**WattTime Data Analyst**

Take home project

Spring 2022

**A few notes about our take homes:**

* Please don’t share any parts of this prompt publicly so that we can keep the process consistent amongst candidates.
* We’ve heard stories or organizations that just take assignments like these and use them. That’s not us. If we do see a great insight, we’ll reach out to talk about it. And after June 1, 2022, if you want to post your work publicly - please do! This project could make a great public blog post or LinkedIn post to showcase the kind of work you can do - and hopefully *are doing* as part of our team!
* Please send your project work as a reply to the email with the directions. If that address isn’t working for some reason, you can also send it to katie@watttime.org.
* Thank you for the time and effort you’re putting in!

**Introduction**

The following take home assignment is designed to serve multiple purposes:

1. To give you a sense of the type of work you would be doing in this position. If you get partway through the take home and realize that you don’t think you’d enjoy this work, that’s ok! Just let us know. And if you love it, odds are you’ll also love this role.
2. To give us a sense of the work you’re able to do. We’ll be grading the takehomes based on the following:
   1. Storytelling: did you tell a story with the data that brings the reader along with you, and highlights an important conclusion?
   2. Visualization/Aesthetics: did you create clear and understandable visualizations of the data, and are they aesthetically pleasing?
   3. Coding: we’ll be looking at your scripts for generating the analysis to see if they are organized, efficient, and scalable
   4. Communication/writing: this is less critical and will be weighted less, as we have journalists and comms professionals on staff that can lean in here. However, if your writing is clear to any audience, that will be a bonus.
3. We expect this project to take about 5 hours.

**Assignment**

Write a 300-500 word blog post telling a story about something interesting you have found in the data in this folder (more on that below). The post should contain at least 2 data visualizations. You do not need to use all of the datasets. You’re welcome to pull in other datasets for analysis (such as directly from the [Climate TRACE website](https://climatetrace.org/)).\*

Submission should include:

1. Your finished blog post with visualizations embedded. This can be a PDF, google doc, or any other format you wish.
2. The code used to generate the visualizations.

**Background Information and Data Description:**

Methane is a powerful greenhouse gas that is produced by various human activities, such as the farming of rice. One of our contributors to Climate TRACE, University of Malaysia, has developed a [satellite-based model](https://drive.google.com/file/d/1mjRTeU4zdo4HAwUCLrPwqoViH0mBcTnz/view) to predict the emissions of rice fields. The model works by detecting the area of harvested land in a country, and applying an emissions factor to result in a total methane produced by rice harvest in a country. This is the data we’d like you to work with for your blog post.

**Note:** CH4 can be converted to CO2eq using a [Global Warming Potential (GWP).](https://www.epa.gov/ghgemissions/understanding-global-warming-potentials) There is currently a [discussion](https://climateanalytics.org/briefings/why-using-20-year-global-warming-potentials-gwps-for-emission-targets-is-a-very-bad-idea-for-climate-policy/) in the international climate community about whether or not to use a 20-year or 100-year GWP for methane. *Tip: this could be an interesting topic to explore if you wish*. Page 73 of [this report](https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5_Chapter08_FINAL.pdf) are the accepted values to use.

Data Description:

**ch4\_2015-2021**: this is the methane estimates for each of the listed countries for years 2015-2021.

**harvest\_2015-2021**: this is the area harvested in each country for each year in hectares.

**country\_shapefiles**: this folder contains shapefiles for each country if you wish to use it

**Emissions\_csv\_fao\_emiss\_csv\_ch4\_fao\_2015\_2019\_tonnes:** this is emissions estimates for rice cultivation from [FAO Stat](https://www.fao.org/faostat/en/). FAO Stat is currently the primary source of agricultural emissions globally.

\*if you pull data directly from Climate TRACE, you might notice some inconsistencies between the rice data currently on the site, and the rice data we’re sharing with you. You can ignore these differences! The version we’re sharing with you is updated and has not been published to the site yet.