ENERGY IMPACT PARTNERS™

2024 Impact & ESG Report Technical Appendix

Updated: 9/30/24

1.0 Carbon Impact Measurements for Directly-Measurable Companies

Directly-measurable carbon savings are estimated as explained below. These estimates are the material avoided GHG emissions, enabled by our portfolio companies compared to the business-as-usual or baseline scenario. Impact estimates (i.e., savings) do not include emissions from operations or facilities where there is not a known material difference compared to industry norms. This year we expanded our practice of enhancing our carbon savings results by deducting embodied energy used in the full cycle of manufacturing and use to yield net, rather than gross savings.

Many of our portfolio companies have developed technologies that reduce consumption of electricity, in which case we estimate the electricity emission saved using grid emission factors provided by EPA's current eGRID database (eGRID 2024). Other companies enable savings of gasoline and other fossil fuels, which reduce combustion emissions as determined by the EPA's emission factor database (EPA 2024).

This appendix begins with general references that are useful for multiple companies, and then describes specific methodologies described for each company.

General References

1) EIA [United States Department of Energy, Energy Information Agency (EIA). 2023. "Electric Sales, Revenue, and Average Price"]

2) EPA eGRID [United States Environmental Protection Agency (EPA). 2024. "Emissions & Generation Resource Integrated Database (eGRID), 2022"]

3) EPA GHG Emission Factors [United States Environmental Protection Agency (EPA). 2023. "GHG Emission Factors Hub, 2024" Washington, DC]

4) GHG Protocol [Greenhouse Gas (GHG) Protocol, World Resources Institute (WRI), ghgprotocol.org]

5) GRI [Global Reporting Initiative, www.globalreporting.org]

6) IPCC AR6 [Intergovernmental Panel on Climate Change (IPCC). Sixth Assessment Report.]

7) NREL Solar Output by State [National Renewable Energy Laboratory (NREL). 2016. "Solar Photovoltaic Technical Potential in the United States: A Detailed Assessment"]

8) SASB [Sustainable Accounting Standards Board, www.sasb.org]

9) WattTime [WattTime. "Marginal Emission Factors for the U.S. Electricity System"]

1.1 Annual Carbon Savings Enabled

Annual carbon savings are measured using company activity data that includes sensitive and proprietary information. Our descriptions below refer to this data in general terms, as well as the methodology, references, and results of our calculations.

Aeroseal
Aeroseal provides air sealing technology for heating, ventilation, and air conditioning (HVAC) ducts and building envelopes, installed through a network of partners for residential and commercial buildings.

Carbon savings for Aeroseal were determined by comparing building energy savings after Aeroseal treatment to the baseline building energy consumption, with data from the company as well as performance data from the U.S. Department of Energy (DOE), EPA Energy Star, Energy Information Agency, and Lawrence Berkeley National Laboratory.

Arcadia
Arcadia builds utility data technology to serve consumers in the community solar market, and offers an enterprise-grade platform for data, tariffs, and payments. We measure carbon savings from renewable energy displacing grid power from the community solar projects, which displace grid power.

Carbon savings for the community solar projects subscribed by Arcadia were determined by evaluating all projects subscribed by Arcadia in each state. Output of projects installed throughout the year was measured on a partial-year basis, with full-year operation for following years. For each project, Arcadia estimated the actual clean energy output of each kW of installed capacity. This clean energy is assumed to displace non-baseload grid energy, including assumed net transmission and distribution grid losses of 4.5%. eGRID emission factors for each project location were then used to calculate the resulting avoided emissions.

Cosmic Bliss
Cosmic Bliss produces coconut milk-based treats and grass-fed dairy ice creams that are more sustainable than conventional dairy-based ice creams.

Carbon savings for Cosmic Bliss were calculated by comparing the lifecycle analysis (LCA) of Cosmic Bliss products compared to conventional dairy alternatives. Based on ISO 14040 conformant LCA reports completed by an independent consulting firm, Good Company, Cosmic Bliss has 24-28% lower emissions (depending upon flavor and formulation) compared to conventional dairy equivalents. The scope of the analysis starts at the farm level, and also includes production, transportation, and packaging. The lower emissions are driven mostly by lower farm-level emissions. Total avoided emissions were then calculated based on Cosmic Bliss sales volumes for the period.

Derive
Derive creates solutions to optimize vehicle performance, fuel efficiency, and safety. Carbon savings for Derive were estimated across Derive's active fleet customers. Customer case studies and third-party testing show 6-10% improved fuel efficiency; 6% savings was used as a conservative value. Baseline mileage assumptions from the company include 15 miles per gallon (mpg) for fleet vehicles, which include vans, light trucks, and passenger cars, traveling an average of 18,000 miles per year.

Dragonfly Energy
Dragonfly Energy sells lithium-ion batteries (LIB) as an alternative to lead-acid batteries, especially absorbent glass mat (AGM) batteries, primarily for portable power use such as recreational vehicles (RVs), boats, and other applications.

LI batteries have a higher charging efficiency than AGM batteries (99% vs. 90%), which saves energy and reduces carbon emissions over the product's operating life. LI batteries provide more usable power and can be discharged up to 80% of their full capacity, whereas AGM batteries are slower to charge and discharge, and are commonly discharged to only 50% of their capacity. As a result, one LI battery provides similar power to two AGM batteries, and while a LI battery lasts more than 10 years (~7,000 cycles), an AGM battery may last only 3-5 years (600-1000 cycles). One Dragonfly LI battery, with higher usable power and longer lifetime may avoid the use and replacement of up to 10 AGM batteries over its lifetime.

Carbon savings for Dragonfly were calculated using a bespoke comparative lifecycle assessment prepared by EIP with the company for this report including energy savings during operation as well as reduced embodied energy during the useful lifecycle.

Enchanted Rock
Enchanted Rock provides onsite backup power and distributed energy generation for commercial customers, primarily through natural gas-powered generators. These generators save carbon by

displacing dirtier diesel gensets, as well as by selling cleaner energy back to the grid during peak periods, which often produce higher emissions.

Carbon savings for Enchanted Rock were calculated by evaluating periods of both backup power and distributed energy generation. During the year, Enchanted Rock units generated natural gas-powered backup power in place of diesel generators. These diesel generators typically require routine testing under load, resulting in additional emissions to be avoided by Enchanted Rock. Using heat rate (Btu/kWh) data from the U.S. EIA as well as emission factors from the EPA, avoided emissions of nitrogen oxides (NOx) and CO2e were calculated.

Distributed energy generation provided emissions reductions, since Enchanted Rock's systems run often in this mode. This energy generation was compared to eGRID non-baseload emission factors for Texas (ERCOT) and MISO, the location of Enchanted Rock's customers, again using factors from the EIA and EPA.

ES Solar
ES Solar provides services to support the deployment of residential solar power systems. These solar power systems reduce carbon emissions by providing clean energy in place of grid power.

Carbon savings for ES Solar's solar projects were evaluated on a state-by-state basis for all projects completed installed as of the end of the period. For each state, solar capacity factors were applied to estimate the actual clean energy output of each kW of installed capacity. This clean energy is assumed to displace non-baseload grid energy, while also avoiding transmission and distribution losses of 4.5%. Emission factors from eGRID for each project location were used to calculate the resulting avoided emissions.

ev.energy
ev.energy is a global provider of electric vehicle (EV) charging software to make EV charging greener, cheaper, and smarter for utilities and their customers. The software platform wirelessly connects to a range of electric vehicles and L2 chargers and intelligently manages EV charging in line with utility and network signals while keeping customers engaged and rewarded through a mobile app.

Carbon savings for ev.energy were determined by comparing the company's smart EV charging to the baseline of non-smart EV charging. This scope of enabled carbon savings is based on ev.energy shifting charging to cleaner grid periods instead of the time of connection, which may be dirtier, resulting in incremental carbon savings from smart charging. Additional emissions reductions were calculated for solar smart charging.

Flo Energy
Flo is a North American electric vehicle charging network operator and a provider of smart charging software and equipment. The company enables EV charging with high-quality charging stations deployed at public, commercial and residential installations.

Carbon savings for Flo were determined by comparing the company's EV charging to the baseline of avoided internal combustion engine (ICE) vehicle travel. The company provided data for charging station energy transferred by Canadian province and U.S. state, which is assumed to yield 3.5 miles of EV travel per kilowatt-hour (kWh) and associated emissions from charging using grid emissions intensities from eGRID and Environment and Climate Change Canada, "Fuel LCA Model" (2022). The avoided baseline of ICE cars is assumed to consume gasoline at an average rate of 25.2 miles per gallon (mpg) from the U.S. Federal Highway Administration.

Grover
Grover rents technology devices to consumers, offering low monthly costs, updated tech, and reduced waste by recirculating and refurbishing devices.

Carbon savings were calculated by comparing the circulation of Grover devices to the avoided impact of new devices. Grover's devices circulated multiple times, so new devices are avoided including the lifecycle impact of these devices, adjusted for the logistics of refurbishing and shipping Grover devices. The impact methodology has been developed in partnership with EIP and examined by the Fraunhofer Institute (IZM).

HeatTransformers
HeatTransformers offers heat pumps for residents of the Netherlands, with full service from advice through installation.

Carbon savings were calculated for the operation of HeatTransformers hybrid and all-electric heat pumps compared to the baseline of natural gas heating. Avoided GHG emissions from gas were adjusted for the electrical emissions typical for customers in the Netherlands, assuming a sustainable mix of equal parts grid, wind, and solar energy.

Hippo Harvest
Hippo Harvest grows salad greens in indoor, controlled greenhouses that are resilient to changing climate, and that are optimized using robotics and machine learning for quality and productivity.

Carbon savings for Hippo Harvest are calculated compared to a baseline of conventional field-grown salad greens. The full lifecycle is compared per kg of produce, including fertilizer and soil, transport, storage, packaging, heating and infrastructure, as well as avoided food waste from the farm through wholesale and retail sale. A comparative assessment yields an estimate for the avoided carbon emissions enabled by Hippo Harvest.

HomeTree
HomeTree offers energy services for residents of the UK, including finance, installation, and servicing of decarbonization solutions from solar PV to heat pumps and boiler upgrades.

Carbon savings were calculated compared to the conventional baseline for each product application. Newer boilers have increased efficiency, reducing gas consumption. Electric heat pumps replace old gas boilers, with gas savings partly offset by electrical grid emissions. Solar PV installation displace marginal grid emissions. The emissions savings of all products installed across these categories are combined for total company product-level carbon savings.

HopSkipDrive
HopSkipDrive is a youth transportation solution for schools, districts, government agencies and families. HopSkipDrive has a network of passenger car drivers that complement school transportation systems.

Carbon savings for HopSkipDrive were evaluated by comparing the fuel and energy consumption of the company's efficient fleet to the baseline fleet of average U.S cars. The company provided fleet data including the mix of vehicle type, distance traveled, completed trips, and completed rides. For each vehicle, fuel economy was sourced from the U.S. Department of Energy (www.fueleconomy.gov) compared to the avoided baseline of gasoline consumption at an average rate of 25.2 mile per gallon (mpg) from the U.S. Federal Highway Administration. In some markets, HopSkipDrive also substitutes for school buses that may be underutilized. Estimated carbon savings were not determined for 2023 due to uncertainties in comparable baseline data, although further pilot studies and analysis are planned.

Instagrid
Instagrid provides portable battery power systems in place of fuel-driven combustion generators for off-grid work like construction, events, and emergency response.

Carbon savings for Instagrid were estimated by comparing the lifecycle impact of Instagrid's battery power systems to combustion generators. Comparative carbon emissions from cradle to grave (from raw material acquisition through production, use, end-of-life (EOL) treatment, recycling and final disposal were normalized per unit of lifetime energy delivered (kWh). Usage patterns including 250 work days per year and 2 kWh daily were used to estimate avoided fuel consumption, partly offset by the charging electricity for Instagrid's batteries.

ION Solar
ION Solar is a full-service provider of residential solar power systems. These solar power systems reduce carbon emissions by providing clean energy in place of grid power.

Carbon savings for ION's solar projects were evaluated on a state-by-state basis for all projects completed. Output of projects installed prior to the reporting period were fully counted for the year, whereas projects installed during the year were prorated for a partial year of operation. For each state, solar capacity factors were applied to estimate the actual clean energy output of each kW of installed capacity. This clean energy is assumed to displace non-baseload grid energy, while also avoiding transmission losses of approximately 4.5%. Using eGRID emission factors for each project location, the resulting avoided emissions were calculated.

Manus Bio
Manus Bio uses biotechnology to produce complex natural products used as flavors, fragrances, food ingredients, cosmetics, vitamins, pharmaceuticals and agricultural chemicals. Using its advanced fermentation technology, Manus Bio recreates natural processes for next-generation industrial biomanufacturing and provides sustainable and cost-effective sources of products for health, wellness, and nutrition.

Carbon savings for Manus Bio were determined by comparing the company's citrus oil produced through biotechnology which the company reports is powered by carbon-free nuclear energy to the baseline of traditional citrus oil extracted from citrus peels. Avoided impacts are estimated using company data together with published LCA data including: Teigiserova (2021). Circular bioeconomy: Life cycle assessment of scaled-up cascading production from orange peel waste under current and future electricity mixes.

Mill
Mill offers a membership-based service to divert food waste from landfills and repurpose it into usable materials. Each member receives a Mill kitchen bin that dries and grinds kitchen scraps overnight. Once the bin is full – which takes a few weeks – members schedule a pickup for the food grounds in the Mill app to be returned to the company. Food grounds are then converted into a chicken feed ingredient.

Mill prepared a preliminary life cycle assessment, with input and review by EIP and other experts, that compares the lifecycle impacts of Mill's service to the baseline end-of-life for kitchen scraps. Carbon savings per typical subscriber are based on annual impacts per average member, scaled by subscriber count throughout the year.

Mosaic
Mosaic offers financing for solar energy systems, enabling home improvement and solar companies to install more solar projects for homeowners. These solar power systems reduce carbon emissions by providing clean energy in place of grid power that is still dominated by fossil fuel-based generation. While Mosaic is one of many players in the supply chain, financing is a critical requirement of solar project development.

Carbon savings for the solar projects financed by Mosaic were determined by evaluating all projects financed by Mosaic by state and region. Output of projects installed prior to the reporting period were considered fully operational, whereas projects installed during the year were prorated by month of installation. For each state and region, solar output factors were applied to estimate the actual clean energy output of each kW of installed capacity. This clean energy is assumed to displace non-baseload grid energy, while also avoiding transmission and distribution loss of 4.5%. The resulting avoided emissions were calculated using eGRID emission factors for each project location,.

Moxion Power
Moxion Power is a vertically integrated manufacturer of all-electric mobile power and energy storage solutions. Moxion has developed commercial-scale, powerful, silent, and emissions-free mobile battery stations that are designed to replace traditional diesel generators.

Carbon savings for Moxion are based on early usage for a 30 kilowatt (kW) electric generator compared to a baseline diesel generator. Avoided diesel emissions are calculated with inputs from Moxion's management, assuming a 10% utilization rate for representative generators (e.g. Generac). The grid charging emissions of Moxion's battery stations are deducted to yield the annual carbon savings compared to a typical generator, scaled by units in service during the period.

Palmetto
Palmetto provides services to support the deployment of residential solar power systems. These solar power systems reduce carbon emissions by providing clean energy in place of grid power.

Carbon savings for Palmetto's solar projects were evaluated on a state-by-state basis for all projects completed. Output of projects installed prior to the reporting period were fully counted for year, whereas projects installed during the year were prorated by month of installation. For each state, solar capacity factors were applied to estimate the actual clean energy output of each kW of installed capacity. This clean energy is assumed to displace non-baseload grid energy, while also avoiding transmission and distribution losses of 4.5%. The resulting avoided emissions were calculated using eGRID emission factors for each project location,.

Particle
Particle provides an integrated IoT (Internet of Things) Platform-as-a-Service that helps businesses connect, manage, and deploy software applications to connected devices. Several applications of Particle's technology have been identified as key enablers of reduced GHG emissions. Particle's technology provides the data transfer, including sensors and control information, that allows these applications to function and therefore is has an important role in these carbon savings. Emissions monitoring systems at oil and gas wells allow methane leaks to be identified with Particle's real-time data transfer, and reduced by an estimated 56% on average. Light electric vehicle tracking and operating systems enable avoided fuel combustion. HVAC monitoring systems enable energy efficiency, and industrial applications further improve energy efficiency and fuel savings.

Powin
Powin is a battery system integrator. Powin acquires battery cells from their primary manufacturers and designs and builds proprietary large-scale storage systems owned and operated by utilities and other large storage users.

Carbon savings for Powin were determined by comparing baseline grid emissions to the marginal effects of Powin's grid-connected energy storage technology.

Powin provided import (charge) and export (discharge) data (in kWh) by state and country in UTC time of day, averaged over calendar year 2022. Hourly data were converted from UTC to local times to match grid emission factors. Import and export kWh were then converted into GHG emissions (CO_2e) using hourly Open Grid Emissions factors ($kgCO_2e$ per MWh) from EIP portfolio company Singularity Energy, Inc. Emission factors were aggregated to match Powin dataset by time of day (averaged over the year). Import GHG emissions (tCO2e) were considered as the "footprint" of Powin's operational energy, and export GHG emissions (tCO2e) are considered the avoided emissions of Powin's operational energy. Total net avoided emissions are therefore calculated as Export minus Import GHG.

Project Canary

Project Canary is a data analytics and environmental assessment company focused on methane emissions measurement and reduction, freshwater use, and community impacts for energy-intensive industries. Project Canary scores responsible operations, delivering independent emission profiles via high-fidelity continuous monitoring technology to provide actionable environmental performance data. The company's sensor portfolio includes high-fidelity spectroscopy-based methane detection and emissions quantification for the oil and gas sectors, plus laser-based gas analyzers covering other emissions.

Carbon savings for Project Canary were determined by comparing Canary-certified natural gas that has reduced methane emissions versus baseline average onshore natural gas production. The company provided data for volumes of certified gas in the year, and a methane leak rate of 0.115% compared to the U.S. onshore production average methane leak rate of 0.463% (National Energy Technology Laboratory, "Industry Partnerships & Their Role in Reducing natural Gas Supply Chain Greenhouse Gas Emissions"). Avoided methane emissions are converted to CO_2 equivalents using a 100-year global warming potential (GWP) factor of 29.8 (U.S. EPA).

Rheaply

The Rheaply Platform is a cloud-based resource exchange technology application for connecting people and organizations with resources to those who need them, improving reuse outcomes, and catalyzing the circular economy. As a solution that combines an asset management system with an online marketplace, Rheaply's platform enables organizations to exchange materials and resources more effectively, eliminating unnecessary waste and expense.

Carbon savings for Rheaply are derived from the efficient repurposing of resources, which avoids waste and saves the embodied carbon that would otherwise be needed to produce new assets. These carbon savings can be estimated based on the weight of items diverted, with an estimated embodied carbon intensity per pound for each item category, summed across the company's business.

RS Technologies
RS Technologies designs, engineers, and manufactures composite utility structures including poles. RS poles are used in transmission, distribution, substation, and communication applications, and offer a lighter, more durable, and longer lasting solution over wood, steel, and concrete alternatives.

Carbon savings for RS poles are measured by comparing the lifecycle impacts of composite poles to the baseline mix of wood, steel, and concrete alternatives from cradle to grave, over the 80-year expected lifetime of a standard 45-foot composite pole. To account for differences in the lifespan of each material, the time periods are normalized for comparison purposes. For example, a wood pole with a 40-year lifespan would require two poles to last the full 80-year lifespan of a composite pole (including the production, transportation, installation, maintenance, and end of life impacts for each pole). Lifespan assumptions are 50 years for concrete poles and 60 years for steel poles. A full LCA analysis was commissioned by RS Technologies, and completed by EarthShift Global, LLC, together with an independent review panel.

Lifecycle impacts for a standard 45-foot pole were analyzed across the unit sales of the company, compared to a baseline mix of 90% wood, 3% concrete, and 7% steel.

Sense
Sense provides tools for customers to track energy use and identify opportunities for energy savings. Based on a study done for Alliant Energy, this technology is assumed to reduce carbon emissions by saving an estimated 6% of energy usage, therefore reducing marginal grid power and emissions.

Carbon savings for Sense were estimated by analyzing all Sense devices by state or province of installation. For each location, average household energy consumption was collected (EIA 2023) and factored by the number of sense devices in each location. Savings were then calculated for each location using an average savings rate of 6%, determined from the pilot study described above. Energy savings for 2023 are estimated at 73,000 MWh, enough to power 6,800 households for a year. GHG emission factors from eGRID were applied for each location in order to calculate carbon savings.

Smallhold
Smallhold is a network of organic mushroom farms that differs from the traditional farming model by operating urban farms close to the customer. Smallhold grows mushrooms on byproducts from other industries and uses only compostable cardboard packaging. Smallhold reduces overall food miles traveled, improves product quality, and extends shelf life, all while reducing carbon footprint, food waste, and plastic usage.

Carbon savings for Smallhold were estimated based on a lifecycle assessment prepared by Climate Positive Consulting (commissioned by Smallhold) that compares Smallhold mushrooms to comparable specialty mushrooms imported from Asia.

Sparkfund
Sparkfund provides energy services to commercial customers. These services include energy efficiency projects — such as lighting, heating and cooling, and other projects — that reduce carbon emissions through avoided energy consumption.

Every Sparkfund project develops its own bespoke annual and lifetime energy savings estimate. Total energy savings, in kWh, were applied, along with non-baseload emission factors from the EPA eGRID database for each project location to determine estimated carbon savings.

Urbint
Urbint offers AI solutions for utilities, including gas distribution system safety and risk management. One of these solutions includes damage prevention technologies that reduce GHG emissions by decreasing damages to distribution lines and the resulting associated leaks. Since natural gas is primarily methane, which has 29.8 times the global warming potential (GWP-100) per ton compared to CO_2, avoided methane leaks have a significant benefit to GHG reduction.

Carbon savings from the application of Urbint's technologies were estimated through damage prevention rates reported from users of Urbint's solutions, compared to historical rates, with an average reduction of 15% of damages from a 1% intervention rate (Urbint). For each avoided damage incident, the average avoided emissions were 22 metric tons of CO2e, based on an analysis of leaks published by the EPA ("Inventory of U.S. Greenhouse Gas Emissions and Sinks," Chapter 3 Annex 36, 2021) and California Air Resources Board ("Analysis of the Utilities' June 16, 2017, Natural Gas Leak and Emission Reports"). Based on the implied average per customer, damage-based leakage amount, the avoided emissions enabled are estimated.

Zolar
Zolar offers easy access to solar energy for residential customers to lease or buy solar PV systems with online tools for planning, advice, and installation services.

Carbon savings for Zolar's solar projects were evaluated by location for all projects completed. Output of projects installed prior to the reporting period were fully counted for the year, whereas projects installed during the year were prorated by date of installation. For each location, solar capacity factors were applied to estimate the actual clean energy output of each kW of installed capacity. This clean energy is assumed to displace non-baseload grid energy, while also avoiding transmission and distribution losses of approximately 4.5%. The resulting avoided emissions were then calculated using emission factors for each project location.

1.2 Lifetime Savings Enabled

All of the companies in our portfolio sell products that, once installed, reduce environmental impacts throughout their installed and operating lifespan. Accordingly, for carbon savings only, we have computed the emissions savings we help enable over the life of the installed measures. In calculating lifetime savings, we have assumed that grid carbon intensity declines linearly from current levels to zero by 2050. The assumed life span of each company's primary technology is shown in the table below:

Company	Lifespan (years)
Aeroseal	30
Arcadia	30
Cimcon	20
Cosmic Bliss	1
Derive	7
Dragonfly Energy	10
Ecobee	10
Enchanted Rock	20
ES Solar	30
EV.Energy	5
EVMo	10
FLO	10
Grover	3
HeatTransformer	15
Hippo Harvest	1
HomeTree	15
HopSkip	5
Instagrid	10
ION Solar	30
Manus Bio	10
Mill	5
Mosaic	30
Moxion	10
Opus One	10
Palmetto	30
Particle	5
Powin	5
Project Canary	5

Rheaply	1
RS Tech	1
Sense	10
Smallhold	5
SmartRent	10
Sparkfund	10
Urbint	5
Viriciti	10
Volta	5
Zolar	30

1.3 Exited Company Estimates for Increased Lifetime Carbon Savings Enabled

When companies exit the portfolio, updated information is no longer provided by the companies. Estimates for these companies' annual increase in lifetime cumulated savings are based on the activity through EIP's final year of ownership, since this deployment was funded in part through EIP's investment.

Cimcon
Cimcon provides smart city solutions including street lighting management that provides intelligent controls such as adaptive dimming. Carbon savings result through energy efficiency from dimming as well as from fuel savings due to reduced maintenance "truck rolls."

Carbon savings for Cimcon were calculated by analyzing the energy consumption of the baseline of fully-on LED streetlights compared to Cimcon's adaptive dimming, with 50-60% dim rates for 5 hours nightly according to company sources. Cimcon saves 20% of the energy of already-efficient 45-55W LED fixtures, which equates to 34,000 MWh of energy savings. In addition, maintenance alerts cut truck rolls by 2/3 compared to traditional streetlights, which saves 60,000 gallons of fuel annually.

ecobee
ecobee sells Wi-Fi enabled smart thermostats that save energy for heating and cooling. By automatically adjusting thermostat set-points, heating and cooling systems run for less time, directly saving on consumption of electricity, natural gas, and other fuels.

Carbon savings for ecobee were determined using actual company data on reduced runtime of heating and cooling systems for each location, based on company studies. The runtime savings were applied to the energy consumption rate of typical heating and cooling systems, including efficiency losses. For emissions calculations purposes, heating systems are assumed to use natural gas, although in some regions, fuel oil, electricity, and other energy sources are used. Cooling systems use electricity for typical air conditioners. To convert energy savings to carbon

emissions avoided, EPA and eGRID emission factors for each state are applied based on the location of ecobee customers.

EVmo
EVmo is a leading technology-enabled fleet management and rental company, connecting gig drivers with electric, hybrid and delivery vehicles.

Carbon savings for EVmo were determined by comparing the fuel and energy consumption of the company's efficient fleet to the baseline fleet of average U.S cars. The company provided fleet data including vehicle model and time of service, with an average annual distance traveled of 16,400 miles. For each vehicle, fuel economy was sourced from the U.S. Department of Energy (www.fueleconomy.gov) compared to the avoided baseline of gasoline consumption at an average rate of 25.2 miles per gallon (mpg) from the U.S. Federal Highway Administration.

Opus One
Opus One's GridOS Platform offers electric distribution utilities tools to optimize energy planning, operations, and market management. Opus One's technology enables many benefits for utilities, including reduced power grid losses.

Carbon savings were estimated on the basis of a study by the Bloom Centre for Sustainability ("Environmental Benefits Initial Report for Opus One Solutions' GridOS" 2017), which quantified potential environmental benefits. For 2022, Opus One served feeders in multiple locations with an average 10-MW peak load per feeder, with an assumed 50% load factor over the year. Based on the Bloom study, we assumed that energy savings averaged 1.5% from improved voltage management and power factor correction. This resulted in energy savings, with carbon savings calculated using location-specific emission factors.

SmartRent
SmartRent is an enterprise smart home automation company developing software and hardware that empower property owners, managers, and homebuilders to effectively manage, protect, and automate daily operational processes.

Carbon savings were measured for the deployment of smart thermostats across SmartRent's portfolio. Baseline energy consumption for an average 900-square-foot apartment was estimated for each thermostat location (EIA Electric), with associated carbon emissions using EPA emission factors. Smart thermostat energy savings were assumed to be 10%, based on DOE estimates (www.energy.gov/energysaver/thermostats). Total energy savings yield a net carbon savings using EPA emission factors.

Volta
Volta delivers free electric charging stations to property owners and free power to electric vehicle drivers with advertising-supported services. The company enables carbon reductions by providing charging services across a network of stations.

Carbon savings for Volta were calculated using company provided data for distance traveled for electric cars in the U.S. Electric vehicle travel was assumed to displace gasoline vehicle travel. The gasoline baseline was assessed at an average fuel efficiency of 25.0 mpg (US FHA) with a gasoline emission factor of 8.8 kg CO2e per gallon (US EPA). By comparison, electric vehicles have zero tail pipe emissions but do require grid energy for charging. Electric vehicle energy consumption was calculated using an average efficiency rate of 0.3 kWh per mile (per Volta). Average U.S. grid emission factors (EPA eGRID) were applied to determine the carbon footprint of the charging energy for electric vehicles. The overall net benefits include fuel savings, with carbon savings calculated using EPA emission factors (which represents the net savings including the grid emissions for battery charging).

1.4 Five-Year Projected Carbon Savings

Five-year projected carbon savings are measured for pre-commercial companies using company activity data that includes sensitive and proprietary information. We have access to this data for our carbon calculations but have agreed to not disclose confidential information. Our descriptions below refer to this data in general terms, as well as the methodology, references, and results of our calculations.

6K

6k has developed a flexible, compact process for manufacturing of low-cost battery cathode materials with a scalable, low cost and sustainable process. This platform provides up to 50% lower conversion costs, 20-30% CAPEX reduction, and up to 30% reduction in energy costs.

Using company provided LCA data and assessing the comparison between state-of-the-art NMC production and the 6K unimelt process, a unit impact was determine. This is sensitive to energy sourcing and grid mix, as using renewables and green energy for the manufacturing process would result in large comparative reductions. We utilized multiple cases to determine the appropriate carbon unit impact, and did not assume renewable energy use. We then assess the production plant schedule, and utilized the total product produced to determine the projected emissions reduction.

AtmosZero

Five-year planned carbon savings for AtmosZero were calculated by the EIP Impact & Sustainability team and verified by AtmosZero's Chief Technical Officer, Ashwin Salvi. In this case, AtmosZero's technology was compared to a fossil-fired boiler baseline. Using the company's installation projections for its first five commercial years and assuming a 95% annual runtime, the total heat generation was estimated. The emissions from AtmosZero's technology were calculated by adjusting the output energy (heat) with an average coefficient of performance (COP) of 1.8xto estimate the necessary input energy. This amount was multiplied by the US grid emission intensity, sourced from the EPA GHG Emission Factors Hub. For the purposes of forecasting the carbon savings into future years, the emission factor sourced from the EPA was adjusted for a net zero grid by 2050 scenario. The baseline emissions for the same amount of energy (heat) generation using a fossil-fired boiler with an assumed efficiency of 80%. The sum of the differences in the AtmosZero emissions and the baseline emissions over the period 2025-2029 was reported.

Boston Metal

Boston Metal makes steel from iron ore and electricity via molten oxide electrolysis ("MOE"). The baseline is current steelmaking, which is approximately two-thirds from the Blast Furnace/Basic Oxygen Furnace ("BF/BOF") or integrated steelmaking method. The remaining

one third is primarily electric arc furnace ("EAF").[1] Under the IEA's 2050 BAU scenario BF/BOF steel is 50% of production. Furthermore, it is unlikely that MOE would displace EAFs, which are already electric – at least for the foreseeable future.

Boston Metal has assembled a wide variety of sources on the current carbon intensity of steelmaking and these sources agree with the World Steel Association ("WSA") which reports 1.85MT CO_2/MT steel.[2] This number is a conservative estimate because the average includes EAF steel which has a CO_2 intensity that will decline as the grid decarbonizes. In addition, the WSA average CO_2 intensity and steel manufacturing company POSCO's steel's data show that average industry CO_2 intensity has flattened out in the last five years, so we assumed a static baseline over time.

Both MOE and BF-BOF steel use approximately the same iron ore input, resulting in similar embodied energy inputs between the two processes. MOE does not use coking coal, but the baseline BF/BOF does, so CO_2 emitted by coking coal is included in the baseline. Therefore, the difference in emissions between the two processes is in the energy needed for MOE less the emissions associated with the BF-BOF process.

Boston Metal provided data that shows the current and future MOE steel energy requirements, as we expect the energy to decline over time. To complete the carbon savings calculation, we estimated:

a) the amount of BM MOE steel expected to be sold in each region of the world (l) in each year (t) or MOE(l,t)
b) the average emissions intensity of the grid in each region and year in MT per kWh, or EI(l,t)

Carbon America

Carbon America provides turnkey carbon capture and sequestration (CCS) across the entire capture-transport-storage value chain. CCS allows emissions from large point sources to be captured, which allows existing technologies to decrease their emissions footprint.

Carbon America has developed a detailed LCA, which forms the basis of this analysis. The three major elements associated with Carbon America's projects are: building infrastructure to capture and sequester the embedded emissions, operating the CCS facility, operations, and the emissions sequestered geologically. These three elements were then assessed across the top five project types: ethanol, cement, steel, natural gas combined cycle power plants, and coal power plants.

[1] Global crude steel production by process route and scenario, 2019-2050, International Energy Agency, October 2020. https://www.iea.org/data-and-statistics/charts/global-crude-steel-production-by-process-route-and-scenario-2019-2050

[2] Climate change and the production of iron and steel, World Steel Association, 2021. https://worldsteel.org/publications/policy-papers/climate-change-policy-paper/

Detailed analysis of embedded emissions was done for each project type, and with analysis for adjustments by application. Total operating energy emissions were captured, but did not include minor emission from sequestration operations like seismic data acquisition, sample collection and other logistics due to uncertainty in data. This was then combined with the intensity of the emissions captured for each type of application, resulting in a net unit carbon saved calculation per project type.

Each unit carbon savings calculation for each project type was then combined with deployment expectations over five years post commercialization to generate a measurement for the planned impact of the technology.

Ceibo

Ceibo is a Chilean company developing advanced copper production using more sustainable operations.

Planned carbon savings are estimated compared to a baseline of traditional copper production. A lifecycle assessment (LCA) study[3] is used to compare the impacts per ton of copper produced from hydrometallurgy like Ceibo, against the baseline pyrometallurgy process with a comparative impact assumed of 4.9 vs. 6.0 tons CO2e per ton Cu. This unit impact is applied for Ceibo's forecasted copper production through five years of commercial operation.

Cyclic Materials

Cyclic materials has prepared a life cycle analysis (LCA)[4] that examines both the life cycle emissions for virgin neodymium oxide (NdO) and its circular (recycled) product.

EIP reviewed this LCA and believe it is accurate and appropriate for carbon savings calculations. We agree that the baseline is virgin NdO produced from two mining basins, Banyan Obo and Mountain Pass. Based on production figures provided by Cyclic, we weight these 92% and 8% respectively. Estimate LC emissions for this baseline mixture is 137 kg CO2e/kg NdO.

The LCA also estimates that Cyclic's recycled NdO requires 51.3 kg CO2e/kg NdO. The difference between the baseline and Cyclic's emissions are 87 kg CO2e/kg NdO. This difference is applied to the estimated first five years of NdO production by Cyclic (proprietary) to determine total carbon projected carbon savings.

Electric Hydrogen

This impact calculation compares Scope 1 and 2 carbon emissions differences between Electric Hydrogen and baseline H_2 production technology. Scope 3 emissions differences are unlikely to be material (or for many Scope 3 categories, nonexistent), with the possible exception of energy for manufacturing capital goods for Electric Hydrogen and baseline technologies. Electric

[3] Moreno-Leiva et al, "Towards solar power supply for copper production in Chile: Assessment of global warming potential using a life-cycle approach

[4] Cyclic Materials LCA was prepared by Minviro

Hydrogen's electrolyzers make hydrogen from electricity; they are designed specifically to make 100% green hydrogen from 100% wind or solar energy, operating intermittently (unfirmed) and therefore generally at a low overall capacity factor.

Electric Hydrogen estimates that its initial addressable market will be the replacement of hydrogen produced by steam methane reformers (SMR). SMR is the predominant method for making hydrogen today for industrial uses, including the two largest use cases, ammonia production and oil refining.

We choose SMR H_2 production as the baseline technology. H_2 produced by the Electric Hydrogen process and SMR is identical and used identically in all further processing. Therefore, the only differences in emissions involve the production of the H_2 itself, ie. SMR process versus Electric Hydrogen production process. There is no need to assess the downstream processes, as they are identical.

The upstream difference in the two production processes for H_2 come from inputs – capital, labor, and consumed/changed material inputs. We don't have the data to measure differences in life cycle capital goods, which would be part of Scope 3 or an LCA, nor labor inputs. In general, these differences should not be material for long-lived capital devices and low-labor processes. The input differences are significant; one process uses only water and the other natural gas. There is some embodied energy in water, but a much larger amount in the natural gas.

Literature review provided a range of 8-12 kg CO_2e/kg H_2 from SMR. Unpublished data from Electric Hydrogen indicates that consideration of the life cycle impacts of H_2 production (e.g., methane leaks in production and delivery to the reformer) add 2-3.9 kg CO_2e/kg H_2. In this case, life cycle should mean largely upstream carbon emissions related to SMR, which will differ from Electric Hydrogen upstream carbon, so we include them.

Electric Hydrogen provided data to build a calculation model to show the MW capacity of Electric Hydrogen production over time. Since the GHG footprint of Electric Hydrogen is zero,[5] the GHG savings/impact figure for Electric Hydrogen is the product of the H_2 created by Electric Hydrogen electrolyzers multiplied by its carbon intensity.

Form Energy

Form manufactures units that provide multi-day electricity storage (MDS). We assumed that the baseline that natural gas generation would be the marginal resource displaced by multiday storage (MDS.) Therefore, we utilized an emissions factor of 0.412 MT CO_2/Mwh from EIA

Form calculated the total CO_2 emissions reductions associated with their iron-air technology over the five-year period post commercialization. We assumed a total number of megawatts of multi-day storage in each year of the analysis period based on their projected manufacturing

[5] Excluding the manufacturing energy and energy embodied in input water, as noted.

schedule. These volumes of battery storage are assumed to charge from surplus zero-carbon renewable energy that would have otherwise been curtailed. The number of megawatt-hours of electricity discharge in each year from the iron-air batteries was calculated using a capacity factor of approximately 11%, which is the average capacity factor that has resulted from other analyses done in Formware™, Form's proprietary optimization and production cost tool.

Koloma

Koloma is developing technology to identify, access, and produce geologic hydrogen, resulting in clean, cost-effective energy worldwide.

Planned carbon savings are estimated compared to a baseline of gaseous hydrogen produced at a central plant from natural gas. A lifecycle assessment (LCA) study prepared by LifeCycle Associates is used to compare the impacts per unit of H2 produced by Koloma's geologic production process, against the baseline with a comparative impact up to 0.37 gCO2e/g H2 vs. 11 gCO2e/g H2. This unit impact is applied for Koloma's forecasted copper production through five years of commercial operation.

Metafuels Aerobrew

The following materials are reproduced from a case study of our avoided emissions calculations published by the Glasgow Financial Alliance for Net Zero (GFANZ).

Aerobrew is an almost identical substitute for fossil-based aviation fuels. Under current aviation rules, it can substitute gallon-for-gallon for up to half of the total fuel consumed in any one aircraft. The baseline scenario is the continued use of 100% fossil-derived aviation jet fuels over the next five years. While some air carriers may use biofuels or other replacements for conventional jet fuel, Metafuels' product would only make sense as a substitute for fossil-derived jet fuel, not as a head-to-head competitor with other sustainable aviation fuel (SAF) products.

The life-cycle carbon emissions from aviation fuel have been thoroughly documented in several studies. EIP uses 89 g CO2e/Megajoule as the baseline LCA emissions for jet fuel (see rightmost bar in figure 1 below), or 3.9 kg CO2e per kg jet fuel[6].

This figure is based on the Carbon Offsetting Scheme for International Aviation (CORSIA) scheme, described by Jing as follows: In response to mounting climate concerns, the Carbon Offsetting Scheme for International Aviation (CORSIA) was adopted as a voluntary carbon offset and emissions reduction program in 2016 and has been applied to international aviation since 2019. As a global market-based measure, CORSIA can assist the International Civil Aviation

[6] Liang Jing, et al. Understanding variability in petroleum jet fuel life cycle greenhouse gas emissions to inform aviation decarbonization. Nature Communications, Dec. 2022, https://doi.org/10.1038/s41467-022-35392-1

Organization's (ICAO's) goal of carbon-neutral growth via CORSIA-eligible fuels (CEFs) to reduce the industry's emissions offsetting requirements.

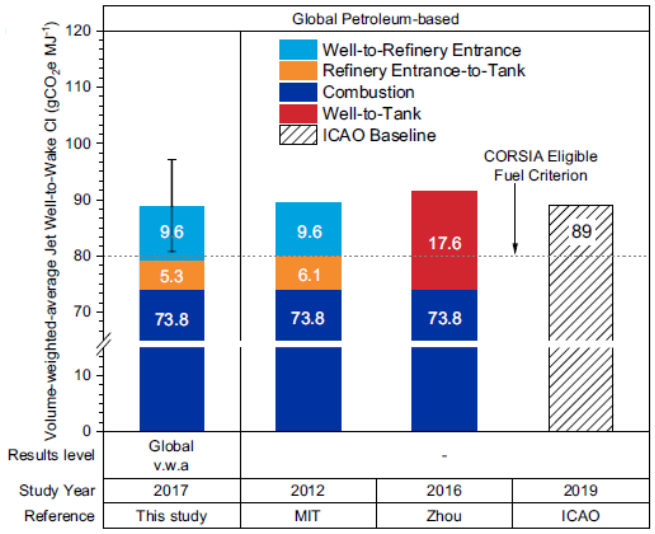
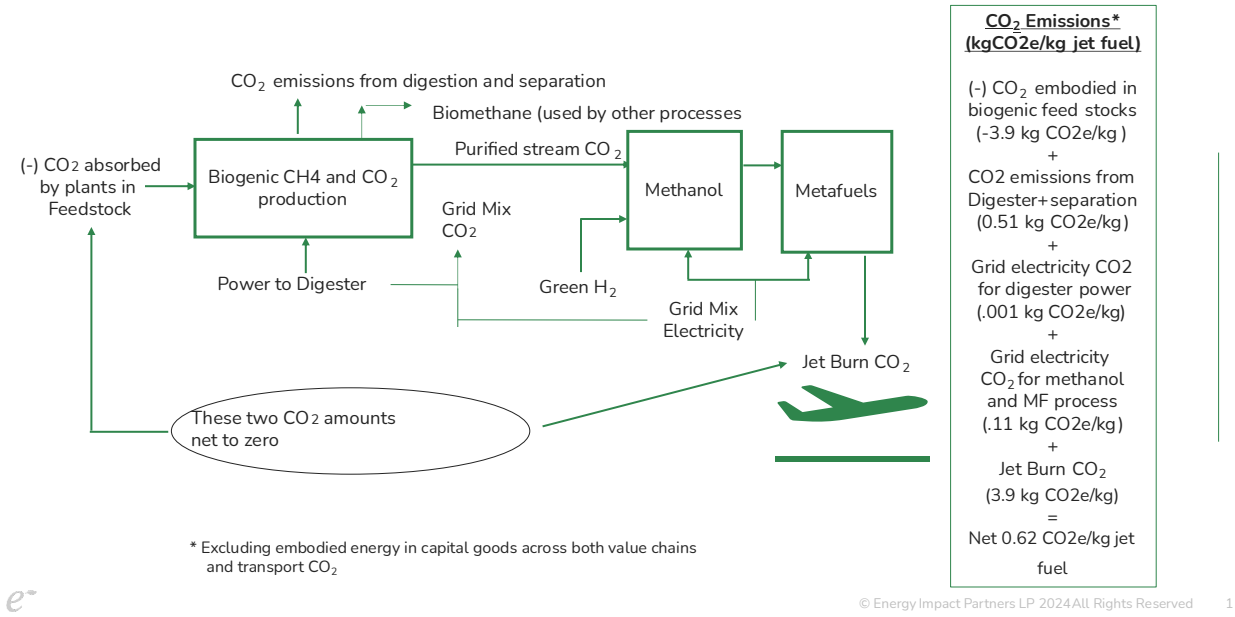


Figure 1: Life Cycle Emissions from Fossil-Based Aviation Fuels. Four estimates of the life cycle emissions from aviation fuels. EIP uses the ICAO estimate of 89 gCO2e/MJ, the ICAO 2019 figure. The figure shows there is very little variation in estimates for this product. Source: Jing, et al (2022)

As shown in Figure 2 below, Metafuels' carbon emissions over its production cycle (excluding capital stock embodied energy) equals the sources of GHGs detailed, offset by the carbon absorbed by the biogenic feedstock. These emissions are the sum of: GHG emissions from fuel and electricity use during the creation and separation of biogas into biomethane and the pure CO_2 feedstock used by Metafuels; emissions associated with the hydrogen input to methanol production; and emissions associated with electricity used in the methanol and Aerobrew processes (there is no fuel burned in these processes). In our 2024 calculations, GHG emissions from fuel and electricity used during biogas creation and separation were .51 kg CO2e/kg jet fuel; the emissions from hydrogen production were zero because Aerofuel will be produced from green (i.e. zero-emissions) hydrogren; and emissions from electricity use for methanol/Aerobrew production are .11 kg CO2e/kg jet fuel. These emissions sum to a net amount of 0.62 kg/kg jet fuel. Because the biogenically absorbed CO2e equals the emitted CO2e from jet fuel burn, both 3.9 kg/kg jet fuel, these two amounts cancel out and the net overall emissions from the metafuels Aerobrew process are 0.62 kg/kg jet fuel.[7]

[7] According to Metafuels, Aerobrew creates slightly fewer airborne combustion products than conventional jet fuel and therefore slightly lower global warming potential, but we do not factor these benefits into our calculation.



Nitricity

Globally nitrogen fertilizers support much of the agriculture industry, and fertilizer production is powered by the Haber-Bosch process. The Haber-Bosch process utilizes hydrogen and nitrogen to produce ammonia, which can then be used to produce multiple fertilizer compounds. Depending on the source of the fossil fuels that are used to generate the hydrogen, this can result a range of carbon intensity for the Haber-Bosch process. In addition to production emissions, current fertilizers also volatilize N_2O emissions.

Nitricity manufactures fixed nitrogen with comparatively much lower associated CO_2 emissions and volatilized N_2O emissions per pound of nitrogen than comparative fertilizers. Nitricity provided growth projections which enabled estimates of their future market share of the global nitrogen fertilizer market.

Using these assumptions and conservative estimates, which included assuming the maximum carbon emissions from the Nitricity process and minimum Haber-Bosch carbon intensity per pound of nitrogen, a unit carbon measurement was completed. This was combined with company forecasts over five years to generate a planned impact measurement.

Rondo

Rondo Heat Batteries (RHB) use electric heating elements, like those in a toaster or oven, to transform low-cost intermittent electricity into high temperature heat. When power is available

from renewable sources bricks are heated directly by thermal radiation and store energy for hours or days, delivering heat as superheated air or steam for use in industrial processes.

It is difficult to utilize renewables for industrial heating under the status quo, as renewables are intermittent in nature. RHBs replace baseline natural gas steam boilers, once-through heat recovery steam generators, or electric boilers for use for heat, power, or combined heat and power (CHP). Scope 1 and 2 CO_2 reductions between the baseline, with data sourced from EPA and CA Greet databases, along with heater/boiler combustion efficiencies of 60-99%, and storage size in MWh assessed over 15+ data sets across multiple use cases allowed an average carbon emissions reduction per unit to be determined. Using company provided installation plans, separate from sales plans to account for lags between sales cycles and implementation, an annual and cumulative carbon emissions reduction calculation was generated over five years.

Rubicon Global

Annual carbon savings information for Rubicon Global was provided by the company and verified by the EIP Impact & Sustainability team. Avoided emissions were calculated using the EPA Waste Reduction Model (WARM)[8]. To calculate avoided emissions, waste diverted due to the Rubicon Global platform was disaggregated by material/category and multiplied by the appropriate emission factor from the WARM library. To calculate lifetime avoided emissions, one full year of savings was multiplied by an estimated useful life of five years for the product.

Scythe Robotics

Annual carbon savings for Scythe Robotics were calculated based on the Scythe Mowers deployed in 2023. The emissions from Scythe were calculated as the energy required to charge and operate the Scythe Mower, plus an estimated 0.45 kgCO2e/kg device weight for increased manufacturing and maintenance emissions[9]. The baseline used in this calculation was gasoline-powered four-stroke lawn mowers. To estimate the emissions from the baseline technology, emissions were based on fuel consumption and combustion. An assumed 915 gCO2e/hp-hr[10] was multiplied by 20 horsepower (the same as the Scythe Mower) and multiplied over the same number of hours that Scythe Mowers were used in 2023. To calculate lifetime savings, the hourly net emissions savings from one Scythe Mower were annualized and multiplied over a useful life of five years for the currently deployed devices..

SMTI

SMTI (Stone Mountain Technologies, Inc.) is a manufacturing and technology development firm that provides customers with high comfort, cost-effective, low carbon heating and cooling with gas absorption thermal heat pumps and thermal compressors.

[8] https://www.epa.gov/warm

[9] https://esol.ise.illinois.edu/static2/pdf/IJLCA2021.pdf

[10] http://www.cleancitiessacramento.org/uploads/2/7/8/6/27862343/final-lca_-_lpg-perc-mower-v5-1.pdf

Carbon savings for SMTI are based on thermal heat pumps used for residential space heating and water heating, and commercial water heating, compared to traditional gas heating systems. SMTI performance assumptions for thermal heat pump systems are 140% efficiency for residential space heating, 125% efficiency residential water heating, and 140% efficiency for commercial water heating. Baseline assumptions for traditional gas heating systems are 90% efficiency for residential space heating, 65% efficiency residential water heating, and 90% efficiency for commercial water heating. Five-year planned carbon savings are based on impacts per heating application, scaled by unit sales forecasts.

Sublime Systems

Sublime systems is commercializing a process to make low-carbon cement that can be a drop in replacement for ready-mix. We used ordinary Portland cement (OPC), the most common type of cement in general use, as the baseline technology. OPC plants produce cement with a range of .73-.85 tons CO_2 / ton product.[11] The CO_2 reduction will increase from 50% in demo to 95% as OPC is backed out as a component of the product.

We then utilized company provided construction and production plant forecasts, incorporating the delta between construction of a plant and full production of product as the basis for emissions reductions over five years.

Transaera

Planned five-year carbon savings information for Transaera was provided by the company and verified by the EIP Impact & Sustainability team. This calculation was based on the Transaera rooftop unit (RTU), which is currently planned to be the focus for the company's early commercial years. This is a change from last year where the early commercialization plan broadly included residential, commercial, and industrial equipment. The baseline scenario used in this calculated was a traditional RTU assumed to be used in a commercial setting. Carbon savings from Transaera were calculated through three mechanisms: energy efficiency, natural gas abatement from electrified heating in the Transaera scenario, and reduced emissions from zero-GWP refrigerant (R290 in the Transaera scenario and R410a in the baseline scenario). In both scenarios (as needed), fuel emissions factors and information on emission intensity for the US electric grid were sourced from the EPA GHG Emission Factors Hub. Other information came from spec sheets for comparable incumbent technologies, published data on emissions from refrigerants, and company R&D data. A mean product life of 12 years was used. The unit impact was then multiplied over the company's expected deployments over the period 2024-2028.

Zap Energy

The baseline for this calculation is the electric power systems of the US and EU expanding and operating without Zap Energy's reactors. Our baseline assumes that the US power system has carbon emissions that decline linearly to zero between now and 2050.

[11] He, Zhijun & Zhu, Xiaodong & Wang, Junjie & Mu, Mulan & Wang, Yuli. (2019). Comparison of CO 2 emissions from OPC and recycled cement production. Construction and Building Materials. 211. 965-973.

As Zap Energy provides small amounts of baseload power and is presumed to sit at the bottom of the dispatch order, it will displace power that would otherwise be provided by other baseload sources. The major options and comments on them are shown in the table below.[12]

Baseload Fuel Type	2020 % U.S. Baseload-power	Comment
Coal without CCS	24.6%	We project that coal plants will be steadily displaced by carbon-free fuels. Zap Energy replacing coal energy would be the most impactful and beneficial.
Natural gas plants without CCS	43.5%	Natural gas plants are likely to remain more expensive as baseload options than coal plants and therefore are on the dispatch margin, with or without CCS
Wind and solar firmed by batteries	0	This option will become the equivalent of baseload energy only when seasonal storage is widely available at approximately a 100x cost reduction.
Current nuclear plants	21.3%	Current nuclear plants will retire on fixed schedules. It is unlikely that Zap's tech will replace all 1000 MW nuclear plants, either from the size or timing standpoint, but it is possible.
Gas or coal with CCS	0	Gas or coal with CCS will compete directly with Zap Energy and almost certainly be the marginally dispatched (most expensive to operate) baseload plant.

Note this table does not include hydro (7%), which we do not think will be displaced, nor biomass and geothermal (3.5%) because they are too small.

The company's own internal product timeline has 50 MW pilot plants starting operation in 2030 consistent with the 2030 market entry scenarios in Spangher, Vitter, and Umstattd, *Energy Strategy Reviews* 26 100404 (Nov 2019), which show zero to 1221 MW installed in 2030-2035 under the 10% to 50% market penetration scenarios.

Among fossil-generated power choices it is more conservative and probably more realistic to assume that Zap Energy displaces baseload natural gas generation than coal. Gas is the largest fraction of baseload power today, and we believe coal will be phased out regardless of Zap Energy's market entry. In addition, gas plants are far more numerous, tend to be smaller, and need not operate in baseload mode and therefore may be partially displaced rather than eliminated entirely. For all these reasons, we assume Zap Energy additions displace gas combined-cycle power generators. In terms of the GHG protocols, this is equivalent to assuming

[12] Energy Information Administration and Ella Chao, National Renewable Energy Laboratory, April, 2022.

that Zap Energy affects both the build and operating margins, but in both cases the generation that is eliminated comes from average gas combined cycle plants.

2.0 Measuring Carbon Footprints

2.1 EIP Internal Footprint

Corporate Emissions – Scope 1 & 2

EIP has seven main office spaces including our New York City headquarters and offices in Washington D.C., San Francisco, Atlanta, Palm Beach, London, and Cologne[13]. The Scope 1 and 2 emissions for these spaces were estimated based on the weighted-average consumption of electricity and natural gas from our Washington D.C. office on a per-square-foot basis. In 2023, we moved into a larger Washington D.C. office, so the consumption from each of these two spaces was considered in calculating the weighted average energy consumption. Additionally, all our US office spaces are certified LEED Gold[14] with the exception of Palm Beach, our London office is in a building with a strong sustainability strategy[15], and our Cologne office is in a carbon neutral workspace[16].

Scope 1

The calculated weighted average natural gas consumption from heating was .04 MMBtu/sf. Using this figure, the Scope 1 emissions from building heat were calculated as shown in the following table:

Location	Area (sf)	Natural Gas Consumption (MMBtu)	Emission Factor[17] ($kgCO_2e$/MMBtu)	**Total Emissions ($kgCO_2e$)**
New York City	13,500	574	53.11	30,494
Washington D.C. (1)*	2,294	119	53.11	6,317
Washington D.C. (2)*	3,754	90	53.11	4,763
San Francisco	3,278	139	53.11	7,403
Palm Beach	1,875	80	53.11	4,235
London	286	12	53.11	646
Cologne	264	11	53.11	596
Total				**54,454**

*Adjusted for the portion of the year each space was leased by EIP This figure was rounded to 54 metric tons CO2e for reporting.

[13] Scope 1 and 2 emissions from the Atlanta office were not calculated for 2023. Given the size of EIP's space in this building, this does not amount to a material difference in Scope 1 and 2 emissions.
[14] https://www.usgbc.org/projects/
[15] https://www.workargyll.com/sustainable-workspaces/
[16] https://www.designoffices.de/en/sustainability
[17] Calculated using EPA Greenhouse Gas Emission Factors Hub using emission factors for CO_2, N_2O, and CH_4

Scope 2

The calculated weighted average electricity consumption was 7.75 kWh/sf. Using this figure, the Scope 2 emissions from purchased electricity were calculated as shown in the following table:

Location	Area (sf)	Electricity Consumption (kWh)	Emission Factor[18] ($kgCO_2e$/kWh)	**Total Emissions ($kgCO_2e$)**
New York City	13,500	104,700	0.40	42,103
Washington D.C. (1)*	2,294	21,300	0.30	6,403
Washington D.C. (2)*	3,754	17,300	0.30	5,197
San Francisco	3,278	25,400	0.23	5,757
Palm Beach	1,875	14,500	0.37	5,387
London	286	2,200	0.20	441
Cologne	264	2,000	0.40	817
Total				**66,104**

*Adjusted for the portion of the year each space was leased by EIP. This figure was rounded to 66 metric tons CO2e for reporting.

Restatement of 2022 Scope 1 & 2

With new and more accurate information on our actual energy consumption, we also restated our 2022 Scope 1 and 2 emissions because there was a significant difference in the estimated averages used in previous years' calculations and the weighted average consumption calculated from actual data. Due to this, we restated our 2022 Scope 1 and 2 emissions from 127 tCO2e to 107 tCO2e to show the true trend in our footprint growth, given the growth in our full-time headcount and leased square footage. We also used more up-to-date data from eGRID to better reflect the emissions from the electric grid in its 2022 state.

Scope 3

Partial Scope 3

We define Partial Scope 3 emissions as all material Scope 3 categories, excluding Category 15 Financed Emissions, which we have accounted for separately. The categories measured as part of our assessment are shown in the following table:

Category	**Included (Y/N)**
1: Purchased good and services	Y
2: Capital goods	Y
3: Fuel- and energy-related activities	Y
4: Upstream transportation and distribution	N
5: Waste	Y
6: Business travel	Y

[18] Emission factors for purchased electricity in US offices are sourced from eGRID, also in the EPA GHG Emission Factors Hub, for the applicable subregion and are converted from $lbCO_2e$/kWh to $kgCO_2e$/kWh. Emission factors for purchased electricity in European offices are sourced from electricitymaps.com

7: Employee commuting	Y
8: Upstream leased assets	N
9: Downstream transportation and distribution	N
10: Processing of sold products	N
11: Use of sold products	N
12: End-of-life treatment of sold products	N
13: Downstream leased assets	N
14: Franchises	N
15: Investments	Yes (in following section)

EIP partnered with Greenly[19] to conduct our Scope 3 emissions assessment for 2023. For Partial Scope 3 emissions, we used an expense-based approach which estimates emissions based on our outlays in different operational areas. The results of the assessment are summarized in the following table:

Category	**Emissions (tCO_2e)**	**Share (%)**
Travel and Commute	711	36.9%
Food and drinks	318	16.5%
Energy*	36	1.9%
Services purchase	388	20.1%
Product purchase	148	7.7%
Digital	74	3.8%
Activities and events	196	10.1%
Assets	46	2.4%
Freight	3	0.2%
Waste	7	0.4%
Total	**1,927**	

*Energy emissions calculated as 30% of aggregate Scope 1 and 2 emissions

Restatement of 2022 Partial Scope 3

In reviewing the changes in certain Scope 3 categories between 2022 and 2023, we also identified areas where expenses could have been more accurately categorized in 2022, leading to year-over-year decreases in emissions shows in categories where we did not believe there could have been reduction, given our activities through 2023. For this reason, we also revisited the categorization of expenses for our 2022 assessment and significantly revised some areas. In keeping, we restated our 2022 Partial Scope 3 footprint from 2,190 tCO2e to 1,433 tCO2e. The breakdown of these restated emissions is summarized in the following table:

Category	**Emissions (tCO_2e)**
Travel and Commute	418
Food and drinks	290
Energy*	32
Services purchase	319
Product purchase	145
Digital	43

[19] https://greenly.earth/en-us (Greenly is also an Energy Impact Partners portfolio company)

Activities and events	111
Assets	63
Freight	3
Waste	9
Total	**1,433**

Financed Emissions (Scope 3 Category 15: Investments)[20]

EIP also partnered with Greenly to conduct our financed emissions assessment. We used a mix of methodologies in this assessment in an effort to use the best available data for each individual portfolio company. These methodologies are as follows:

1. **Company-reported emissions:** In our annual questionnaire, we asked portfolio companies for information on their GHG emissions where available. Some companies were able to provide complete GHG emissions assessments, and in cases where these were available, we confirmed our understanding of the assessment boundaries and outcomes prior to using these data in our report. (n=3)
2. **Partially reported emissions:** In many cases, companies were able to provide energy consumption information that allowed us to estimate Scope 1 and 2 emissions or had partial GHG assessments (i.e., Scope 1 and 2 only). In combination with this information, we used one of the following methodologies to estimate Scope 3 emissions, in order of preference.[21] (n=64 measured with partially reported information)
3. **Expense-based estimates:** In the absence of a company-level GHG emissions assessment or information about energy consumption, EIP requested a trial balance, profit and loss statement, or general ledger from portfolio companies to enable an expense-based emissions assessment either for all scopes, or only for Scope 3 when better information was available for Scopes 1 and 2. This was done by Greenly using their library of emission factors. (n=13 measured only with expense-based information)
4. **Proxy estimate:** in cases where no other methodology was possible, we used company size (in FTEs and/or revenue) and industry to estimate GHG emissions. (n=20 measured only with proxy information)

[20] Williams Industrial Services was not included in our financed emissions assessment due to the lack of necessary information to enable a calculation or estimation.

[21] Estimates made with energy consumption information were conducted on Metric ESG (https://www.metric-esg.com/) using their emission factors and platform.