

Offset Calculations (Using Jena's 2020 GHG Inventory and average of \$17/metric ton)

Program	Metric tons emitted/yr	\$/yr
Program-Related Air Travel <i>Excluding</i> International Student Travel (S3)	140	\$2,380
International Student Air Travel (S3)	662	\$11,254
Student and Faculty Commuting (S3)	291	\$4,947
Total Scope 1 and 2 Emissions	209	\$3,553
Total:	1,302	\$22,134/yr

Northwest should be purchasing offsets only to counterbalance emissions which we cannot control, which would be primarily Scope 3 emissions, because these emissions lay primarily in international travel. We hope to offset program-related air travel by 2022, and to offset all domestic commuting and international student air travel by 2030. When purchasing offsets, Northwest should make sure that the offsets are permanent, additional, verified, and enforceable- all of which can be certified through programs that use the Voluntary Gold Standard (VGS) or the Voluntary Carbon Standard (VCS). These help make sure that the reduction would not occur without the project/program in place, and that the credit is counted one time only. Northwest should also consider working with programs that include co-benefits in the area the reductions are occurring- such as new jobs, education, etc. Northwest should also consider the fact that offset prices are likely to rise dramatically within the next 10 years or so, once the current projects being utilized by offset programs are "used up."

Keep track of sources, assumptions, and units!

Title things and *add to the shared folder* when complete!

Goal: Create a table that shows the cost of purchasing offsets/investing GHG emissions reductions elsewhere commensurate with our community's airplane travel.

How much would it cost annually to offset our ~~international student travel, international program travel, student and faculty commuting~~, and all of our ~~scope 1 and 2 GHG emissions~~? Make a table, divided by category

[NWS GHG Spring 2020 Inventory](#): (using \$17/metric ton)

Excluding international student travel: 140 metric tons/yr = \$2,380/yr

Including international student travel: 802 metric tons/yr = \$13,634/yr

Only international student program related air travel: $(802-140) = 662$ metric tons/yr = \$11,254/yr

Student and faculty commuting: 291 metric tons/yr = \$4,947/yr

Total scope 1 and 2 emissions: $(190 + 19) = 209$ metric tons/yr = \$3,553/yr

Use a range of offset prices! Then calculate prices:

- ~~— One for total air travel~~
- ~~— One for program-related air travel (not including international student travel)~~

Answer:

- In what circumstances should NWS purchase offsets? Why?
- When purchasing offsets, what criteria should NWS be sure the offsets meet in order to ensure its investing in robust, real GHG emissions reductions?
- What does the school need to be aware of or thoughtful about when purchasing offsets? Why?
- Write a few sentences about your conclusions and/or recommendations.

Reasonable Offset Prices:

Look at VOLUNTARY vs COMPLIANCE

Meg's Notes:

- N/A except for notes on greenwashing

Original EIG Goals (Handout to Board):

Offset Cost Estimate (\$)	Scope 1 (190 tons)	Scope 1 + 2 (209 tons)	Scope 1 + 3 (1,284 tons)	Scope 1 + 2 + 3 (1,303 tons)
Lowest (0.8/ton)	\$152	\$167.2	\$1,027.2	\$1,042.4
Average (12-20/ton)	\$2,280 - \$3,800	\$2,508 - \$4,180	\$15,408 - \$25,680	\$15,636 - \$26,060
Highest (60/ton)	\$11,400	\$12,540	\$77,040	\$78,180

Jenny's Notes: ---> ask Jenny about difference in price calculations (especially in comparison to Atmosfair)

- "Depending on what type of carbon offset we purchase, and who we purchase through, it comes out to roughly \$10-12 for 3,000 miles of flying economy class (business and first class are more than 2 times the GHG emissions and 2 times the cost for offsets). So, an economy flight from Seattle to NYC and back would be about \$20-24 total in carbon offsets. An economy flight from Seattle to Beijing one way would be about \$30-36 in carbon offsets."

Jenny's Previous Job Notes:

- Check standards for each "carbon credit generator," make sure of registry
- Markets to look at:
 - Incredibly confusing, just glanced through each
 - ~~Western Climate Initiative~~
 - ~~Clean Development Mechanism~~
 - ~~California Cap + Trade Market~~

NWS Intern Notes:

- Note: *Many carbon calculators have an option to apply a "Radiative Forcing" factor which accounts for the more intense effect of GHGs at higher altitudes than at ground level*
- Atmosfair (German offset organization for flight/commuting)
 - From Tufts Climate Initiative chart (2006) Atmosfair price per ton of CO₂ offset is \$17.30
 - A one-way flight from SEA to PEK would cost 97 euros to offset
 - A one way flight from SEA to LED would cost 95 euros to offset
 - The CO₂ emissions of a flight are calculated using the atmosfair emissions calculator. With this, other pollutants like nitrogen oxide or soot particles besides

pure CO₂ emissions are also included that warm the climate in addition to CO₂. For this reason, the values for a flight with atmosfair are higher than with most other emissions calculators.

- The emissions calculator sets a price of 23 euros per tonne of carbon dioxide. These 23 euros are currently needed in order to save a tonne of CO₂ in high-quality climate protection projects in developing countries. (*Approx. \$26*)
- Average offset costs from other companies:
 - Nature Conservancy: \$15/metric ton
 - Native: \$15.50/metric ton
 - All other well-reviewed offset programs from Tufts ranged from about \$12-\$15/metric ton
 - Myclimate: \$18/metric ton

Other Sources:

- [Ten-fold increase in carbon offset cost predicted](#)
- [Carbon offset prices set to increase tenfold by 2030 | Greenbiz](#)
- [Compensate your carbon footprint – with CO2 calculator from myclimate - myclimate](#)
- <https://www.coolearth.org>
- <https://www.climatestewards.org>
- [Offset or Donate - Atmosfair](#)
- [Duke Carbon Offsets Initiative - Questions to Guide Offset Program Development](#)
- [Carbon Offsets - Second Nature](#)
- [Carbon Offset Resources for Colleges and Universities - Second Nature](#)
- [Carbon Offset Guide: Home](#)