Offsetting Scope 3 CO_2 Emissions from Boston University Employee Air Travel

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Campus Climate Lab Presentation

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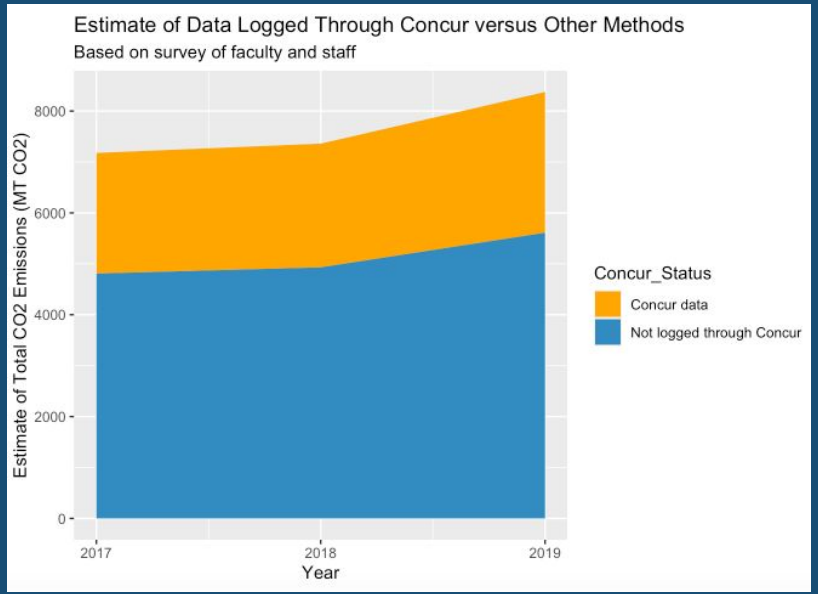
Background

What are we investigating?

1. How to offset the scope 3 CO_2 emissions associated with BU employees' business travel
   a. Estimated in fall 2020 research to be between 9880 and 29940 MT CO_2e
2. How to improve the precision of the above estimate

What are Scope 3 Emissions?

- Induced emissions, eg.:
  - commuting, travel, waste disposal, purchasing supplies, dining services
- On the order of 200,000 MT CO_2e, greater than Scopes 1 and 2 combined (129,400 MT CO_2e)



MSMS Student Findings: Emissions Perspective

Short-term projects:

The Cool Effect	Greenbrae, CA	Transparent; long-term; align w/ UN Sustainable Development Goals
Bonneville Environmental Foundation (BEF)	Portland, OR	
Sustainable Travel International	New York, NY	Improve biodiversity, involve local communities, protect coastal ecosystems, and fund renewable energy projects; align w/ UN Sustainable Development Goals
400 MW Solar Power Project at Bhadla	Bhadla, Rajasthan, India	Generate 732,874 MWh/year of renewable energy; increase employment, medical, and educational opportunities for local communities; company installed street lamps to improve road safety
Healthy Homes for All	Guatemala	Goals: reducing poverty, reducing respiratory disease and burns, improve children's education, provide access to affordable and clean energy, contribute to economic growth, prevent deforestation, empower women

MSMS Student Findings: Cost Perspective

Proposed Costs of Offset Projects to be funded by Boston University

Emissions by BU Faculty, Staff and other employees			
Emissions by Quarter	2017 (MT CO2)	2018 (MT CO2)	2019 (MT CO2)
Quarter 1	590	517	598
Quarter 2	663	619	671
Quarter 3	487	624	732
Quarter 4	629	669	764
Total at the end of the year*	2369	2429	2764
Total emissions estimated at end of year**	7106	7286	8292
Average emissions / year (MT CO2)	7561		
Emissions that can be offset for each program (MT CO2)	1260		

Offset Program Portfolio				
Program	**Location**	**Cost/metric tonne**	**Emissions / program (MT CO2)**	**Cost/program**
BEF****	Portland, OR	$10	1988	$19,884
Partnership with A better city ***	Boston, MA	$14	1260	$17,643
The Cool Effect	Greenbrae, California.	$9.02	1260	$11,366.90
400 MW Solar Power Project (4589 carbon credits in stock)	Rajasthan, India	**$12**	1260	$15,122
Healthy homes (532 Carbon Credits in Stock)	Guatemala, south of Mexico	$18	532	$9,576
Sustainable Travel International	New York, NY	$12.36	1260	$15,575.92
		Total:	7561	
Estimate total expenditure / year	**$89,167**			

MSMS Student Findings: Participation Perspective

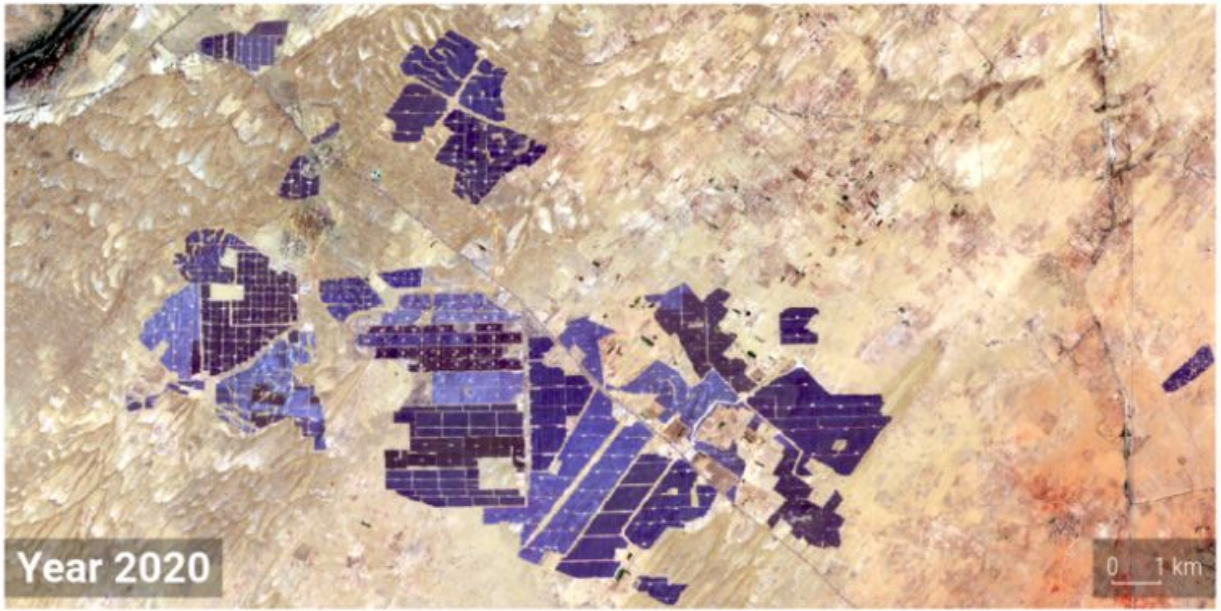
1. **Integrate** a pilot offset program into Concur
    a. Display the emissions associated with a flight at the time of booking
    b. Present brief information about offsets available
    c. Clickable banner to voluntarily purchase offsets for the flight
2. **Explain** the why of using Concur for flight booking
    a. Emphasize the importance of accounting for flight emissions and the Climate Action Plan Goals
3. **Incentivize** the use of Concur for flight booking
    a. Adjust the UI
    b. Policy suggestions

Next Steps

1. Survey faculty about their travel booking and payment behavior
    a. What can this behavior show us about potential incentive programs? About offset purchasing programs?

2. Clean and analyze the travel card data made available by Sourcing & Procurement
    a. Estimated to account for about 70% of all employee flights
    b. Some overlap with Concur data
    c. May be able to improve the emissions estimates

Questions?



Photovoltaic power plants cluster development near Bhadla, Rajasthan, India.
Satellite image source: Copernicus Sentinel Hub, Sentinel-2, True color
a) 2016-05-21, L1C product, b) 2017-05-26, L2A product, c) 2018-07-10, L2A product,
d) 2019-05-06, L2A product, e) 2020-05-10, L2A product
Composed by Solargis, Rendered by QGIS.