

# Sky Mind Retreats Transportation Related Climate Impacts for 2017-2018

People often travel long distances to attend retreats sponsored by Sky Mind Retreats (SMR). The United States is the second-largest global carbon emitter and the major country with the highest per person carbon footprint (2014 data from [World Bank](#)). Transportation is the largest contributor of U.S. carbon emissions, responsible for 28.5% of total emissions in 2016 (22% higher than the 1990 level). Passenger cars and light-duty trucks accounted for 772 and 334 million metric tonnes (tonnes) carbon dioxide equivalent (CO<sub>2</sub>e), respectively, together making up 60% of U.S. transportation emissions and 17% of total U.S. emissions. [U.S. Environmental Protection Agency (EPA) (2017) Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2015] Air travel is among the most carbon intensive activities a person can undertake, and it is among the fastest growing sources of global carbon emissions. Because planes' CO<sub>2</sub> emissions and other climate pollution are deposited at high altitude, they have an even greater effect on warming our atmosphere. SMR sponsors retreats domestically, and in Bhutan. SMR has calculated the CO<sub>2</sub>e attributable to participant travel and purchased Carbon Credits for 192% of that amount. Methodology for calculations, choice factors for Carbon Credit types and retailers, and planned improvements to methodology, retreat locations, and dharma retreat provider engagement are presented.

- ❖ 12 retreats sponsored by SMR
- ❖ 247 participants
- ❖ 210 tonnes CO<sub>2</sub>e emitted (approx.)
- ❖ Average carbon footprint per participant for all non-Bhutan participants is about 0.5 tonnes CO<sub>2</sub>e, which is equivalent to 52 gallons of gasoline used per person per retreat.
- ❖ Average participant carbon footprint for the Bhutan retreat is 6 tonnes CO<sub>2</sub>e, or 605 gallons gasoline per participant - the same as the world average per capita annual consumption.
- ❖ National per capita carbon footprint:
  - **USA:** 16.5 tonnes
  - **World** (including USA): 5 tonnes
  - **China:** 7.5 tonnes
  - **India:** 1.7 tonnes
  - **Bhutan:** 1.3 tonnes

## SMR Carbon Footprint Calculation Methodology

The goal was to generate a reasonably accurate CO<sub>2</sub>e generation total based on information provided by retreatants during registration. This included home address, and mode of travel. Different methods were used for on road vehicle travel and air travel.

### Personal Vehicle Carbon Footprint

1. Google Maps was used to determine the most direct distances between Origin and Retreat Site. Origin was assumed to be retreatant listed address. Carpooling was factored in when known to have occurred.
2. Converted miles driven into lbs. CO<sub>2</sub>e. Conversion factor between miles driven and lbs CO<sub>2</sub>e was based upon:
  - a. Vehicle fuel efficiency was assumed to be 24 miles per gallon, as it is the current average MPG rating for “on-the-road” US vehicles.
  - b. Fuel to CO<sub>2</sub>e was assumed to be 18.4 lbs. CO<sub>2</sub>e per gallon of gas (average of reported figures of 18.0 [Blue Sky Model] and 19.6 [EPA])
  - c. 18.4 lbs. CO<sub>2</sub>e per gallon/24 miles per gallon yielded a conversion factor of 0.77 lbs. CO<sub>2</sub>e/mile.
3. Multiplying drive miles by this conversion factor resulted in total lbs CO<sub>2</sub>e. Total pounds CO<sub>2</sub>e were then converted to tonnes CO<sub>2</sub>e.

### Flight Carbon Footprint

1. The website: [www.airmilescalculator.com](http://www.airmilescalculator.com) was used to determine Air Miles between airports.
2. Flight Carbon Footprint was calculated from either Total Round Trip Air Miles (individuals’ travel) or Total Number of Round Trip Flights per retreat (Bhutan retreats).
  - a. *NativeEnergy.com* (<https://nativeenergy.com/for-individuals/calculators/>) was used for calculating tonnes CO<sub>2</sub>e from Total Round Trip Air Miles. *CarbonFund.org* Event Travel Calculator (<https://carbonfund.org/individuals/>) was used for calculating tonnes CO<sub>2</sub>e from Total Number Round Trip Flights per retreat.
  - b. SMR decided to use these 2 calculators because (1) they included an extra factor to account for increased impact of long-haul flights on global warming and (2) they allowed an input of Total Miles or Total Flights to arrive at tonnes CO<sub>2</sub>e.
  - c. The Total Flight Tonnes CO<sub>2</sub>e for the same trip, as calculated by the two web calculator, varied. Which is understandable given the difference in their mode of calculating. SMR chose the Flight Total result with the greater tonnes CO<sub>2</sub>e.
  - d. All other web calculators surveyed restricted calculations per flight, which could have been used instead of determining Total Air Miles and then calculating Tonnes CO<sub>2</sub>e, but was less time efficient than the alternative.
3. Both web-based calculators differentiate between Short (less than 300 miles), Medium (300-700 miles) and Long (over 700 miles) flights. Total Air Miles and Total Number Flights per retreat were separated into 3 categories in accordance with these designations. A total Flight Tonne CO<sub>2</sub>e per retreat was determined by combining the individual calculations from each of these categories.

## SMR Carbon Credit Purchases for 2017-18

SMR purchased 404 tonnes of Carbon Credits, 192% of calculated CO<sub>2</sub>e generation. Carbon Credits were purchased which verifiably supported projects with quantifiable benefits. 192% is slightly less than the goal of double the calculated emissions. By the end of the fiscal year, some of the higher quality credits were fully subscribed. SMR chose to wait to purchase 36 tonnes of credits until 2019, when different credits will come onto the market. Credits purchased for the 2017-18 period:

- [Native Energy](#): 85 tonnes at \$15.50/tonne for [Carbon Offsets \(Ethiopian Clean Water Project\)](#)
- [TerraPass](#): 60 tonnes at \$11/tonne for Business [Carbon Offset portfolio](#)
- [Bonneville Environmental Foundation](#): 65 tonnes at \$10/tonne for [Carbon Offset Blend](#)
- [The Gold Standard](#): 86 tonnes at \$14/tonne [Kenya Biogas Program](#)
- [The Gold Standard](#): 108 tonnes at \$11/tonne for [India Biomass Power Plant](#)

## Moving Forward

### Acquiring accurate data from participants

For 2017-18 travel data was obtained during initial retreat registration. Going forward, SMR will use a short survey to be filled out by the participants at the beginning of each retreat that records all of their relevant travel details, with the goal of increasing accuracy and engagement:

- The details will be fresh in participants' minds since they will have just arrived at the retreat site.
- The details will be as accurate as possible since they will self-reported by the participants. The participant-derived details have been supplied by their registration forms, which are typically filled out months before the retreats and so prone to inaccuracies.
- Increase the investment of each participant in SMR's Environmental Mission by increasing awareness and contemplation of their travel
- Filling it out at the beginning of the retreat should not interfere with the process of "dropping into" retreat mode (vs. doing so at the end of the retreat).

### Supporting change internally and externally:

- After reviewing the data, a planned dharma trip to Bhutan has been cancelled
- Commitment to support the Buddhist Eco-Chaplaincy program being offered 2018-19
- Increase conversation of ecological and climate change in dharma context
- Support [One Earth Sangha](#) with volunteer time
- Support climate change activism generally
- Continue other efforts of SMR to directly reduce climate change impacts of retreats: vehicles, food, etc.