



# WE HATE CARBON OFFSETS, BUT WE BOUGHT 'EM ANYWAY

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# Executive Summary

Leaders around the world are looking increasingly to carbon offsets as a solution to the global climate crisis. Under this scheme, businesses and individuals can pay to fund carbon reduction projects, such as reforestation, to balance the impact of their own GHG-emitting operations. The idea that you can buy carbon credits while continuing to engage in polluting behaviors does not sit well with many scientists, activists, and others -- including us. Unfortunately, we are still a long way off from creating a carbon neutral future, with even the most progressive states in the country targeting [carbon neutrality no sooner than 2045](#), and the largest polluters in the world still lagging behind.

At Point Energy Innovations, we are at the forefront of developing a carbon neutral future, studying [the benefits of all-electric new construction for the UC Office of the President](#), and designing numerous all-electric renewable powered projects throughout California. Our work in this area inspired us to turn our analysis inward to quantify our company's emissions, and determine what more we could do about it. Our analysis showed that our company's annual emissions are just 74 metric tons CO<sub>2</sub>e. Put in perspective, this is roughly one third of the carbon that is *saved* annually by just one of our high-performance building projects.

Though offsets are a controversial solution, until we develop enough carbon-free energy resources to power the global economy, they are the only option for those that have already taken steps to reduce their impact by other means. Being a sustainability-focused firm, we have already implemented many practices and programs that lower our impact. 100% of our employees commute via public transit, our low-energy office uses one third of the energy of a typical office in San Francisco (let us know if you want to come by for a visit), and we offer a repair benefit to encourage reuse rather than disposal, to name a few. Because of this, we researched verified carbon offset projects as a way to go completely carbon neutral.

Our team elected to purchase offsets that support three projects that are directly focused on alleviating energy poverty via increased access to renewables. The projects provide solutions at all scales, from [providing families with solar cookstoves](#) to [helping farmers capture biogas](#) all the way up to [building a 100 MW wind farm](#). These projects are also unique examples of effective community engagement, in which the needs of the local population are prioritized in creating an effective carbon mitigation solution.

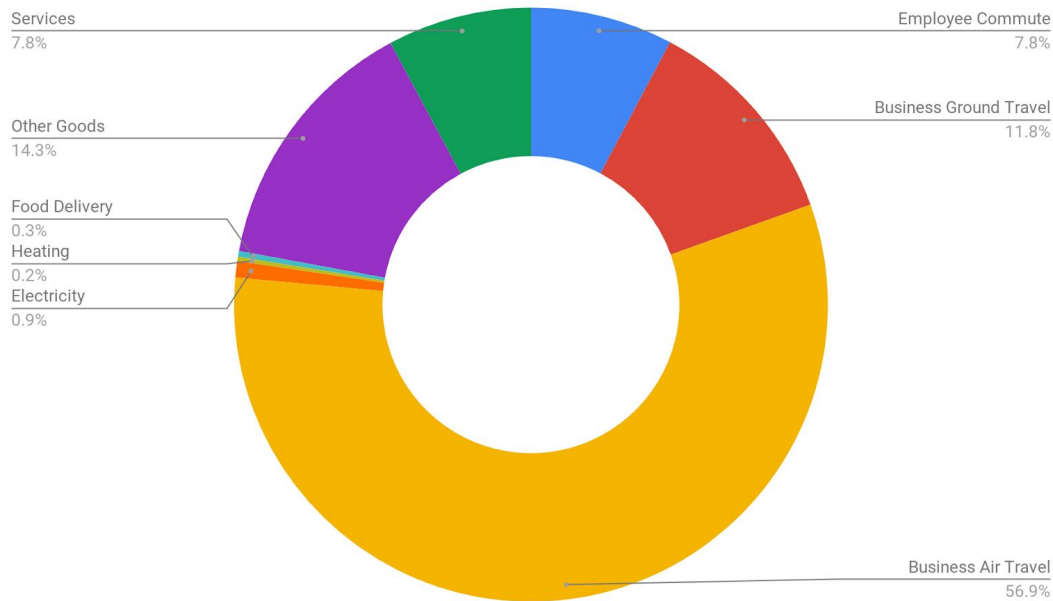
## PEI's Carbon Footprint

In the analysis of our carbon footprint, we focused on tackling all three 'scopes' of GHG emissions as defined by the [WRI/WBCSD GHG Protocol](#). These range from Scope 1 to Scope 3, and are used to distinguish emissions from sources that an organization directly owns from those that are a consequence of the organization's activities. Scope 1 emissions are direct emissions from company owned or controlled sources, such as company owned vehicles and equipment. Scope 2 encompasses indirect emissions from the generation of purchased electricity, steam, or fuel. Scope 3 emissions are all other indirect emissions produced as a result of company activity, such as traveling or purchasing goods. Our company's emissions are predominantly considered Scope 2 or Scope 3.

To record transportation emissions, each employee completed a survey logging the distance and mode of transportation for their daily work commute and other business travel. The mode of transportation is critical to the analysis since emissions can differ drastically across the different types. For example, the CO<sub>2</sub> emissions per passenger-mile in a private automobile are 3x those from [the same distance by commuter rail](#). To account for Scope 2 emissions, we looked into our energy sources and annual energy consumption in our office. Most of this data is collected by our electrical sub-metering system and can be visualized in an online dashboard. Because we lease an office in a downtown San Francisco high-rise with unmetered steam radiators, our heating energy consumption was estimated by our own engineering judgment. Finally, emissions from company purchases of goods and services were calculated using the [UC Berkeley CoolClimate Calculator](#) based on our average annual expenses for office supplies, furniture, appliances, maintenance services, and others.

The results of our analysis showed PEI's carbon emissions to be 74 metric tons of CO<sub>2</sub> per year, or 6.7 metric tons per person. To put this into perspective, the average project designed by our team saves 250 metric tons of CO<sub>2</sub> per year.

## Source Distribution of PEI's CO2 Emissions



The primary sources of our GHG emissions include employee transportation, office building utilities, and company purchases of goods and services. As shown in the pie chart above, the dominant source of our emissions is Business Air Travel. This came as no surprise to us, since one round trip flight between San Francisco and New York generates as many GHGs as driving a car for three months. It is reported that transportation accounts for [nearly 30% of all U.S. GHG emissions](#) and [40% in the state of California](#). Because of the relatively small impact of our other emission sources, transportation is over 75% of our carbon footprint when you include Business Ground Travel and Employee Commute, despite the fact that 100% of our employees commute via public transit, bike, or electric vehicle carpool. We also purchase sustainable, energy-efficient equipment and products and organic locally-sourced snacks for the office. The emissions related to the manufacturing and delivery of these goods and services still far outstripped the impact of our office energy consumption, which is around 20 kBtu/SF/year -- a third of a typical office in San Francisco. Armed with these results, we then looked into appropriate mitigation options.

## Exploring Carbon Offsets

Offset projects can help address both direct and indirect emissions, but should be used only where it is not feasible to reduce your emissions further through alternative means, as in the case of our office. In recent years, carbon offsets have drawn considerable criticism from those concerned with climate change. The criticism primarily stems from the fact that large polluters that purchase carbon offsets are then allowed to continue their actions without real consequence. We strongly agree with these criticisms, and

believe that paying for the privilege to pollute is not going to solve our global climate crisis. However, until we are able to decarbonize our global economy by completely reforming our energy systems, they are the only option for small businesses like ours.

Allowing wealthy corporations to pay to pollute isn't the only drawback. There are also issues with the relative lack of transparency and demonstrable impact of many carbon offsets projects. To alleviate these concerns, projects can be verified by reputable third-party organizations such as Gold Standard, the Verified Carbon Standard, the American Carbon Registry, and the United Nations Framework Convention on Climate Change (UNFCCC). Projects that are verified emphasize transparency and utilize a more rigorous calculation method to determine their carbon mitigation impacts.

In evaluating our company's options, it was important for us to invest in projects that achieved direct carbon emission reduction with as few unintentional impacts as possible. We also favored projects with clear positive social outcomes for the community in the project region.

After presenting our team with several options, we voted to purchase the equivalent of five years of carbon offsets for our firm's operations. We invested in three projects located in areas with relatively low energy access focused on renewable energy and community engagement. The projects tackle issues around energy access from the individual household level, to utility-scale solutions. They scale a range of impact levels, from [providing families with solar cookstoves](#) to [helping farmers capture biogas](#) to [building a 100 MW wind farm](#). All of these projects are certified by globally recognized standards, and a full listing and description of the projects can be found at the conclusion of this article.

Our passion for sustainability is the core reason that we work to design energy efficient buildings at Point Energy Innovations. Though carbon footprint is a popular conversational topic in the office, this analysis has provided real data to support our understanding of what it means to be a sustainable consulting firm. As individuals, anyone can note their own actions and learn about the impact it has on communities around the globe. Taking the next step to fund offset projects can be a great option to support communities around the world taking action to protect our planet. This approach has many drawbacks, however, and should not be an excuse to avoid changing our behaviors and reducing our emissions first. That being said, until we can create a carbon-neutral energy resource system, carbon offsets are better than taking no action at all. In terms of direct carbon savings, the greatest action our company can take is continuing our work designing low-energy all-electric buildings and renewable energy plus storage systems every day.

# Appendix:

## Carbon Offset Projects Supported by Point Energy Innovations



## [100 MW Wind Power Project in Anantapur, Andhra Pradesh](#)

Price: \$10 USD/metric ton

This 100 MW wind power plant, supported by Orange Renewable, is located in the district of Anantapur in Andhra Pradesh, India. In addition to providing funds for the wind turbines, this project creates local jobs and includes investment in local schools and clean drinking water in response to a “Needs Assessment” performed by Orange at the project outset.

Source: <https://www.goldstandard.org/projects/100-mw-wind-power-project-anantapur-andhra-pradesh>





## [Biogas Digesters for Farmers in Rural Vietnam](#)

Price: \$5.77 USD/metric ton

This project supports family farms in Rural Vietnam that are building biogas digesters to transform animal waste into energy. One digester produces enough methane to provide free low-cost energy for cooking or other needs in several homes, saving families money. The conversion of methane that would otherwise be released into the atmosphere into cooking fuel reduces the global warming impact by 25x. It also reduces impacts to local forests by reducing the use of firewood.

Source: <https://www.cooleffect.org/content/project/biogas-digesters-for-farmers>



## [Solar Cooking for Families in Chad](#)

Price: \$15 USD/metric ton

This project serves refugees from Darfur that are located in refugee camps in Eastern Chad. The women that build and maintain these solar cookstoves no longer have to spend time searching for firewood in potentially dangerous conditions. It also improves health outcomes by using 100% clean energy from the sun, rather than producing particulates and emissions from burning wood.

Source: <https://www.goldstandard.org/projects/solar-cooking-refugee-families-chad>