the next three years^{ccxiv}.

Verizon’s annual greenhouse gas emissions totaled 19,605,256 mtCO₂e (Scope 1: 336,871 mtCO₂e; Scope 2: 3637,971 mtCO₂e (market-based); Scope 3: 15,640,413 mtCO₂e)^{ccv} – the emissions equivalent of the energy usage of 2,469,537 homes for one year (using the EPA’s Greenhouse Gas Equivalencies Calculator).

VERIZON’S CONTRACTORS’ RECORDS ON RENEWABLE ENERGY

Several of the contractors that Verizon contracts with renewable energy are producing 100% renewable or emissions-free energy, although not always from wind or solar power. Despite this progress, Verizon also relies on subsidiaries of conventional, fossil fuel-heavy energy companies BP and Duke.

As previously noted, **Invenergy** did not report the sources of its power production or emissions with the Carbon Disclosure Project for 2020; it does, however, show on its website that the majority of its energy production capacity (17,276 MW) comes from wind power. The

amount of solar capacity (5,982 MW) is reportedly roughly equivalent to its natural gas-fired capacity (5,964 MW)^{ccxvi}.

Clearway also did not report the sources of its production and emissions to the Carbon Disclosure Project for 2020. The company's website, however, states that "The vast majority of generation assets owned by the Clearway enterprise are held by Clearway Energy, Inc. (CWEN). In 2020, 83% of the electricity we generated came from emission-free resources, giving CWEN one of the lowest carbon intensities in the U.S. power sector^{ccxvii}." The company also asserts that "The majority of CWEN's non-renewable assets consist of efficient peaking gas generation located in California, which is needed by the state's grid operator to complement renewable generation^{ccxviii}." The company website espouses a commitment that "by 2035, 90% of the electricity we generate will be carbon-free," but it is unclear what other forms carbon-emitting sources are currently in operation.

Brookfield Renewable reports a 100% renewable portfolio of hydropower, wind, solar, and storage electricity production; it can be assumed that this results in emissions-free power production^{ccxix}.

First Solar, Inc., as suggested by its name, provides PV solar power, exclusively. As such, it can be assumed that the electricity it provides customers is emissions-free. The company is a manufacturer of solar PV panels, as well; as such, it does report Scope I emissions which can be assumed to be generated in connection with manufacturing^{ccxx}. Assessing the emissions beyond direct provision of electricity is beyond the scope of this report.

Lightsource bp provides solar and storage through utility-scale solar farms, offering Power Purchase Agreements. As such, it can be assumed that the electricity generated through its solar PV portfolio is emissions-free.

bp is the parent company of Lightsource bp, with 50% ownership; as such, the following assessment focuses on the parent company. An international oil company reportedly aiming to transition to an integrated energy company (including renewables), data reported to the CDP indicates that in 2020, the company's gross global Scope I carbon emissions was 41,700,000 metric tons, which came primarily from oil and gas production. Bp also reported having generated 14,980,000 MWh of electricity, 4,980,000 MWh of which was derived from renewable sources (solar, wind, hydropower and biomass).

Notably, bp’s current leadership has been called “aggressive” in its targets and plans to divest from fossil fuels and invest in renewables, including incurring significant financial losses^{ccxxi}.

EDF Renewables reports a 100% renewable portfolio of wind, solar, and storage electricity production; it can be assumed that this results in emissions-free power production^{ccxxii}. EDF has entered into a joint venture with Shell New Energies US (Shell – primarily a fossil fuels company) on an offshore wind energy project in New York^{ccxxiii}.

Duke Energy Energy Sustainable Solutions and Duke Energy were both profiled in summary of AT&T and T-Mobile

VERIZON AND ITS CONTRACTOR’S RECORD ON ENERGY JUSTICE

Green America has not found any publicly available criteria from Verizon regarding energy equity and community impact considerations in its contractor selection process. When requested, the company has not provided such information. As a proxy for Verizon’s energy justice progress, we researched the energy justice records of the companies from which Verizon contracts renewable energy.

Clearway Energy Group specifically promotes residential community solar^{ccxxiv}, which generally necessitates consultation and partnership with local residents; however, the company maintains “conventional” energy production resources, and it is unclear whether stakeholder engagement and community consultation around siting is a focus. Clearway’s non-profit giving centers around the communities where the company works, including combating food insecurity, supporting education, and creating job training for veterans; these initiatives do not appear to be aimed at energy issues, specifically.

While its website boasts a commitment to “low-cost, accessible” renewable energy, its residential programs do not appear to specifically aim to reduce energy burdens for low-moderate income customers^{ccxxv}.

Clearway does promote workforce development and employment opportunities for a transition from fossil fuels^{ccxxvi}; for example, it states that the Black Rock Wind Farm in West Virginia is expected to create at least 200 union jobs, generating \$52 million in direct spending on local payroll and services^{ccxxvii}. The extent to which these opportunities are intentionally

aimed at those suffering the most energy injustice is unclear, however. Clearway did report an annual internship program that prepares high school students in Hawaii for careers in clean energy; with Hawaii’s colonial legacy, this program has the potential to address energy justice issues^{ccxxviii}. Clearway’s internal and Supplier Codes of Conduct, while not explicitly targeting diversity, require that decisions be made “without personal conflicts or bias”, that reports “will be taken seriously and investigated appropriately, and that those reporting will not face retaliation^{ccxxix}.”

Clearway’s internal diversity efforts are reportedly more robust. The company details the work of a newly formed Equity, Partnership and Inclusion Council, a formally adopted Board Diversity Policy, and Black Inclusion and Allies Inclusion Groups formed in 2020 (with Latinx, LGBTQIA+, Pan-Asian, Women, and Veterans inclusion groups to be formed in 2021). The company states that it advocates for racial and social justice, and hosts encounter-based events to foster dialogue among employees, as well as external expert-led sessions. The company evidently exceeds the average with respect to gender representation, with 39% of its office employees being women, and 32% of its executive officers being women. Diversity metrics, however, were reported without specificity among “people of color”; 28% of office employees were listed as “people of color”, as were 16% of executive officers. Clearway’s Board was composed of 9% women and 9% people of color, which led to a “mixed” performance assessment^{ccxxx}.

Brookfield Renewable has a stated commitment to stakeholder engagement on its website, including a commitment to trust-building and consideration of community impacts in decision-making^{ccxxxi}. Although it doesn’t elaborate, the company’s 2020 ESG report states, “We have a formal process to identify those local stakeholders who could be impacted by our operations^{ccxxxii}.” Like the other companies assessed, Brookfield highlights several community-service oriented projects and donations to support the people who live in the areas where the company works.

Although siting issues around renewable energy are less likely to create issues of environmental racism generally speaking, it is notable that Brookfield has come under scrutiny and criticism for practices around its hydropower plants. In 2021, for example, Maine environmental groups condemned Brookfield for “greenwashing” around a hydroelectric dam with impacts to endangered wild salmon^{ccxxxiii}, and reports surfaced stating that Brookfield’s negative impacts on local Brazilian fishing communities from hydroelectric damming^{ccxxxiv}. The company also received one of the lowest scores for human rights performance among renewables companies in 2021^{ccxxxv}.

Although Brookfield states that it provides “retail” renewable energy to customers, it does not appear to offer energy affordability assistance^{ccxxxvi}. The company also markets distributed energy resources (solar) for residents via its subsidiary, Luminace. The Luminace website

references reduced energy bills for generating power to sell to the grid via residential solar, but does not feature energy affordability or assistance programs for LMI customers^{ccxxxvii}.

Brookfield's supplier policy refers only to conflicts of interest, trading and ethics, and contains a strong statement concerning human rights violation prevention; nevertheless, the aforementioned news concerning Brookfield's score on human rights and failure to conduct due diligence around supply chain abuses belies statements in the ESG report^{ccxxxviii}.

A cursory glance at Brookfield's leadership page shows a stark lack of diversity^{ccxxxix}. Eight of the ten executives listed are male-presenting, and seven are white-presenting (the two ostensibly female executives do not have photos). The "commercial team" and the "finance and risk team" also appear to be exclusively male, and those with photos appear white-presenting. Nevertheless, the company's 2020 ESG report claims that 50% of the "executive management team" is female, though it is unclear which roles this refers to (as it is stated under Board diversity). The only demographic data presented around diversity concerned gender and age; the workforce was 24% female and 76% male^{ccxli}. The absence of any data regarding racial and ethnic diversity within the company fails the basic test of transparency.

First Solar, Inc.'s 2021 ESG report states that it conducts ongoing stakeholder consultations with communities in which it operates (as well as NGOs and the scientific community), though there is no clear process specified^{ccxlii}. Notably, however, First Solar was a partner, along with Duke, in the project facing aforementioned opposition to a Northern Florida solar farm in a historically Black agricultural community^{ccxliii}. A leader of the group opposing the solar farm stated, "It seemed like we were informed almost towards the end of whatever deal was almost done. So, it didn't seem like there was any meaningful engagement on a matter that concerned the wellbeing of our community^{ccxliv}."

The Northern Florida solar farm project referenced above suggests potential problems with siting for First Solar; nevertheless, the potential impacts from siting of solar farms cannot be reasonably compared with fossil-fuel power plants responsible for contamination of surrounding air, water and topsoil. The researchers were unable to find additional information on siting issues.

Similarly to other companies assessed that offered distributed energy resources (solar), apparently directly to residential customers, there was no mention on its website of affordability programs or payment assistance options for residential customers^{ccxlv}.

First Solar's supply chain disclosures pertained most heavily to issues of environmental and human rights (trafficking and forced labor) issues, similarly to other renewable companies sourcing materials from overseas^{ccxlv}. The company did, however, state that "[m]ore than \$10 million was awarded to women-, minority-, and disabled veteran-business enterprises

(WMDVBE) in 2020, based on actual spend^{ccxlvii}. The researchers were unable to find supplier diversity goals or commitments.

First Solar's workforce and management was 80% male and 19% female (1% nondisclosed), with 22% of new hires in 2020 reportedly female and 77% reportedly male^{ccxlviii}. Although the company wrote at length about D&I initiatives including Executive training, an Affirmative Action Policy to monitor ethnicity and gender diversity, and diversity networks, the company did not disclose metrics around workforce diversity around race or ethnicity. The company stated that 30% of its Board was female^{ccxlviii}.

Lightsource bp specifically denotes “cultural surveys” and stakeholder outreach around solar farm projects, suggesting that community consultation is part of the company's process^{ccxlix}. According to one report, the company was responsive to concerns from local communities^{cc}. It should be noted, however, that the opposition faced by Lightsource around that project was of the NIMBY variety, in what appears to be a rural, white community^{ccli}.

Relatedly, the company appears to concentrate its efforts for solar development in agricultural communities, targeting rural landowners for lease space^{cclii}. While recent research presents contrary data to the narrative that rural communities are heavily disproportionately white^{ccliii}, as of 2018, 98% of agricultural land ownership was in the hands of white Americans^{ccliv}. These statistics point to the likelihood that siting of solar farms by Lightsource bp is primarily situated in white communities, which are less likely to have existing environmental burdens.

In 2021, parent company bp filed to provide retail clean energy (through Lightsource bp) to residential customers in the US^{cclv}; as of May, 2022, it did not appear that the company was providing electricity directly to residential customers. As such, the company could not be assessed for performance relative to energy burdens. It should be noted, however, that Lightsource is a corporate sponsor of Grid Alternatives, which reportedly works to alleviate energy burdens for LMI households^{cclvi}.

Lightsource, like other renewable energy companies, expresses a commitment against human trafficking and slavery in the supply chain, as well as ethics standards applicable to its suppliers^{cclvii}. It does not, however, appear to track diverse supplier spending or have commitments to diversifying suppliers.

Lightsource's website states that “diversity is not a set of statistics” to the company; although a strong sentiment, it does not compensate for the fact that diversity metrics are unavailable^{cclviii}. Without transparency on actual demographics, a glance at the company's photos suggests a lack of racial diversity, at a minimum^{cclix}. The company's “leadership” page photos also suggest a relatively ethnically and racially homogenous group, and what appears to be nine male-presenting leaders and six female-presenting leaders^{cclx}. The company's DEI framework did identify a need to collect data^{ccxxi}.

Parent company bp's community page centers on philanthropic initiatives and community support programs, but contains no information relative to stakeholder consultation connected with siting of power plants or other industrial facilities it uses in connection with oil and gas production^{cclxii}. The company's 2020 strategic report on stakeholder engagement contained one reference to consultation with "communities" around ESG generally, but gave no indication that local communities are consulted concerning projects that would impact them directly^{cclxiii}. In its 2021 Sustainability Report, bp referenced consultations with "society" and noted a "speak up line," utilized in 2021 by communities hosting an existing refinery; however, it is unclear whether this extends to community consultation prior to siting^{cclxiv}.

bp's oil and gas production-heavy portfolio suggests that siting issues cause issues for energy justice. Notoriously, bp was responsible for the 2010 Deepwater Horizon oil spill in the Gulf of Mexico, which was widely recognized as an environmental justice and ecological catastrophe^{cclxv}. The company continues to operate oil platforms in the Gulf of Mexico, proximate to Louisiana and Eastern Texas and the communities within that region known to experience environmental injustice - New Orleans and Houston. bp has a global footprint of oil and gas production infrastructure, as well^{cclxvi}. As recently as 2017, prolonged flaring of benzene from a bp refinery caused health problems in Texas City, Texas^{cclxvii}, which is almost 30% Black^{cclxviii} and recognized as an environmentally overburdened city^{cclxix}. Although bp is working to transition toward more renewable energy in its portfolio, its existing operations create environmentally unjust siting issues.

As noted above, bp does not appear to provide electricity directly to residents, and could not be assessed for energy burdens consistent with analysis of other companies.

bp was somewhat transparent about its diverse supplier spending in its 2020 DEI report; the company stated 1.9% of its 3rd party spending was with diverse suppliers across minority, women, LGBTQ+ and veteran groups. The report did not delineate among these suppliers, however, which presents difficulty in assessing the extent to which the least represented groups did business with bp^{cclxx}. The company's target for diverse supplier metrics - 7% third-party spend by 2025 - is not particularly ambitious; notably, however, bp did launch a diversity growth initiative to proactively progress in this area^{cclxxi}.

bp's DEI internal initiatives were quite robust, including specific measures of accountability and various best practices, recognition of non-traditional aspects of diversity (including neurodiversity, age and non-binary gender), and demographics disaggregated by race and across levels of the organization. Globally, 39% of the company's employees were women, and 27% of senior leaders were women. Concerning race/ethnicity, however, the company tracked more closely with the energy industry as a whole, with 71% of the workforce being white, 8% Black, 9% Hispanic, 9% Asian, and 2% "other" racial categories^{cclxxii}. Senior leadership broke down to 73% white, 5% Black, 9% Hispanic, 9% Asian and 2% "other." Although the company's board representation was almost gender balanced (5 of 12 board directors were women), 11 of the board members were white and only one was Asian^{cclxxiii}.

EDF Renewables^{ccclxxiv} states on its website a commitment to DEI issues. On its website it states goals of having a diverse workforce and commits to open and transparent dialogue around all of its projects around the world^{ccclxxv}. And globally, the company reports making efforts on energy affordability for low-income communities^{ccclxxvi}. Globally the company also has a goal of 28% of women in management positions by 2023. EDF's disclosures around its US operations are not as transparent as its disclosures in Europe, making it difficult to assess the company's environmental justice progress in the US.

Duke Energy's energy justice profile was previously discussed in the section on AT&T, where significant concerns were raised.

CONCLUSION

Verizon has renewable energy purchase agreements with Invenergy, Clearway, Brookfield, First Solar, Inc., Lightsource bp, EDF Renewables, NextEra, Leeward Renewables, and Duke. Overall, the companies Verizon sources from engage in a lack of transparency around important energy justice markers. For example, Verizon's procurement of energy from Invenergy and Clearway, neither of which are particularly transparent around energy markers related to siting, stakeholder consultation or energy justice burdens, were found to be problematic. And even the companies that offer zero carbon emissions energy, including Brookfield and First Solar, experienced significant equity issues with siting. In general, the energy companies Verizon contracts with are ostensibly striving for progress around internal diversity, but reporting was somewhat vague and demographics tended to skew white and male. Overall, the companies Verizon sources from did not expressly iterate commitments to supporting entrepreneurship for XBE suppliers. While not as demonstrably egregious as Duke surrounding energy justice, these energy companies could not be considered leaders in a just energy transition.

THE NEED FOR ACTION ON RENEWABLE ENERGY AND ENERGY JUSTICE

As the impacts of climate change increase, and as disinvested communities continue to bear the burden of our reliance on fossil fuels, the telecom sector needs to do more to advance both

renewable energy and energy justice. All three telecoms need to source 100% renewable energy that puts new wind and solar on the grid and need to ensure that these renewable energy purchases further energy justice.

Telecoms should adopt criteria to advance environmental justice into their RFPs for renewable energy. In consultation with energy justice advocates, Green America created a [robust set of criteria for RFPs](#) that incorporates communities and workers in the growing renewable energy economy. If telecoms used their significant market power and adopted these criteria into their RFPs, it would signal to energy companies that in order to remain competitive, they need to make progress on inequity and environmental impacts, and work to create a socially just, clean energy transition in energy procurement operations.

Customers of each of the telecoms can play a role in encouraging each company to contract for 100% of its energy from new solar and wind power sources, while also ensuring that communities and workers most harmed by fossil fuels are fully benefiting from the transition to renewables. Individual consumers can take action through Green America's Hang Up on Fossil Fuels campaign located at <https://www.greenamerica.org/hang-up-on-fossil-fuels>.

References

ⁱ <https://about.att.com/story/2022/q4-2021-results.html>,
<https://www.verizon.com/about/news/verizon-ends-2021-strong-wireless-service->

[revenue-and-eps-growth](#), and <https://www.macrotrends.net/stocks/charts/TMUS/t-mobile-us/revenue#:~:text=T%2DMobile%20US%20revenue%20for%20the%20twelve%20months%20ending%20September,a%2017.14%25%20increase%20from%202020>.

ii <https://www.greenamerica.org/report-clean-energy-calling>

iii <https://www.spglobal.com/esg/insights/problematic-corporate-purchases-of-clean-energy-credits-threaten-net-zero-goals>

iv After data collection for this report closed on November 1, 2022, Verizon made an additional announcement of new clean energy contracts totaling up to 410 megawatts (MW) of renewable energy capacity, making it more likely Verizon will reach its goal of 50% renewable energy at some point: [Verizon touts green credentials as it signs yet more renewable energy deals | Total Telecom](#)

v [IPCC AR6 WGII SummaryForPolicymakers.pdf](#)

vi <https://www.americanprogress.org/article/look-rhetorical-evolutions-congress-former-climate-deniers/>

vii <https://www.ipcc.ch/sr15/> and <https://www.ipcc.ch/assessment-report/ar6/>

viii <https://www.un.org/management/news/un-secretariat-adopts-climate-action-plan>

ix <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions>

x <https://www.utilitydive.com/news/democrats-clean-electricity-plan-to-require-85-gw-of-renewable-energy-addi/607338/#:~:text=The%20U.S.%20must%20install%2085,by%20S%26P%20Global%20Market%20Intelligence>.

xi <https://www.seia.org/solar-decade#:~:text=SEIA%2C%20along%20with%20our%20members,build%20a%20strong%20Solar%2B%20economy>.

xii <https://www.wri.org/insights/renewable-energy-2020-record-us>

xiii <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement#:~:text=lts%20goal%20is%20to%20limit,neutral%20world%20by%20mid%2Dcentury>.

xiv <https://www.rystadenergy.com/news/inflation-reduction-act-will-attract-an-extra-270-billion-in-us-wind-and-solar-in>

xv <https://www.forbes.com/sites/energyinnovation/2022/08/23/inflation-reduction-act-benefits-clean-energy-tax-credits-could-double-deployment/?sh=29d8e1616727>

xvi <https://e2.org/reports/clean-jobs-better-jobs/>

^{xvii} <https://cleanpower.org/resources/cleanenergylaborsupply/#:~:text=The%20clean%20energy%20workforce%20is,union%20coverage%20rate%20of%207.2%25>.

^{xviii} <https://e2.org/reports/clean-jobs-america-2021/>

^{xix} <https://www.mckinsey.com/industries/technology-media-and-telecommunications/our-insights/the-case-for-committing-to-greener-telecom-networks>

^{xx} <https://www.t-mobile.com/news/press/tmobile-commits-renewable-energy>

^{xxi} Although the disproportionate burden of climate impacts on environmental justice communities is a significant energy justice issue, energy procurement is less likely to be an effective mechanism to directly rectify this inequity. For this reason, we have not included markers related to climate resilience in this section.

^{xxii} [ACEEE Report](#)

^{xxiii} [The NIMBY Threat to Renewable Energy | Sierra Club](#)

^{xxiv} [Why Ambitious Tree Planting and Carbon Offset Projects Are Failing – Mother Jones](#)

^{xxv} AT&T Announcement: Turbines on the Rise: Introducing “AT&T Windstrong”, 2018. https://about.att.com/newsroom/2018/att_windstrong.html

^{xxvi} AT&T Announcement: AT&T Announces Renewable Energy Purchases will Surpass 1.5 Gigawatts of Clean Energy at Climate Week NYC 2019. https://about.att.com/story/2019/climate_week_2019.html

^{xxvii} AT&T Announcement: Record-Setting Solar Energy Purchase Brings AT&T Closer to Carbon Neutral Future, 2020. <https://about.att.com/newsroom/2020/invenenergy.html>

^{xxviii} AT&T Announcement: AT&T Expands Commitment to Sourcing Renewable Energy with New Solar Power Purchases from Vitol, 2022. <https://about.att.com/story/2022/commitment-to-sourcing-renewable-energy.html>

^{xxix} In a virtual PPA, the buyer enters into a contract where is does not receive or take legal title to the energy produced.

^{xxx} [at&t \(Company\) | Net Zero Tracker](#)

^{xxxi} https://about.att.com/story/2020/att_carbon_neutral.html

^{xxxii}

https://www.americanbar.org/groups/environment_energy_resources/publications/fr/the-polluter-pays/

^{xxxiii} <https://about.att.com/csr/home/environment/reducing-emissions.html>

^{xxxiv} AT&T's most recent CDP Climate report is from 2022 and contains data regarding 2021 energy consumption and climate emissions.

xxxv [Our Projects | Invenergy](#)

xxxvi [Final Greenwashing Report \(1.22.2021\).pdf \(sierraclub.org\)](#)

xxxvii <https://www.greenamerica.org/nuclear-energy-not-climate-solution>

xxxviii [Final Greenwashing Report \(1.22.2021\).pdf \(sierraclub.org\)](#)

xxxix [ESG-2021-Report-digital-1.pdf \(netdna-ssl.com\)](#) at page 8.

xl [Invenergy-2020-Impact-Report.pdf](#)

xli [Anti Groups Challenge Permit for Invenergy Gas-Fired Plant in SWPA | Marcellus Drilling News](#)

xlii [Celebrating the Women behind the Samson Solar Energy Center | Invenergy](#)

xliii <https://medium.com/cultured-network/how-using-the-term-people-of-color-masks-anti-black-systemic-racism-f595da1a0eca>

xliv After data collection closed for this report on March 1, 2022, Invenergy issued a 2021 Impact Report with several updated metrics: <https://invenergyimpact2021.com/>.

xlv [Watchdog Coalition To Hold Duke Energy Accountable for Environmental and Economic Injustice | Environmental Working Group \(ewg.org\)](#)

xlvi [Energy Justice NC – Ending the Duke Monopoly](#)

xlvii [ENEC698-Coal-Ash-Relocation-pits-Final-Paper.pdf \(unc.edu\)](#)

xlviii [Workforce Development Grants - Duke Energy Foundation \(duke-energy.com\)](#)

xlix [Diversity of Our Workforce and Leadership \(duke-energy.com\)](#)

l [Leadership Commitment & Accountability \(duke-energy.com\)](#)

li [Workforce Performance Metrics | Duke Energy 2020 Sustainability Report \(duke-energy.com\)](#)

lii : [NextEra Energy, Inc. | Communities](#)

liii [NextEra Energy Partners, LP announces closing of the sale of Monument gas pipeline \(prnewswire.com\)](#)

liiv [NextEra Energy Map](#)

liv [This Is The Year For Florida To Get Utilities' Energy-saving Programs Back On Track | ACEEE](#)

lvi [CodeOfBusinessConductandEthics2020.pdf \(nexteraenergy.com\)](#)

lvii [ESG-2021-Report-digital-1.pdf \(netdna-ssl.com\)](#) at 10.

lviii [Contact us - Vitol](#)

lix [ESG-2021-Report-digital-1.pdf \(netdna-ssl.com\)](#) at 11.

lx [Oil trader Vitol silent about its activities in high-risk Nigeria - SOMO](#)

lxi [\(PDF\) A Portraiture of Environmental Justice in Communities of Concern: Protecting Africa While Achieving Sustainable Development \(researchgate.net\)](#)

lxii [ESG-2021-Report-digital-1.pdf \(netdna-ssl.com\)](#) at 17.

lxiii [Attorney General Bonta Issues Statement as Court Decision Moves Case Against Multinational Gas Firms Forward | State of California - Department of Justice - Office of the Attorney General](#)

lxiv [Vitol-ES-Framework.pdf \(netdna-ssl.com\)](#)

lxv [Our people, our culture - Vitol](#)

lxvi [ESG-2021-Report-digital-1.pdf \(netdna-ssl.com\)](#) at 15.

lxvii [ESG-2021-Report-digital-1.pdf \(netdna-ssl.com\)](#)

lxviii [Meet our team - Vitol](#)

lxix [\(27\) Russell Hardy | LinkedIn](#)

lxx <https://www.t-mobile.com/news/community/re100-achievement>

lxxi <https://www.spglobal.com/esg/insights/problematic-corporate-purchases-of-clean-energy-credits-threaten-net-zero-goals>

lxxii T-Mobile Climate Change 2022 Report to CDP. Accessed on CDP website:
<https://www.cdp.net/en>

lxxiii T-mobile.com. Accessed in November 2022.

lxxiv <https://www.t-mobile.com/news/community/re100-achievement>

lxxv <https://www.t-mobile.com/responsibility/sustainability/climate-action>

lxxvi <https://www.climatecouncil.org.au/what-is-the-difference-between-absolute-emissions-and-emissions-intensity/>

lxxvii T-Mobile Climate Change 2022 Report to CDP. Accessed on CDP website:
<https://www.cdp.net/en>

lxxviii **Note: this comparison is to those companies with a mixed portfolio; 100% renewable companies outpace Avangrid.**

lxxix Absolute Scope 1 Emissions (mtCO₂e), [Home - CDP](#)

^{lxxx} [2020+Sustainability+Report+April+19.pdf \(avangrid.com\)](#) Note: after data collection for this report was completed on March 1, 2022, Avangrid issued a 2021 Sustainability Report (available on its website as of June 6, 2022) and completed a 2022 Climate Report that is available at CDP. 4216e7cc-f2e2-d283-0639-8b59d0ba9a93 (avangrid.com)

^{lxxxi} [Home - CDP](#)

^{lxxxii} [United States | Enel Green Power](#)

^{lxxxiii} [Enel Group - enel.com.co](#)

^{lxxxiv} [Who we are | Enel Green Power](#) Enel Power reports that as of September 2022, the renewable portfolio now includes 7.65GW solar, 14.64 GW wind, 28.36 GW hydroelectric, and .92 GW geothermal.

^{lxxxv} [Results presentation \(enel.com\)](#) and personal communication with Enel.

^{lxxxvi} [PSE | Sustainability reporting templates](#), see October 2021 ESG report, page 5.

^{lxxxvii} 2020 Greenhouse Inventory - Puget Sound Energy; only available as pdf.

^{lxxxviii} [Company launches Duke Energy Sustainable Solutions – offering renewable energy, resiliency solutions for commercial customers nationwide | Press & News - Duke Energy Sustainable Solutions \(duke-energy.com\)](#)

^{lxxxix} [About Duke Energy Sustainable Solutions | Duke Energy Sustainable Solutions \(duke-energy.com\)](#)

^{xc} [Net Zero Transition | Southern Company](#) Since data was collected for this report, the percentage of renewable energy has risen to 15%

^{xci} Southern Company reporting to CDP: <https://www.cdp.net/en>

^{xcii} [Our Technologies \(southernpowercompany.com\)](#)

^{xciii} [Natural Gas \(southernpowercompany.com\)](#)

^{xciv} In a 1/17/23 communication to Green America, Dominion notes that these statistics are now 7% renewable energy in its portfolio with 5,882,665 MWh from solar, 944,967 MWh of hydropower, 49,771 MWh from wind and 1,054,927 MWh from biomass (which Green America and environmental allies do not consider to be a renewable energy source). The company's enterprise-wide Scope 1 CO₂e emissions in 2021 were approximately 34.4M MT, of which 31.6M MT is attributed to power generation.

^{xcv} Dominion reporting to CDP: <https://www.cdp.net/en>

^{xcvi} [Origis Energy Announces 61 MW Solar Project in Texas in Support of DSM RE100 Goals - Origis Energy](#)

^{xcvii} [Our Portfolio - Leeward Energy](#)

-
- xcviii [Our Company - Leeward Energy](#)
- xcix [Hydrogen: Future of Clean Energy or a False Solution? | Sierra Club](#)
- c [Hydrogen: Future of Clean Energy or a False Solution? | Sierra Club](#)
- ci [Apex Clean Energy and Plug Power Partner on Largest Green Hydrogen Power Purchase Agreement in the United States | Apex Clean Energy](#)
- cii T-Mobile responses to Green America survey.
- ciii https://www.t-mobile.com/content/dam/t-mobile/ntm/specific-use/annual-report/TMobile_CSR21_16822_tagged.pdf?icid=MGPO_TMO_U_TMOCPSOCRS_UT9J1M6_WBTZHIU3330985 at page 8.
- civ T-Mobile responses to Green America survey.
- cv [Avangrid says it'll advance Maine power line plan | newscentermaine.com](#)
- cvi [Maine voters reject Avangrid's \\$1B transmission project | Utility Dive](#)
- cvii [AVANGRID's Excelsior Connect project continues to gain community support | Utility Dive](#)
- cviii [PNM, Avangrid accept merger modifications \(yahoo.com\)](#)
- cix [2020+Sustainability+Report+April+19.pdf \(avangrid.com\)](#)
- cx [2020+Sustainability+Report+April+19.pdf \(avangrid.com\)](#)
- cxii [2020+Sustainability+Report+April+19.pdf \(avangrid.com\)](#)
- cxiii [35.+AGR+Supplier+Code+of+Ethics+\(as+of+October+18,+2018\).pdf \(avangrid.com\)](#)
- cxiiii [2020+Sustainability+Report+April+19.pdf \(avangrid.com\)](#)
- cxv [Cheniere to sell U.S. LNG to France's Engie \(globalbankingandfinance.com\)](#)
- cxvi [In Corpus Christi, a community cornered | The Washington Post](#)
- cxvii [2021 Sustainability book.pdf \(engie.com\)](#)
- cxviii [2021 Sustainability book.pdf \(engie.com\)](#)
- cxix [Engie North America \(engie-na.com\)](#)
- cxix [Engie North America \(engie-na.com\)](#)
- cxx [Engie North America \(engie-na.com\)](#)
- cxxi [Creating benefits for local communities | Enel Green Power](#)
- cxxii [Creating shared value with renewables | Enel Green Power](#)

cxxiii In a 1/17/23 email communication to Green America, Enel Power notes that in 2022 Enel became the first clean energy company to join the National Society of Black Engineers (NSBE) Board of Corporate Affiliates (BCA) to promote workforce development, STEM education and careers in clean energy.

cxxiv [Landowners | Enel Green Power](#)

cxxv [A Just Transition, so that nobody is left behind | Enel Green Power](#)

cxxvi [Supporting the growth of local small business owners | Enel Green Power](#)

cxxvii [Procurement Manifesto \(enel.com\)](#)

cxxviii [Diversity and inclusion | Enel Group](#)

cxxix [The Management Team | Enel Green Power](#)

cxxx [Letter to stakeholders | Enel Group](#)

cxxxi [sustainability-report 2021.pdf \(enel.com\)](#) at 170.

cxxxii [Italy's biggest coal plant to swap one fossil fuel for another – ClientEarth reaction | ClientEarth](#)

cxxxiii [Affordable and Clean Energy in Latin America | Enel Group](#)

cxxxiv [sustainability-report 2021.pdf \(enel.com\)](#) at 194.

cxxxv [WeBUY, the new Enel Procurement Suite, is available](#)

cxxxvi Communication from Enel on 1/17/23, and for a description of the company's K Factor: <https://www.enelgreenpower.com/media/news/2020/03/partner-selection-sustainability>

cxxxvii In a 1/17/23 communication with Green America, Enel notes these numbers have been slightly updated in 2022 for the companies 2023-2025 strategic plan: [Investments, the news in evidence | Enel Group](#)

cxxxviii [sustainability-report 2021.pdf \(enel.com\)](#) beginning at 149.

cxxxix [PSE-2023-NG-IRP-Work-Plan.pdf \(windows.net\)](#)

cxl [PSE | CEIP Process](#)

cxli [PSE | Community Engagement](#)

cxlii [PSE | King County](#)

cxliii [Puget Sound Energy to be Tried in Court Over Tacoma LNG Facility - Washington Environmental Council \(wecprotects.org\)](#)

cxliv [Indigenous leaders and kayaktivists protest in front of the home of Puget Sound Energy CEO | Bellevue Reporter](#)

cxlv [Puyallup Tribe, Community Organizations Challenge Dangerous Tacoma LNG Facility | Earthjustice](#)

cxlvi [PSE | Sustainability reporting templates](#), see Oct 2021 ESG report, page 5.

cxlvii [PSE | Assistance programs](#)

cxlviii [PSE | Sustainability reporting templates](#)

cxlix [Our Culture \(pse.com\)](#)

cl [PSE | Sustainability reporting templates](#), see Oct 2021 ESG report, page 31.

cli [Careers - Duke Energy \(duke-energy.com\)](#)

clii [Environmental Justice | Southern Company](#)

cliii [Sierra Club Launches Major Ad Campaign Exposing the “Dirty Truth” Behind Southern Company’s Climate Pledge | Sierra Club](#)

cliv [Southern Will Close More than Half of Coal Fleet \(powermag.com\)](#)

clv [GE-Led Carbon Capture Project at Southern Company Site Gets DOE Funding \(powermag.com\)](#)

clvi [Environmental Justice | Southern Company](#)

clvii [Affordability and Low-Income Assistance | Southern Company](#)

clviii [Project Share – Just another WordPress site \(projectshareinfo.com\)](#)

clix [Save Money – Home Energy Efficiency Programs \(georgiapower.com\)](#)

clx [COVID-19 | Southern Company](#)

clxi In a 1/17/23 communication from Southern Company, the company notes that it will publish a new report on its DEI efforts in the first quarter of 2023 and will release a racial equity audit later in 2023.

clxii [Diversity, Equity and Inclusion | Southern Company](#)

clxiiclxiii [2021 Transformation Report: Moving to Equity - Flipbook - Page 17 \(paperturn-view.com\)](#) In a 1/17/23 communication from Southern Company, it notes that two of Southern Power’s senior leaders are women: Effective November 1, 2022, Robin Boren was appointed President of Southern Power. In addition, Dana Claburn serves as Senior Vice President and Senior Production Officer.

clxiv [Diversity Programs | Southern Company](#)

clxv [Moving to Equity | Southern Company](#)

clxvi [Community Involvement | Southern Power \(southernpowercompany.com\)](#)

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- clxvii [FAQs \(southernpowercompany.com\)](https://www.southernpowercompany.com)
- clxviii [Who We Are | Southern Power \(southernpowercompany.com\)](https://www.southernpowercompany.com)
- clxix [Our Leadership | Southern Power \(southernpowercompany.com\)](https://www.southernpowercompany.com)
- clxx <https://www.wsj.com/articles/utility-company-southern-names-chris-womack-president-ceo-11672941579>
- clxxi [Public Engagement Process Map \(azureedge.net\)](https://www.azureedge.net)
- clxxii <https://www.dominionenergy.com/-/media/pdfs/global/company/esg/environmental-justice-policy.pdf>
- clxxiii 1/17/23 Communication from Dominion Energy
- clxxiv [Environmental Justice | Dominion Energy](https://www.dominionenergy.com) and [Environmental Justice & Tribal Engagement \(dominionenergy.com\)](https://www.dominionenergy.com)
- clxxv 1/17/23 Communication from Dominion Energy
- clxxvi [A historically Black town stood in the way of a pipeline – so developers claimed it was mostly white | Virginia | The Guardian](https://www.theguardian.com)
- clxxvii [A historically Black town stood in the way of a pipeline – so developers claimed it was mostly white | Virginia | The Guardian](https://www.theguardian.com)
- clxxviii [Environmental Racism and Dominion Energy - Getting More on the Ground](https://www.nrdc.org)
- clxxix [Three Lessons Learned from the Axed Atlantic Coast Pipeline | NRDC](https://www.nrdc.org)
- clxxx [Energy Assistance \(azureedge.net\)](https://www.azureedge.net)
- clxxxi [Need Assistance with Energy Costs - Dominion Energy January 2022 \(azureedge.net\). As of 2022, Dominion Energy states that its EnergyShare program has assisted more than 968,000 individuals in Virginia, Ohio, and the Carolinas \(communication from Dominion Energy on 1/17/23\).](https://www.azureedge.net)
- clxxxii [Supplier Diversity \(dominionenergy.com\)](https://www.dominionenergy.com)
- clxxxiii [Dominion Energy Diversity, Equity, & Inclusion Report](https://www.dominionenergy.com)
- clxxxiv [Dominion Energy Diversity, Equity, & Inclusion Report](https://www.dominionenergy.com)
- clxxxv [Business principles guiding the Origis Energy solar team](https://www.origisenergy.com)
- clxxxvi [Commissioners deny Sand Bluff solar project application outside Archer \(gainesville.com\)](https://www.gainesville.com)
- clxxxvii Email from Origis dated 1/16/23.
- clxxxviii [Fla. solar plans stoke fight over 'environmental racism' - E&E News \(eenews.net\)](https://www.eenews.net)

clxxxix [An African American Community in Florida Blocked Two Proposed Solar Farms. Then the Florida Legislature Stepped In. - Inside Climate News](#)

cx^c [Email communication from Origis 1/16/23.](#)

cx^{ci} [Email communication from Origis, 1/16/23.](#)

cx^{cii} [The solar leadership team at Origis Energy Origis noted in its 1/16/23 communication to Green America that the extended leadership team includes greater diversity, which will be reflected in updates to this web page.](#)

cx^{ciii} [Our Communities - Leeward Energy](#)

cx^{civ} [Our Communities - Leeward Energy](#)

cx^{cv} [Home - Leeward Energy](#)

cx^{cvi} [Our Company - Leeward Energy](#)

cx^{cvi} [Careers - Leeward Energy](#)

cx^{cvi} [Our Company - Leeward Energy](#)

cx^{cix} [Our Company - Leeward Energy](#)

cc [Building Community in Michigan | Apex Clean Energy](#)

cci [Wind turbines in Crawford County, Ohio: Honey Creek Wind FAQ \(bucyrustelegraphforum.com\)](#)

ccii [Building Community in Michigan | Apex Clean Energy](#)

cciii [Apex Clean Energy | Leading U.S. Renewable Energy Company](#)

cciv [Engaging Community Businesses to Bring Wind Projects to Life | Apex Clean Energy](#)

ccv [Empowering Women's Leadership in Clean Energy | Apex Clean Energy](#)

ccvi [After data collection for this report closed on November 1, 2022, Verizon made an additional announcement of new clean energy contracts totaling up to 410 megawatts \(MW\) of renewable energy capacity, making it more likely Verizon will reach its goal of 50% renewable energy at some point: Verizon touts green credentials as it signs yet more renewable energy deals | Total Telecom](#)

ccvii <https://verizon.turtl.co/story/2022-green-bond-impact-report/page/2/2>

ccviii <https://www.verizon.com/about/sites/default/files/Verizon-2021-ESG-Report.pdf>

ccix <https://www.verizon.com/about/news/verizon-environmental-initiatives-reduce-global-climate-impact>

ccx <https://www.verizon.com/about/sites/default/files/Verizon-2021-ESG-Report.pdf>

-
- ccxi <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7369595/>
- ccxii Communication with CDP staff on October 10, 2022
- ccxiii Verizon Climate Change 2021 Report to CDP. Accessed on CDP website:
<https://www.cdp.net/en>
- ccxiv <https://www.verizon.com/about/investors/corporate-responsibility-report-archive>
- ccxv Verizon Climate Change 2021 Report to CDP. Accessed on CDP website:
<https://www.cdp.net/en>
- ccxvi [Our Projects | Invenergy](#)
- ccxvii [2020-Clearway-ESG-Report.pdf \(netdna-ssl.com\)](#) at page 42
- ccxviii [2020-Clearway-ESG-Report.pdf \(netdna-ssl.com\)](#)
- ccxix [Brookfield Renewable U.S.: Renewable Power Solutions \(brookfieldrenewableus.com\)](#)
- ccxx [FirstSolar Sustainability-Report 2021.ashx](#), at page 63.
- ccxxi [Special Report: BP gambles big on fast transition from oil to renewables | Reuters](#)
- ccxxii <https://www.edf-re.com/>
- ccxxiii <https://www.edf-re.com/press-release/edf-renewables-joint-venture-atlantic-shores-offshore-wind-wins-lease-in-new-york-bight-auction/>
- ccxxiv [Residential Community Solar - Clearway Energy Group](#)
- ccxxv [Residential Community Solar - Clearway Energy Group](#)
- ccxxvi [Charting the Path to 100% Clean Energy - Clearway Energy Group](#)
- ccxxvii [ESG at Clearway - Clearway Energy Group](#)
- ccxxviii [European Contact & Colonization - Hawai'i \(U.S. National Park Service\) \(nps.gov\)](#)
- ccxxix [ESG at Clearway - Clearway Energy Group](#)
- ccxxx [ESG at Clearway - Clearway Energy Group](#)
- ccxxxi [Community Commitment: Our Commitment To Your Community \(brookfieldrenewableus.com\)](#)
- ccxxxii [bep-2020-esg-report.pdf \(brookfield.com\)](#), page 39.
- ccxxxiii [Environmental Groups Denounce Brookfield for "Greenwashing" \(nrcm.org\)](#)
- ccxxxiv [Organized Crime and Corruption Reporting Project - OCCRP](#)

ccxxxv [BlackRock and Brookfield among worst performers in human rights benchmark for renewables giants | Responsible Investor \(responsible-investor.com\)](#)

ccxxxvi [Retail Power: Learn About Our Renewable Energy Retail Products \(brookfieldrenewableus.com\)](#)

ccxxxvii [Community Solar - Luminace](#)

ccxxxviii [bep-2020-esg-report.pdf \(brookfield.com\)](#), page 57.

ccxxxix [About Us: Learn About Brookfield Renewable U.S. \(brookfieldrenewableus.com\)](#)

ccxl [bep-2020-esg-report.pdf \(brookfield.com\)](#)

ccxli [FirstSolar Sustainability-Report 2021.ashx](#), page 62.

ccxlii [An African American Community in Florida Blocked Two Proposed Solar Farms. Then the Florida Legislature Stepped In. - Inside Climate News](#)

ccxliii [An African American Community in Florida Blocked Two Proposed Solar Farms. Then the Florida Legislature Stepped In. - Inside Climate News](#)

ccxliv [Distributed Generation | First Solar](#)

ccxlv [FirstSolar Sustainability-Report 2021.ashx](#) beginning at page 31.

ccxlvi [FirstSolar Sustainability-Report 2021.ashx](#) at 32.

ccxlvii [FirstSolar Sustainability-Report 2021.ashx](#) at 64.

ccxlviii [FirstSolar Sustainability-Report 2021.ashx](#) beginning at page 39.

ccxlix [Utility-Scale Solar Development Capabilities - Lightsource bp USA](#)

cccl [LightSource BP addressing concerns of residents with changes in final permitting layout | | hometownstations.com](#)

cccli [Opposition speaks up as Lightsource bp promotes solar project - The Lima News \(limaohio.com\)](#)

ccclii [Solar Farms for Landowners | USA | Lightsource bp](#)

cccliii [Mapping rural America's diversity and demographic change \(brookings.edu\)](#)

cccliv [Racial, ethnic and gender inequities in farmland ownership and farming in the U.S. | SpringerLink](#)

ccclv [BP applies to set up U.S. retail power business: filing | Reuters](#)

ccclvi [Economic Development | USA | Lightsource bp](#)

-
- cclvii [Modern-Slavery-Act-Statement 2020 Board-Approved-31Mar2021 D6.pdf](#)
- cclviii [Diversity and Inclusive Culture | Lightsource bp careers](#)
- cclix [Diversity and Inclusive Culture | Lightsource bp careers](#)
- cclx [Leadership - About Us | USA | Lightsource bp](#)
- cclxi [DEI-Framework.pdf](#)
- cclxii [Community | Home \(bp.com\)](#)
- cclxiii [bp-ar-2020-section-172-statement.pdf](#)
- cclxiv [Sustainability report 2021 \(bp.com\)](#) at 55.
- cclxv [Environmental Justice and the BP Deepwater Horizon Oil Spill \(umn.edu\)](#)
- cclxvi [Production & operations | What we do | Home \(bp.com\)](#)
- cclxvii [Adverse Health Complaints of Adults Exposed to Benzene After a Flaring Disaster at the BP Refinery Facility in Texas City, Texas | Disaster Medicine and Public Health Preparedness | Cambridge Core](#)
- cclxviii [Texas City, Texas Population 2022 \(Demographics, Maps, Graphs\) \(worldpopulationreview.com\)](#)
- cclxix [Environmental Justice | Sierra Club](#)
- cclxx [Diversity, equity and inclusion report 2020 \(bp.com\)](#)
- cclxxi [Diversity, equity and inclusion report 2020 \(bp.com\)](#) at 11.
- cclxxii [Diversity, equity and inclusion report 2020 \(bp.com\)](#) at 29.
- cclxxiii [Diversity, equity and inclusion report 2020 \(bp.com\)](#) at 30.
- cclxxiv Silleck Consulting Services, LLC was engaged to conduct research and writing services on this report, but did not participate in the research, writing, or editing on sections pertaining to EDF Renewables due to a potential or perceived conflict of interest.
- cclxxv [Core Values of EDF Renewables in Innovative Renewable Energy \(edf-re.com\)](#)
- cclxxvi [Corporate Social Responsibility from EDF Renewables | CSR of EDFR \(edf-re.com\)](#)