

IMPACT REPORT 2023

Greenbacker Renewable Energy Company



Greenbacker™



TABLE OF CONTENTS

01

Introduction

03 A message from leadership

02

Greenbacker and our Impact

05 What we value

06 Sustainability within our operations

07 Integrity across the industry

08 Corporate social responsibility

09 DEI at Greenbacker

10 DEI goals, progress, and data

03

Greenbacker Strategies

12 Greenbacker by the numbers

15 GREC I Highlights

16 GREC II Highlights

17 Greenbacker Development Opportunities

18 GDEV portfolio at a glance

19 Greenbacker Sustainable Real Estate

20 Our opportunity

21 ESG across the funds

22 Our Impact beyond the numbers

04

Case studies

24 Solar panel recycling

25 Community solar

26 Contributions beyond clean energy

27 Minimizing impact on the ecosystem

28 Pollinator planting

05

Closing words

30 Thank you

A MESSAGE FROM LEADERSHIP

This past year was both a period of growth for Greenbacker Renewable Energy Company LLC (“Greenbacker”) and an opportunity to hone the impact we generate. We expanded our focus to include a new area of the energy transition, we forged new partnerships to support responsible environmental stewardship, we reaffirmed our commitment to education, and we enhanced our support for the clean energy workforce.

During the year, Greenbacker’s project fleet added 395 MW of clean power production and storage capacity. Our projects generated over \$9.9 million in property taxes for local and state jurisdictions—tax revenue that communities can use to fund public services, critical infrastructure projects, and education for thousands of children. Our business activities supported an additional 500+ green energy jobs. We completed construction on our largest operational project to date, the 240 MWdc / 200 MWac Appaloosa solar project in Utah, which officially entered commercial operation shortly after the new year. Perhaps the most exciting expansion from the year has been the launch of Greenbacker Sustainable Real Estate (GSR), a strategy dedicated to opportunities that facilitate the decarbonization of both the built environment and transportation—spaces that produce roughly two-thirds of global greenhouse gas emissions.¹

As part of our holistic approach to sustainability investing, GSR aims to acquire undervalued real estate that has access to the grid and can host distributed generation, storage, and EV charging infrastructure.

Amid this significant growth, we also refined our corporate social responsibility (CSR) efforts to focus on the education and development of our workforce. We’ve partnered with Solar Energy International (SEI) to support the development of a first-of-its-kind technical training program for cultivating future talent in the renewable energy field. We expect this partnership to enable a significant impact on the future energy transition workforce, both at Greenbacker and across the energy transition industry.

We remain steadfast in our commitment to clean energy as the most effective and readily applicable solution for reaching global net zero energy goals. 2023 reporting from BloombergNEF has highlighted both how far we’ve come and how far we have yet to go toward global decarbonization goals. They found that total spending surged 17% last year to \$1.8 trillion, including investments to install renewable energy, buy electric vehicles, build hydrogen production systems, and deploy other energy transition technologies.²

Notably, at the 28th annual UN climate meeting, COP28 leaders from 200 countries announced a landmark agreement to transition away from fossil fuels “in a just, orderly and equitable manner, accelerating action in this critical decade to achieve net zero by 2050.”³

The road ahead of us may be long, but we are dedicated to continued contribution to the unified, global effort toward a successful energy transition.

To our shareholders, our employees, and our project partners: thank you for joining us on this journey and for your continued trust in our mission to empower a sustainable world.

¹“Why The Built Environment?” *Architecture 2030*. 2023.

²“Global Clean Energy Investment Jumps 17%, Hits \$1.8 Trillion in 2023.” *BloombergNEF*. January 30, 2024.

³“Conference of the Parties serving as the meeting of the Parties to the Paris Agreement Fifth session, Outcome of the first global stockade,” *United Nations Framework Convention on Climate Change*, December 13, 2023.

Certain statements made herein reflect the subjective views and opinions of Greenbacker and its personnel. Such statements cannot be independently verified and are subject to change.



SINCERELY,
Charles Wheeler

CEO, Greenbacker Renewable Energy Company
President, Greenbacker Capital Management

GREENBACKER AND OUR IMPACT

- 05 What we value
- 06 Sustainability within our operations
- 07 Integrity across the industry
- 08 Corporate social responsibility
- 09 DEI at Greenbacker
- 10 DEI goals, progress, and data



WHAT WE VALUE

AN OVERVIEW

Greenbacker is a leader in green energy investment.

We're an independent power producer and investment manager with strategies that connect investors seeking stable returns with climate-focused investments and the income-producing renewables assets that we own and operate, expanding clean energy access to communities around the country.

OUR MISSION

Empowering a sustainable world by connecting individuals and institutions with investments in clean energy.

OUR VISION

Our vision as long-term owner-operators is to stay ahead, anticipate new opportunities, offer adaptable investment solutions, and build durable partnerships to create the future of energy.

ENVIRONMENTAL, SOCIAL & GOVERNANCE (ESG), IMPACT, AND OUR FIDUCIARY DUTY

At Greenbacker, we view both ESG and Impact as complementary elements of our business.

We use ESG as a framework enabling us to identify and manage material risks and opportunities that may affect the performance of our investments and business. By identifying these risks, we believe we are better equipped to manage them, improve our overall performance, and fulfill our fiduciary duties.

Impact is the social and environmental value we create through our investments and business practices.

Incorporating ESG and Impact considerations in our decision-making process helps us attain improved outcomes for shareholders and stakeholders, while providing a holistic view of our impact on society and the environment.



OUR BUSINESS MODEL

Greenbacker is a leader in the transition to a clean energy economy. As an independent power producer and renewable energy asset manager, we acquire, operate, and invest in a diversified portfolio of income-producing clean power facilities, energy efficiency projects, and other energy transition investments. We also serve as the registered investment adviser to a number of climate-focused funds.

COMPANY VALUES

Excellence

Accountability & Transparency

People

Mission Focused

Teamwork



SUSTAINABILITY WITHIN OUR OPERATIONS

We believe our sustainability strategy ensures our investments in the energy transition result in the maximum benefit for society and the environment, going above and beyond production of clean energy alone. This strategy is informed by the following guiding principles.



Lake Pulaski (10.9 MW, MN)



LAND STEWARDSHIP

We are honored to be stewards of the land we use. Soil stability, native plants, and flourishing habitats increase the ecological health and biodiversity of our asset sites. On project land inhabited by threatened, at-risk, or endangered species, we work with applicable local, state, and federal wildlife authorities to implement mitigation, monitoring, and reporting measures to understand and reduce risk to local biodiversity.



Elk wind (43 MW, IA)



LONG-TERM ASSET MANAGEMENT

As long-term owner-operators, we take pride in being world-class managers of our assets. Ensuring that we consider the technical asset, the biological asset, and the intrinsic value of the land on which our sites operate is a top priority of ours. We also believe it enables us to maximize the benefits to all stakeholders associated with a given project.

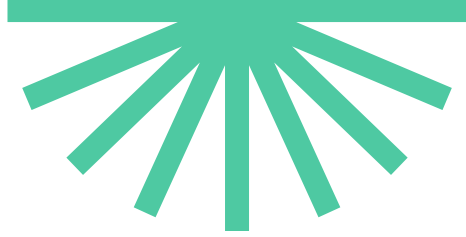


A retired solar panel recycled into a Greenbacker conference table



SUSTAINABLE MANAGEMENT OF OUR CORPORATE OPERATIONS

As an organization whose mission is to empower a sustainable world, we feel it is essential to reflect that objective within the management of our offices. We do this by subscribing to community solar gardens, recycling and composting waste, using nontoxic products, educating investors, and donating to charitable organizations aligned with our values.



INTEGRITY ACROSS THE INDUSTRY

As an industry leader, Greenbacker collaborates with professional organizations that create green jobs, champion sustainable power through education, advocate for greater inclusivity across the clean energy industry, and work to expand the market for renewables.

SOLAR ENERGY INDUSTRY ASSOCIATION

SEIA is the national trade association for the US solar industry, seeking to embody the innovation and entrepreneurship that defines solar energy.



RENEWABLE ENERGY VERMONT

REV serves as Vermont’s clean energy trade association, representing those working in Vermont who are committed to a 100% renewable energy future for the state.



WOMEN OF RENEWABLE INDUSTRIES AND SUSTAINABLE ENERGY

WRISE works to recruit, retain, advance, and inspire systematically excluded communities in pursuing a sustainable and equitable future.



COLORADO SOLAR AND STORAGE ASSOCIATION

COSSA is an association of industry members working to expand solar and storage markets and generate jobs for the people of Colorado.



RoxWind (15.3 MW, ME), turbine blade signing event

CORPORATE SOCIAL RESPONSIBILITY

THE CSR COMMITTEE

At Greenbacker, we recognize that corporate social responsibility is more than a worthy philanthropic endeavor—we believe it’s central to the success of a modern business model. Our CSR Committee aims to enhance Greenbacker’s impact on society by supporting education and mentorship, as well as through programs and initiatives that uplift our communities.

PAID TIME OFF TO VOTE AND VOLUNTEER

We have a company-wide Volunteer Time Off (VTO) policy, in which employees can take up to eight hours of paid time off each quarter to volunteer with an approved organization of their choosing. We also encourage employees to fulfill their civic responsibility by voting in their local, state, and national elections. Those unable to reach their polling place outside of work hours may take additional paid time off to vote.

NEW ALTERNATIVES FOR CHILDREN

Greenbacker is proud of its longstanding partnership with New Alternatives for Children (NAC), an organization committed to improving the lives of children facing health and safety challenges in New York City. This year’s collaborations included Greenbackers building bicycles, assembling back-to-school packs, and packing winter clothing kits for donation.

1600+

Hours volunteered

GIVING BACK

In 2023, Greenbackers continued to generate impact, volunteering over 1,641 hours (8.1 hours per employee), hosted 14 group volunteer events, and donated over \$320,000 to nonprofit organizations directed by both the CSR Committee members and by the broader Greenbacker workforce. This included the results of our 2023 matching campaign, during which employees donated \$50,000 and 161 hours of their time, elevating the total matching campaign contributions to over \$120,000.



\$320K+

Deployed to charitable organizations

EDUCATION AND MENTORSHIP

SOLAR ENERGY INTERNATIONAL

We were happy to launch a new substantial partnership with Solar Energy International (SEI), the world’s most experienced and trusted training center for renewable energy education, which will serve as one of the CSR Committee’s Keystone Partners moving forward. Our commitment to SEI helps support the development of a first-of-its-kind technical training program to cultivate future talent in the renewable energy field. Given SEI’s large national presence, we believe this partnership will have far-reaching and significant impact on the future energy transition workforce.



SOLAR ENERGY INTERNATIONAL

Educate. Engage. Empower.

ADDITIONAL COMMUNITY PARTNERS



Friends of Casco Bay
Casco BAYKEEPER



DIVERSITY, EQUITY & INCLUSION AT GREENBACKER

Greenbacker's dedicated DEI Committee (established in 2021) consists of employees located around the country and across various business units. Since 2022, the Committee and our HR team have engaged an external consultant, Firefly Inclusion Solutions, to provide guidance on DEI best practices and lead training for our senior leadership—which we are proud to have extended to a larger swath of employees and completed in 2023. We remain actively engaged in fostering diverse talent, equitable recruiting, and developing an inclusive culture.

Greenbacker's employee-led Culture Committee is made up of employees from across the firm and across the country, with the goal of improving connectedness and cultivating an inclusive company culture at all levels of the organization.

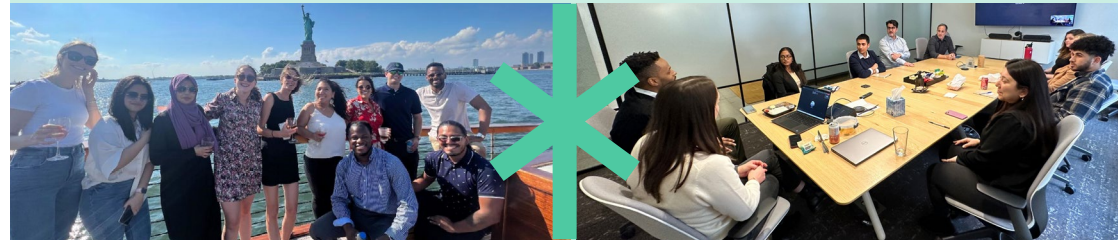
IMPLEMENTING OUR DEI MISSION

The Greenbacker DEI Committee's mission is to foster an environment where all aspects of diversity, equity, and inclusion are sought after, celebrated, and empowered. The Committee established Greenbacker's CUNY internship program in 2022, the second iteration of which completed the program in 2023. Looking ahead, the third cohort is on track to be enrolled in 2024.



CITY UNIVERSITY OF NEW YORK (CUNY)

Through our paid internship partnership with CUNY, undergraduate interns are connected to Greenbacker leadership and engage in hands-on training in multiple departments, including finance, accounting, and technical asset management. Our goal is to support young talent in building their professional network and developing practical skills for their future careers. This program has continued in recent semesters and has become fundamental to our DEI efforts.



INTERNSHIP PROGRAM

The CUNY internship program at Greenbacker seeks to provide opportunity to the next wave of industry professionals.

- CUNY student intern partnerships and scholarship opportunities
- Mentorship through partner organizations
- Industry exposure for traditionally underrepresented youth and young professionals

COMMITTED RECRUITING

We are committed to recruiting and retaining a diverse workforce by providing equal opportunity to individuals from varied backgrounds, experiences, and walks of life.

- Inclusive work environment, currently sponsoring two Employee Resource Groups
- Recruiters operating with a mandated minimum equal gender split and 30%+ underrepresented candidates in our applicant pool

INTENTION SETTING + UPSKILLING

We have partnered with Firefly Inclusion Solutions, a values-driven DEI organization, to help support and expand our DEI initiatives. Our journey began with a discovery exercise. Upon its successful completion, Firefly helped us:

- Define and articulate our organizational culture and values
- Design a comprehensive DEI strategy and road map
- Conduct the Adaptive Leadership program to empower leaders to advance and embed change

EMPLOYEE RESOURCE GROUPS (ERGS)

Greenbacker further supports its people by sponsoring ERGs, which help create space for employees to network, develop, and discuss challenges, which can lead to a greater feeling of inclusion and higher retention rates in the workplace.

- **GreenbackHER:** Empowering women to succeed at Greenbacker and in life, with a vision to create space to support members in their careers, discuss the intersections of professional life and gender, and define and achieve their vision of success.
- **GreenbackQueer:** Supporting LGBTQIA+ interests, culture, and community, and aiming to create space and community for both members of (and allies to) the queer community at Greenbacker.

DEI GOALS, PROGRESS, AND DATA¹

We continue to increase our competitive edge with a workplace that encourages a supportive and inclusive culture. In our experience, the unique perspective each individual brings to Greenbacker allows us to uncover opportunities, work more effectively, and gain insight from a diversity of thought and experience. We believe team members can meet their highest potential in an atmosphere where they are respected and valued regardless of age, gender identity, sexual orientation, nationality, ethnicity, religion, ability, marital status, and pregnancy or parenthood status.

“

Societal expectations are shifting, and employees and the discussion of social issues is becoming a part of how we work. Yet, many of us feel ill-equipped at having the challenging conversations that can ensue. Greenbacker's effort and investment over the past year to proactively equip their leaders and employees with the tools and skills to navigate change and uncertainty is a best-in-class example of adaptive and inclusive leadership. More so, we believe it represents a critical step in 'crisis proofing' their organization, so that culture change is sustainable.”

Oana Amaria
 Founder + Practice Leader
 Firefly Inclusion Solutions

LEADERSHIP TRAINING PARTNERSHIP WITH FIREFLY INCLUSION SOLUTIONS

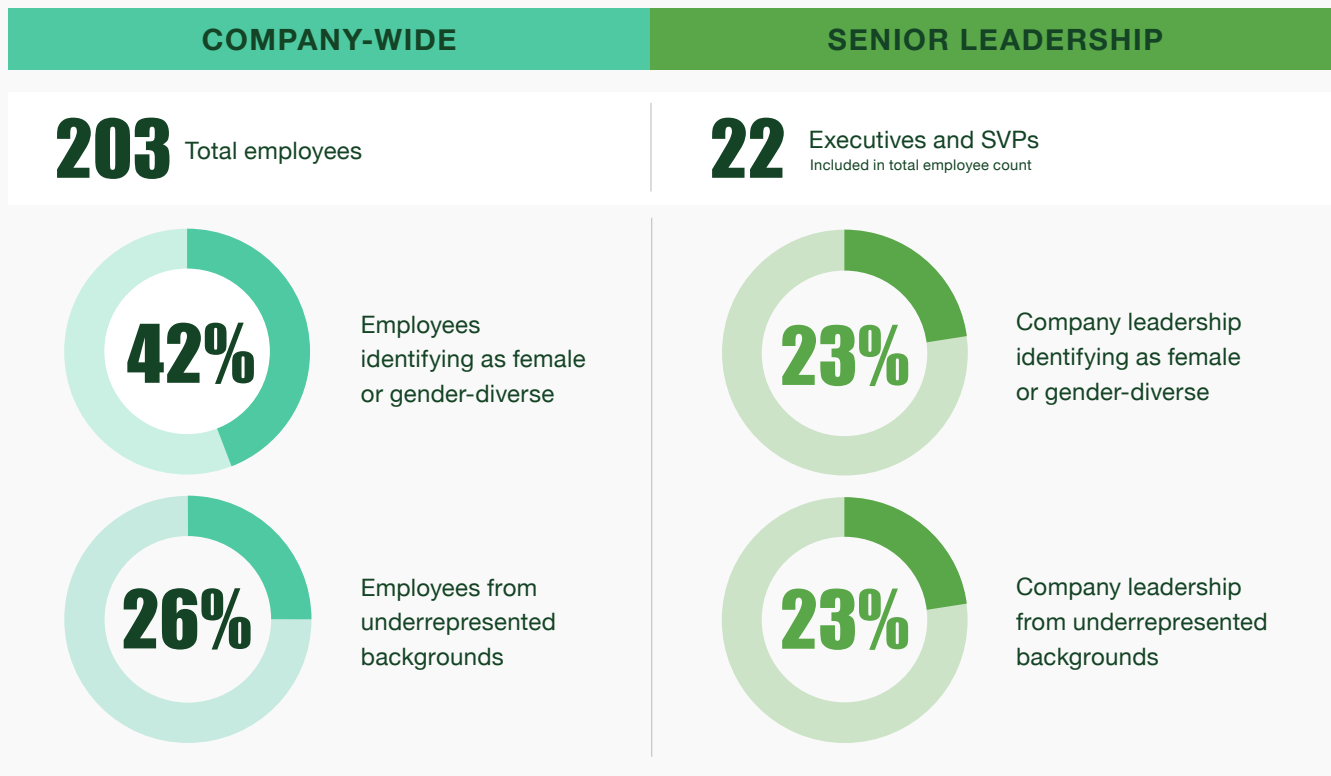
In 2023, we continued to expand our comprehensive DEI strategy and our commitment to empowering leaders at Greenbacker to focus on their role as guardians of inclusion through the completion of our training partnership with Firefly.

Our team engaged in solutions-oriented training modules focused on understanding and acknowledging microaggressions in the workplace, providing culturally competent feedback and strategies for meaningful, critical conversations.

Firefly also guided our team through Attracting for the Future, a talent acquisition training program as part of our focused workforce development efforts. The leaders engaged in this program have made a commitment to personal responsibility and action for overseeing a candidate-centered talent acquisition process. We've made a commitment to embedding consistency, equity, and opportunity in our hiring practices—and to continually evolving our recruitment processes to match the needs of the talent market.

At a minimum, our recruiting process requires gender parity and applicants from underrepresented racial and ethnic backgrounds, and we've expanded our CUNY internship program to include more interns, more departments, and a higher frequency of cohorts. We recognize that our continued success relies on the ongoing cultivation and sponsorship of inclusive talent and culture.

DEI IN ACTION AT GREENBACKER



GREENBACKER STRATEGIES



- 12 Greenbacker by the numbers
- 15 GREC I Highlights
- 16 GREC II Highlights
- 17 Greenbacker Development Opportunities
- 18 GDEV portfolio at a glance
- 19 Greenbacker Sustainable Real Estate
- 20 Our opportunity
- 21 ESG across the funds
- 22 Our Impact beyond the numbers



GREENBACKER BY THE NUMBERS¹

OUR ORGANIZATION AT A GLANCE



4 Offices
NY / ME / VT / CO



~\$3.8 B Assets under management



2011 Founded



5 Investment strategies focused on the energy transition

ADVOCATING FOR THE IMPACT OF RENEWABLES

We are passionate advocates for renewables, and we believe investors are playing a pivotal role in the energy industry's revolutionary transition from conventional fossil fuels toward more sustainable power sources. We believe Greenbacker provides a profitable avenue for our investors to participate in this shift to clean energy as the solution to the world's energy needs.

35

States, districts, territories, and provinces

300+

Wealth management platforms educated about renewable energy

~11,800







Shareholders invested in Greenbacker

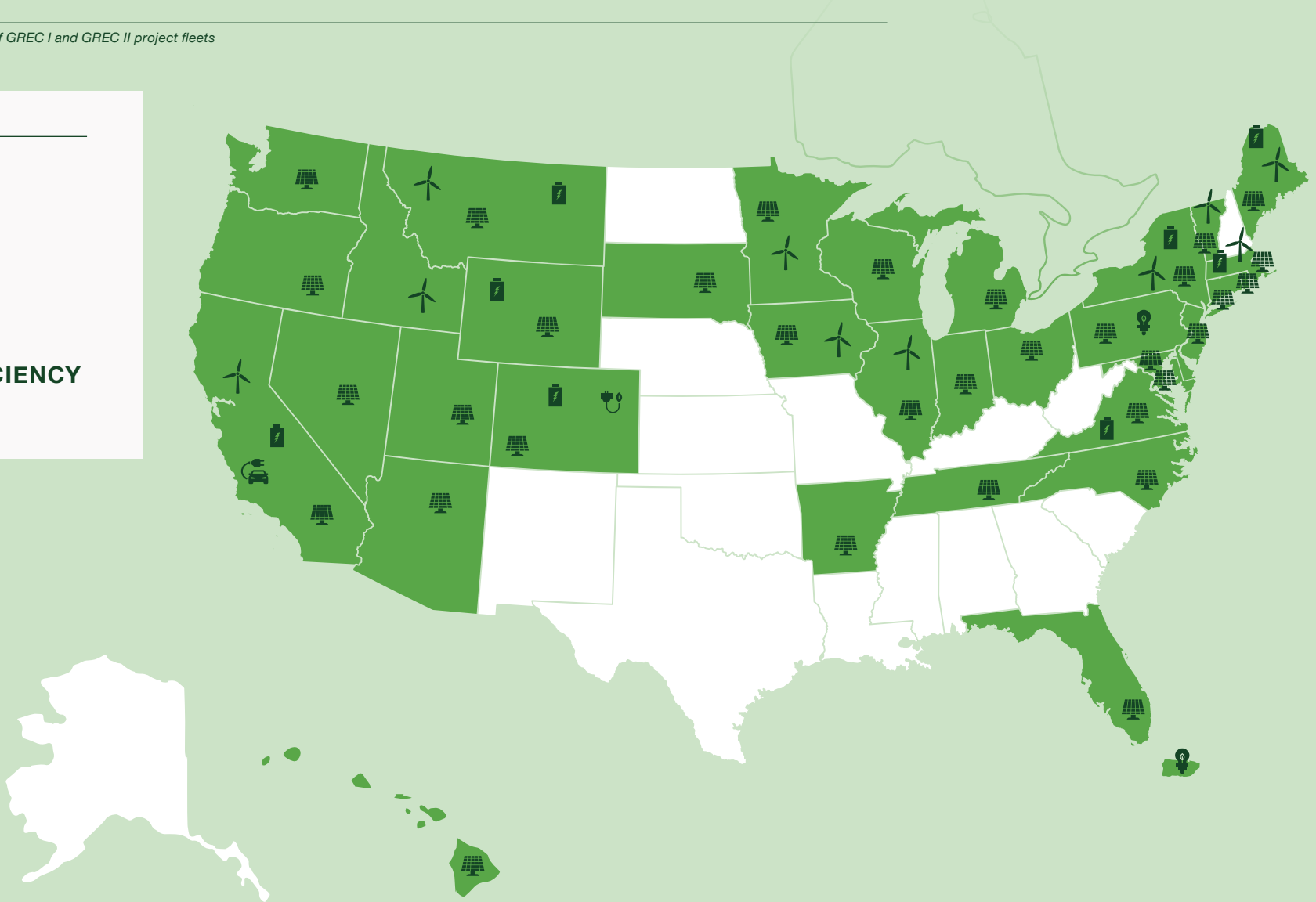


HUNDREDS OF CLEAN ENERGY PROJECTS ACROSS NORTH AMERICA

Map represents combined footprint of GREC I and GREC II project fleets

KEY

-  SOLAR
-  WIND
-  STORAGE
-  BIOMASS
-  ENERGY EFFICIENCY
-  EV



OUR FLEET'S CLEAN ENERGY CAPACITY¹

Numbers represent combined impact of GREC I and GREC II fleets

Lawrence Brook (3 MW, VT)



3.8 GW

Approximate clean energy generation and storage capacity



8,716,470 MWh

Clean power generated since 2016



807,754

Homes powered for a year

*based on cumulative power generated since 2016



6,179,977 MT

Carbon abated since 2016

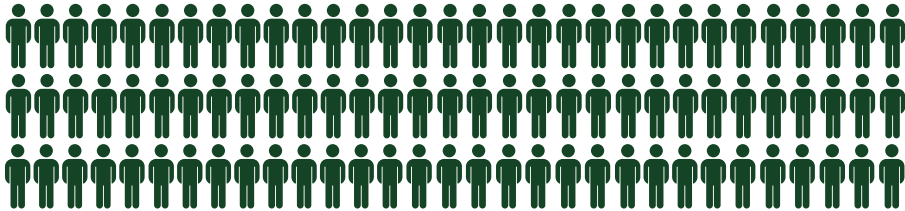


1,645 MW

Under operation

JOB CREATION

Since inception (2016)



6,441

Green jobs supported

Green jobs are calculated from the International Renewable Energy Agency's measurement that one megawatt of renewable power supports approximately four jobs.

ENVIRONMENTAL IMPACT²

Since inception (2016)



As compared to coal,

5,988,214,907

gallons of water saved³



Equivalent to carbon sequestered by

7,536,558

acres of US forest in one year



Carbon abated equivalent to greenhouse gas emissions from

1,343,473

gasoline-powered passenger vehicles driven for one year

¹As of December 31, 2023

²Carbon abatement is calculated using the following tool: <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>

³Gallons of water saved is calculated based on J. Macknick et al., "Operational Water Consumption and Withdrawal Factors for Electricity Generating Technologies: A Review of Existing Literature," Environmental Research Letters 7, no. 4 (December 20, 2012).

2023 GREC I HIGHLIGHTS

Incepted in 2014

MTSun (103.7 MW, MT)



During 2023, Greenbacker brought online the second and third largest assets in the GREC I national operating fleet. The MTSun solar project located in Yellowstone County, Montana and the Fall River solar project located in Fall River County, South Dakota are Greenbacker's largest clean energy projects in their respective states.

Our expectations for the annual solar energy produced by this pair of utility-scale projects:

34,000

Homes powered across the two states

260,000+

Metric tons of carbon emissions offset

Fall River solar (98.8 MW, SD)



292 MW

Additional clean energy production and storage capacity



2,509,500 MWh

Clean energy generated



104 MWdc / 80 MWac

Largest project brought online in 2023, second largest operational project in the GREC I fleet



1,779,235 MT

Carbon abated in 2023



\$9,542,226

Property tax revenue generated for communities

2023 GREC II HIGHLIGHTS

Incepted in 2022

Appaloosa (240 MWdc / 200 MWac, UT)



In December, GREC II's utility-scale Appaloosa solar project reached mechanical completion, and shortly thereafter entered commercial operation in early 2024. With a power generation capacity of 240 MWdc / 200 MWac, the project is now the largest operational asset to date in the entire Greenbacker fleet.

Appaloosa (240 MWdc / 200 MWac, UT)



233 MW

Added clean energy production and storage capacity



109,078 MWh

Clean energy generated



240 MWdc / 200 MWac

Largest project to date; completed construction December 2023



77,337 MT

Carbon abated in 2023



\$246,895

Property tax revenue generated for communities

GREENBACKER DEVELOPMENT OPPORTUNITIES (GDEV)

OUR PEOPLE AND OUR MISSION

We make growth capital investments, spanning a wide range of sustainable infrastructure and renewable energy technologies. Across our portfolio and within our own team, we're committed to making the landscape of energy transition investment more equitable, accessible, and sustainable—starting with our own organization.

This commitment is foundational to everything we do at GDEV and, more broadly, as part of Greenbacker. As we support our portfolio management teams in their sustainability efforts, we know that change begins at home.



Our team believes in growth, both for sustainable investing and diverse leadership. The fight against climate change is all about innovative solutions and outside-the-box thinking. Why would our firm be any different? That's why we would never limit our talent pool, and we value a room full of unique voices.”

Rahul Bhalodia
Managing Director, GDEV

AT A GLANCE



33%

Of investment professionals are women



2020

Inception



50%

Of team members are from diverse racial and ethnic backgrounds



16

Sustainable infrastructure platform investments



8

Established Impact policy goals



10

Dedicated professionals



GDEV PORTFOLIO AT A GLANCE¹

In 2023, our portfolio partners made steady progress toward their goals for environmental and social impact. We're proud to support their work and to work alongside them toward our shared vision for the future of the industry.

Environmental offsets²



240 MW+
Generation capacity per annum



391 GWh+
Clean energy generated in 2023



333 GWh
Grid flexibility per annum



441,818 MT+
Carbon abated in 2023

16 Portfolio companies³



Solar



Storage



Hydro



Fleet Electrification

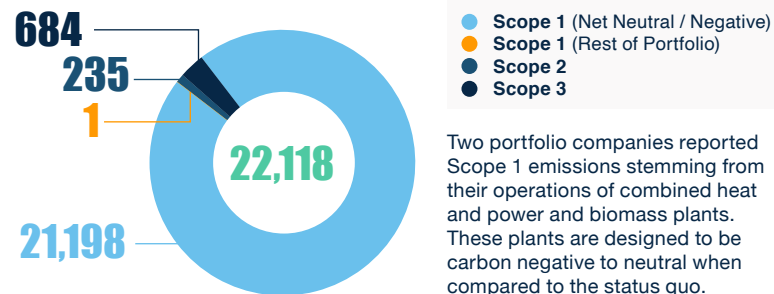


Energy Efficiency

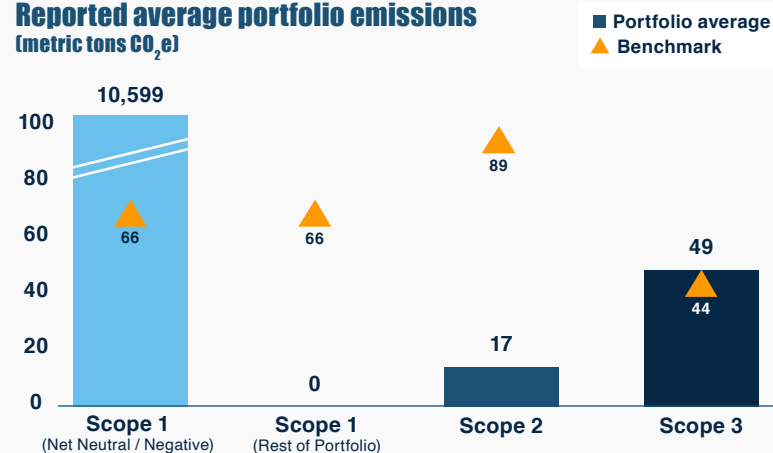


Waste to Value

Total reported portfolio emissions (metric tons CO₂e⁴)



Reported average portfolio emissions (metric tons CO₂e)



Combined pipeline includes:

\$27 Billion
In CapEx

16+ GW
Of power generation

23+ GWh
Of storage capacity

2,740
Projects in pipeline

¹Data based on self-reporting per respective portfolio company as of 12/31/2023.

²Carbon abatement is calculated using the EPA Greenhouse Gas Equivalencies Calculator which uses the Avoided Emissions and generation Tool (AVERT) US national weighted average CO₂ marginal emission rate to convert reductions of kilowatt-hours into avoided units of carbon dioxide emission

³Represents all portfolio companies, including both exited and currently in portfolio; as of 12/31/2023, 14 portfolio companies remain in portfolio.

⁴We use industry-level benchmarks based on company stage (e.g. Series A-C) and type of industry (climate) from Metric ESG to benchmark CO₂ emissions from our portfolio companies.

GREENBACKER SUSTAINABLE REAL ESTATE (GSR)

Real estate with access to power and grid infrastructure is mission critical to the energy transition.



THE IMPACT OPPORTUNITY

Two-thirds

Of global GHG emissions are attributable to the real estate and transportation sectors¹

4x

More electricity generation is needed to meet anticipated demand²

\$166 B+

Capital needed to install required fleet charging infrastructure³



Greenbacker is leveraging its vast industry relationships and expertise in renewable power generation, battery storage, and grid interconnection to launch a sustainable real estate strategy.

Demand for distributed energy resources is growing, creating opportunities at the intersection of real estate, transportation, power, and infrastructure.

Drawing upon our 360-degree view of the sustainability investment landscape, Greenbacker is planning to facilitate the energy transition by acquiring real estate with access to outsized quantities of power for hosting distributed energy resources (DERs).

TARGET PROPERTIES



Industrial outdoor storage



Logistics properties

TARGET DER TENANCY



EV fleet operators



Distributed energy resources

OUR OPPORTUNITY

A real asset investment in the energy transition sector, focused on expansive growth.

In recent years, we have expanded our capacities for energy production and storage significantly. Both government and public adoption of renewable energy as a critical component of our global future has further fueled the opportunity for growth in energy transition markets.

Our team has deep investment and operational expertise in sustainability infrastructure, and we remain committed to our role as a responsible partner invested toward energy transition.

Bloomberg New Energy Finance (BNEF) estimates that reaching a net-zero emissions world by 2050 will require **\$4.84 trillion** of investment in the energy transition between 2024 and 2030.¹

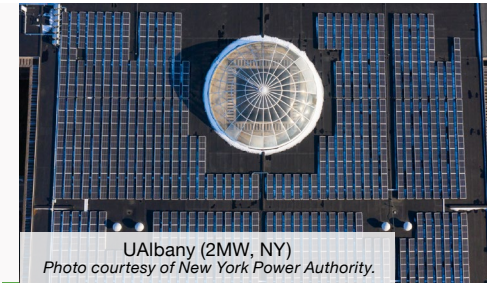


The capital expenditures needed to achieve net zero will create enormous opportunities for investors, financial institutions and the private sector, while creating many new jobs in the green economy.”²

Jon Moore
CEO, BNEF

ENERGY EFFICIENCY

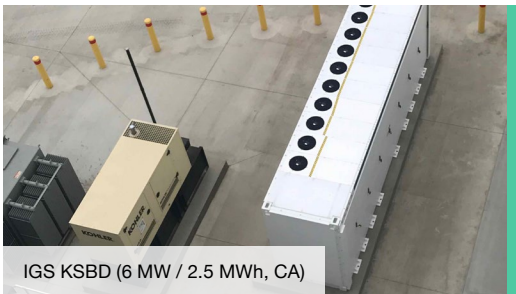
Smart building tech and retrofit technologies



UAlbany (2MW, NY)
Photo courtesy of New York Power Authority.

BATTERY STORAGE

Standalone and co-located battery energy storage systems



IGS KSBD (6 MW / 2.5 MWh, CA)



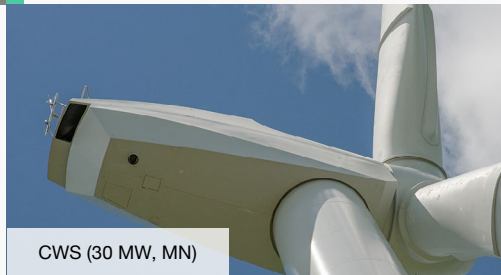
Graphite Solar (104 MWdc, UT)

CREDIT AND PREFERRED INVESTMENTS

Financing for developers of sustainable energy infrastructure

SUSTAINABLE REAL ESTATE

Buildings with opportunities for reduced emissions, on-site renewable power, and EV charging infrastructure



CWS (30 MW, MN)

RENEWABLE GENERATION

Wind, solar, and other renewables



Greenbacker™

ESG ACROSS THE FUNDS

OUR INVESTMENT PROCESS & ESG

Our teams consider ESG risks and opportunities throughout the investment process and in the long-term management of our assets. As a company dedicated to addressing the climate crisis, uplifting our employees, and empowering communities, we are meeting investors' growing need to align their portfolio with their values, and we do this at each step of our process.

To meet our minimum sustainable investment criteria, any potential investment must contribute to the transition to a low carbon economy.

SOURCING & DILIGENCE

We consider only transactions that contribute to the energy transition.

MANAGEMENT & MONITORING

We are committed to principles of sustainability within our operations, including long-term asset management and land stewardship.

REPORTING

We provide updates on impact alongside quarterly financial releases, in our annual impact report, and upon request.

ALIGNMENT WITH THE UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS

The United Nations has outlined 17 sustainable development goals (SDGs) to provide an actionable framework for organizations across the globe to advance equity and unified climate efforts toward the UN's 2030 Global Goals. Our firm and our fleet are currently aligned to six SDGs through the following efforts:

- A foundational commitment to the energy transition
- Clean energy infrastructure and access through community solar projects
- Local workforce development, scholarship funds, and equitable talent development
- Investment in innovative climate technologies and infrastructure
- Industry-wide advocacy and education
- Prioritization of land stewardship across all project sites



AFFORDABLE AND CLEAN ENERGY



DECENT WORK AND ECONOMIC GROWTH



INDUSTRY, INNOVATION AND INFRASTRUCTURE



SUSTAINABLE CITIES AND COMMUNITIES



CLIMATE ACTION



LIFE ON LAND

OUR IMPACT BEYOND THE NUMBERS

Beyond clean energy, we are committed to making an impact on people, our communities, and the future of our industry through research partnerships and charitable donations.

NEW ALTERNATIVES FOR CHILDREN

As part of Greenbacker's ongoing commitment to NAC, a New York-based social services organization that supports children and families with special health needs, Greenbackers utilized the company's VTO policy to spend an afternoon assembling warm winter clothing kits for donation.



TREMCO RISING STARS

Greenbacker is proud to partner with Tremco on their Rising Stars program, which aims to create sustainable growth in the construction industry by providing young people with access to mentors and networking opportunities. Over the summer, Greenbackers led program participants on site visits of Greenbacker's Littleton solar energy project and a battery manufacturing facility owned by Ambri.



2023 RESEARCH HIGHLIGHTS

We partner with some of the country's top researchers to determine how our fleet can best incorporate innovative land management approaches.

NEW ENGLAND FARMER MICROGRANTS PROGRAM

Last year, Greenbacker began participating in the New England Farmer Microgrants Program through which the American Farmland Trust awarded funding to the University of Vermont, the Vermont Department of Agriculture, and a local grazer who will collaborate to increase the understanding around how grazing impacts soil health at Greenbacker's solar sites in Vermont.

THE INSPIRE PROJECT

A collaboration between the US Department of Energy's National Renewable Energy Laboratory (NREL) and Argonne National Laboratory

We've partnered with the Solar Practices Integrated with Rural Economies and Ecosystems (InSPIRE) Project, which seeks to explore the benefits that pollinator-friendly solar projects have on local agricultural yields, as well as how low-impact solar can improve a site's soil quality, carbon storage, stormwater management, microclimate conditions, and solar efficiencies.

COLLABORATION WITH THE SOIL INVENTORY PROJECT (TSIP)

In 2023, we completed a successful first grazing season and baseline soil sampling as part of our joint project with TSIP, Skidmore College, and NREL to develop a long-term soil sampling plan at our Albany sites.

We also provided NREL and TSIP soil testing access to a number of sites in Colorado and New York as part of their effort to develop a National Soil Carbon baseline across various land uses.

GUIDANCE FOR SOLAR-POLLINATOR PROLIFERATION

A collaboration between Argonne National Laboratory and the University of Illinois at Chicago (UIC)

Our 88-acre solar project in Sturgis, Michigan is part of a three-year research study aimed at developing informed decision-making tools for solar-pollinator habitat projects. Guidance such as planting manuals, cost/benefit calculators, and native seed-mix selection tools can help address critical stakeholder concerns such as project cost, return on investment, and site-specific constraints. The study explores the potential for pollinator vegetation to improve panel efficiencies, whether by generating a cooler microclimate or through the light reflectivity of specific plant species.

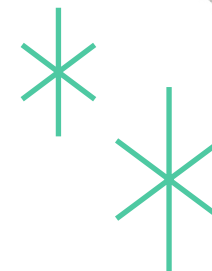
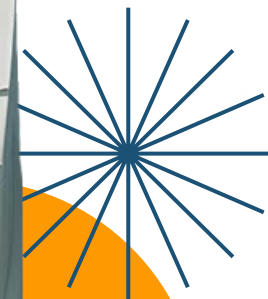
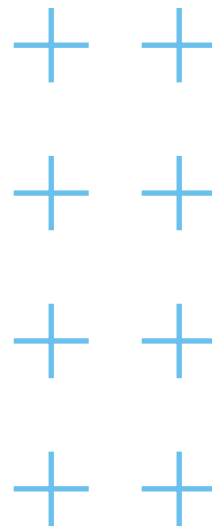


CASE STUDIES



- 24 Solar panel recycling
- 25 Community solar
- 26 Contributions beyond clean energy
- 27 Minimizing impact on the ecosystem
- 28 Pollinator planting

04



SOLAR PANEL RECYCLING

We're proud to partner with SOLARCYCLE, a leading solar panel recycling company, leveraging their diverse capabilities across our project technology, size, and geography.

Read more [here](#).

- Cutting edge tech-based research & development
- Extraction and preservation of silver, silicon, copper, aluminum, and glass
- Capabilities for endless, repeated recycling of panels

WHAT IS SOLAR RECYCLING?

Solar recycling is the process of recycling solar panels once they've reached their end of life. Companies like SOLARCYCLE transport, sort, and recycle decommissioned panels, extracting and preserving valuable materials. As research and development efforts deepen and recycling efforts scale, solar recycling becomes increasingly cost-effective and allows for endless, repeated recycling of used panels to create newer, more powerful solar panels.

SOLARCYCLE

Greenbacker has partnered with SOLARCYCLE, the industry leader in solar recycling. Their cutting-edge technology allows for extracting 95% of the original value of a solar panel, including silver, silicon, copper, aluminum, and glass, a significant increase over the industry standard—which is currently below 50%.



THE IMPACT

We expect that this exclusive, long-term partnership will allow SOLARCYCLE to add more factory capacity and reach economies of scale sooner. Given the national footprint of Greenbacker and its affiliates—hundreds of assets across 32 states, Canada, Puerto Rico, and Washington, DC—we hope the partnership will also serve as a model for the solar industry and other stakeholders on how to build out a low-cost and sustainable domestic circular supply chain in America.



Through this collaboration, we're supporting green jobs, supply chain resilience, and a circular clean energy economy, while continuing to serve one of our core values: responsible environmental stewardship."

Shannon Scarbrough
Sustainability Program Manager,
Greenbacker

BY THE NUMBERS

1.4 W

Generated from one old watt of recycled solar

95%

Of original value extracted by SOLARCYCLE from recycled panels

50%

Industry standard for extracted value from recycled panels



Albany 1 (25 MW, NY)



Albany 1 (25 MW, NY)

COMMUNITY SOLAR

Greenbacker is proud to be a leader in community solar.

- A more equitable energy transition
- Support for local farmers
- Land renewal

WHAT IS COMMUNITY SOLAR?

Community solar gardens provide the opportunity for residential and commercial subscribers—including school districts, hospitals, nonprofits, and municipalities—to save on their power bills without having to manage the cost and placement logistics of installing their own rooftop arrays. These subscribers receive solar credits for the energy generated by their share of the community solar project, offering a simpler way for consumers to save on their power bills and utilize renewable energy. A substantial portion of community solar subscribership is often reserved for low to moderate income subscribers, contributing to a more equitable clean energy transition.

IMPACT

Our continued expansion in the community solar market is central to our investment thesis and broader goal of increasing clean power access for everyday customers. Through our growing footprint of community solar

projects, we reinforce our commitment to delivering ESG metrics, delivering value for our shareholders, and delivering on our mission to empower a sustainable world.

REDUCING ENERGY COSTS FOR FARMS AND DAIRIES

One of Greenbacker's community solar portfolios consists of seven projects in Vermont that are also part of the state's net-metering program.

The projects each have long-term Net Metering Agreements in place with agricultural offtakers—local farms and dairies across the state. The net-metering aspect of the portfolio means that the utility will reduce the offtakers' power bills by the amount of clean energy the projects supply to the grid. Each solar project is expected, on average, to save local farmers approximately half a million dollars on energy costs over the lifecycle of the projects.

Along with the clean energy and economic benefits these solar projects provide, some of the project sites will also transform previous brownfields—a reclaimed gravel pit, an abandoned landfill, and a former paper sludge disposal site—giving new life to land otherwise restricted from most uses, turning them into sources of cheaper renewable power.



Cameo (2 MW, CO)

BY THE NUMBERS

190.4 MWdc

Total community solar power production capacity

95

Community solar sites in Greenbacker's project fleet

11

Greenbacker has a community solar presence in 10 states plus Washington, DC



Shelburne Museum project (784 kW, VT)

CONTRIBUTIONS BEYOND CLEAN ENERGY

Read more [here](#) and [here](#).

- Community scholarship
- Support for local workforce
- Largest operating project to date
- A new way to build the future of sustainable power

A GREENBACKER MILESTONE, AN INDUSTRY LANDMARK

In late 2023, Greenbacker's 240 MWdc / 200 MWac utility-scale Appaloosa Solar 1 project reached mechanical completion in Iron County, Utah, before entering commercial operation shortly into 2024. With more than twice the power generation capacity of its sister project—**Greenbacker's 104 MWdc / 80 MWac Graphite Solar** in Carbon County, Utah—Appaloosa is now Greenbacker's largest operational clean energy asset to date.

While the project represents a milestone for Greenbacker, it's also a landmark for the clean energy industry. The financing for Appaloosa marked one of the first tax equity transactions to utilize the solar production tax credit (PTC) newly expanded by the Inflation Reduction Act.¹ While Greenbacker has successfully executed tax equity investments and employed the federal investment tax credit (ITC) for years, this is its first clean energy financing utilizing the new solar PTC.



Appaloosa (240 MWdc / 200 MWac, UT)

SUPPORTING THE LOCAL WORKFORCE

In addition to relying on local vendors, bringing revenue to the area, and supporting approximately 250 construction-related green energy jobs, the project also sponsors a local scholarship.

The project's developer (rPlus Energies), its EPC contractor (Sundt Renewables), and Greenbacker have partnered to create a scholarship program for students who reside in Iron City, UT. The Local First—Appaloosa Solar 1 Scholarship commits \$120,000 for students who wish to remain local while pursuing their career goals. The scholarship is the second in a series that supports rural communities in meeting their workforce needs by providing full and partial tuition to local university certificate and degree programs.



Being a responsible community partner is one of our core values. We're proud to continue contributing to the Local First scholarship series and supporting both education and the local workforce in Iron County."

Ben Tillar
Investments Principal, Greenbacker

BY THE NUMBERS

\$120,000

Scholarships sponsored

~395,000

Metric tons of carbon abated in first year

\$148 million

Financing leveraging the new solar PTC

240 MWdc / 200 MWac

Power capacity, the largest in Greenbacker's operating fleet

Appaloosa (240 MWdc / 200 MWac, UT)



Completing one of the first ever solar PTC deals and financing our largest project to date is more than an important milestone for GCM, it's an essential step forward for the energy transition. This is proof positive that the landmark IRA legislation is accelerating a clean energy future."

Charles Wheeler
CEO, Greenbacker

MINIMIZING IMPACT ON THE ECOSYSTEM

Read more [here](#).

- Wildlife protection
- Efficiency re-powers
- Expanding a history of wind power
- Wind turbine recycling



Across our clean energy fleet, Greenbacker prioritizes being good stewards of the land occupied by our projects—from our smallest to our largest.

At our biggest clean energy asset in California, the 54.8 MW Altamont wind project, we've been taking action to protect local wildlife by installing IdentiFlight camera towers. The AI-controlled monitoring system scans the skies to identify when bird species are near the project's wind towers and can decrease the turbine's RPMs if necessary to mitigate avian collision. Altamont sets an industry example with 100% site coverage, including all low-lying valleys, the airspace above the turbine blades, and areas of topographical uplift (where birds can quickly and suddenly swoop).

The initiative, rolled out 2023, showcases Greenbacker's commitment to responsible environmental stewardship and our technical asset management team's ability to tap technological solutions to serve our core values.

HARNESSING A POWERFUL HISTORY OF WIND

The Altamont wind project harnesses wind from the historic Altamont Pass, an area home to operating wind assets since the 1980s. The project is a repowered source of lower-cost clean energy for thousands of residents and businesses across the Alameda County area. The project honors Scott Haggerty, a 20+ year advocate for Alameda County. With the repowering, Altamont replaced 569 one-hundred-kilowatt turbines with 23 more efficient, state-of-the-art environmentally and wildlife-friendly turbines.

TURBINE BLADE RECYCLING

In partnership with Veolia, we've launched wind turbine blade recycling efforts at select Greenbacker locations, including the Elk and Hawkeye wind farms in Iowa. End-of-life wind turbine components are recycled into commercial cement using dust-minimizing cutting techniques. Blade segments are processed at Veolia's recycling operations in Louisiana, MO, creating a recycled cement material from fiberglass and blade resin that can be used to create commercial cement.



Hawkeye (37.8 MW, IA)

BY THE NUMBERS

54.8 MW

Our largest energy project in CA and the second largest in our wind portfolio

47,000

Homes powered annually

23

New wildlife-friendly turbines

\$20 M

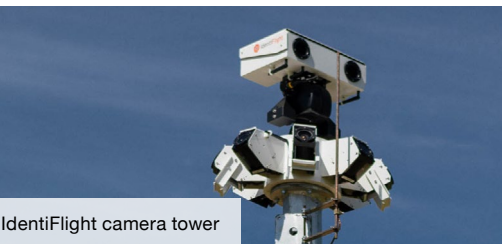
Invested into Alameda County through tax revenue



Altamont (54.8 MW, CA)

A COMMITMENT TO COMMUNITY EFFORTS

The Altamont project sustains numerous clean energy jobs across operations and maintenance following an initial output of more than 115,000 hours of union labor, supporting fair compensation and employment within the local community. Additionally, since wind turbines only occupy a small portion of the land they're built on, local ranchers are able to run cattle through the project without interfering with its clean power production.



IdentiFlight camera tower

POLLINATOR PLANTING

Read more [here](#) and [here](#).

- Lower operating and maintenance costs
- Deeper root systems sink carbon into the earth
- Cooling microclimates increase panel efficiency

Nearly five years ago, Greenbacker began planting pollinator-friendly ground cover on 800 acres across 14 project sites around the country. Through 2023, we continued to prioritize and expand these projects, which not only help restore local ecologies and increase biodiversity, but also allow for a number of additional benefits onsite, in the nearby community, and in the wider environment.

HEALTHY ECOSYSTEMS AT OUR SOLAR SITES

Pollinator-friendly vegetation creates habitats beneath our solar panels to support pollinator populations—like bees and monarch butterflies—that have been declining due to insecticide use, climate change, and human encroachment. At the same time, these plants improve soil stability, as their longer root systems help mitigate erosion, stormwater runoff, and frost heaves.

Financially, this initiative also offers the dual advantages of reduced operating costs and increased site efficiency (which more than offsets the upfront costs of the planting). These plants require less

maintenance than turf grass, which needs frequent mowing, and studies have shown that the cooler microclimates this vegetation generates can improve solar panel efficiency.

BEYOND THE FENCE LINE

Being a good steward of the land is a top priority for Greenbacker. That’s why we’re excited to see the benefits of our landscape strategies extend beyond the acreage of our projects. It’s not uncommon for farmers near pollinator-friendly solar sites to gain increased crop yields thanks to the greater number of pollinators venturing over to fertilize their crops.

On sites where pollinator-friendly plants won’t optimally benefit the land, we look to introduce flora alternatives that will. For example, planting native grasses can provide similar ecological and operational benefits, while also introducing new ones. These sites can act as grazing lands for local livestock, which can reduce the cost of maintenance, like mowing and dethatching, while building healthy soil.

With a number of potential sites and projects in our pipeline, Greenbacker is looking forward to expanding our thoughtful, communal, and symbiotic stewardship initiatives.

BY THE NUMBERS

800

Acres

14

Project sites

DOZENS

Of plant species

Shelburne Museum (784 kW, VT)



When we can be thoughtful about our landscape design in order to improve our local ecology and community, while also driving down our overall O&M costs, we consider this a win-win.”

Matt Murphy
COO, Greenbacker



Shelburne Museum (784 kW, VT)

CLOSING WORDS



29 Thank you



05*



THANK YOU FOR JOINING US IN EMPOWERING A SUSTAINABLE WORLD

Throughout 2023, we continued to grow our clean energy fleet, expand our sustainable investment management business, stand steadfast in our mission to become responsible stewards of land and resources, and deliver for our shareholders.

This year, as we expanded our existing operational renewable energy projects and focused our corporate responsibility goals on training the future green workforce, we also launched a comprehensive Greenbacker Sustainable Real Estate strategy as part of our investment management business. We're proud to set our sights on decarbonizing the built environment through direct investments in commercial real estate with opportunities for reduced energy use and on-site renewable power generation.

In 2023, we also made history by completing one of the very first tax equity deals to utilize the solar production tax credit made possible by the Inflation Reduction Act—supporting and funding the construction of our largest operational clean energy project to date.

Through transparency, accountability, and our mission-focused approach that puts people at the forefront and strives for excellence, we believe that we can continue to create long-term value for our shareholders, for our communities, and for the clean energy transition. We remain dedicated to building the future of energy and are excited about the opportunities on the horizon of the energy transition asset class.

To our community, our team members, our investors, and our industry partners, we thank you and we look forward to continuing to generate impact in these areas with you.





Questions?

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Albany 1 (25 MW, NY)