

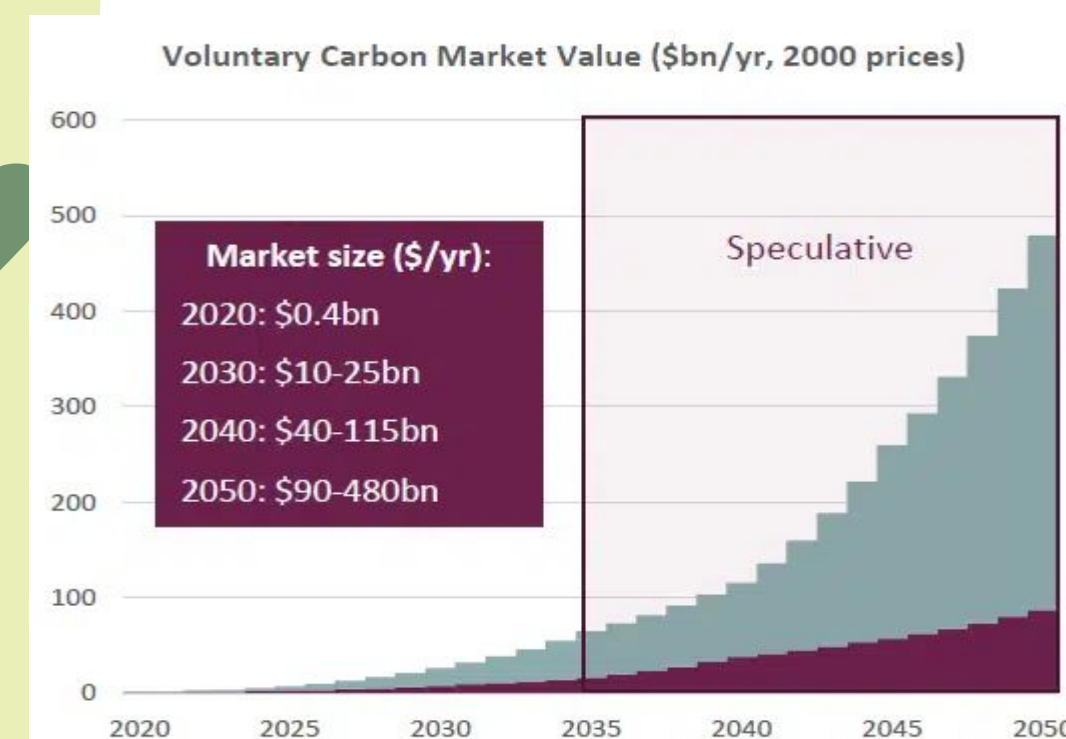
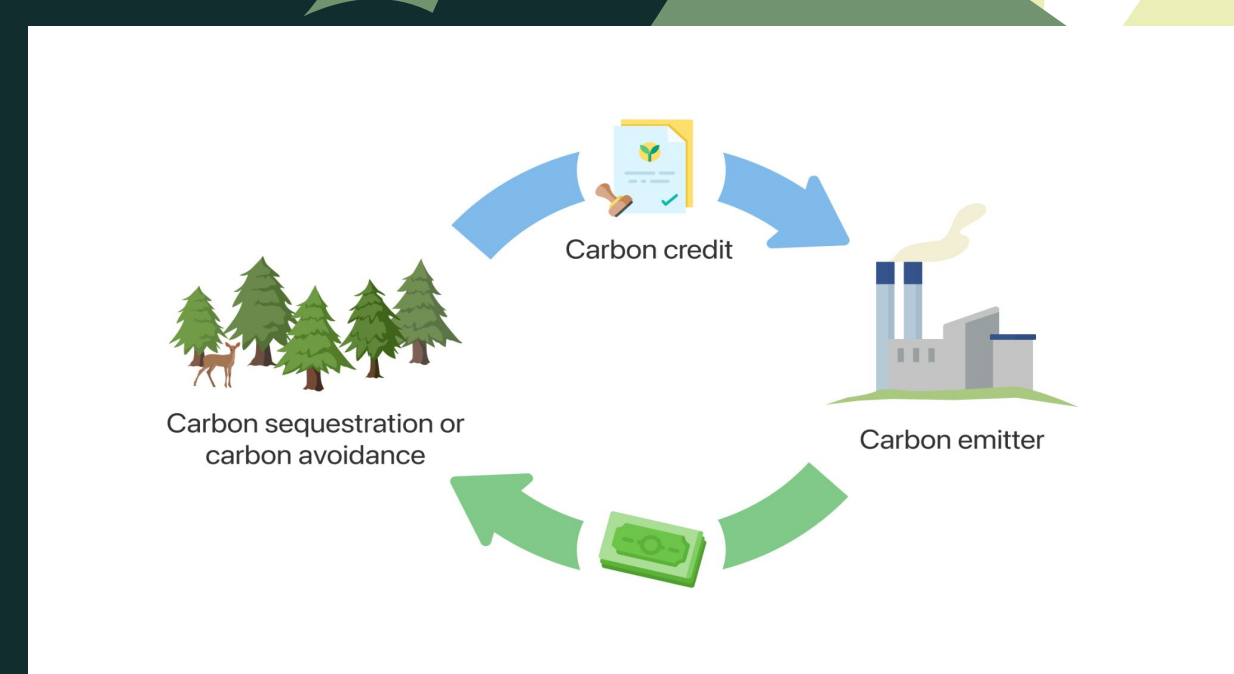
**Team:** Curtis Mchone, Shayne Sellner, Richard McCue, Jonathan Bloom, Justin Stouffer

**Client:** Dr. Alexander (Allie) Shenkin, Assistant Research Professor, NAU

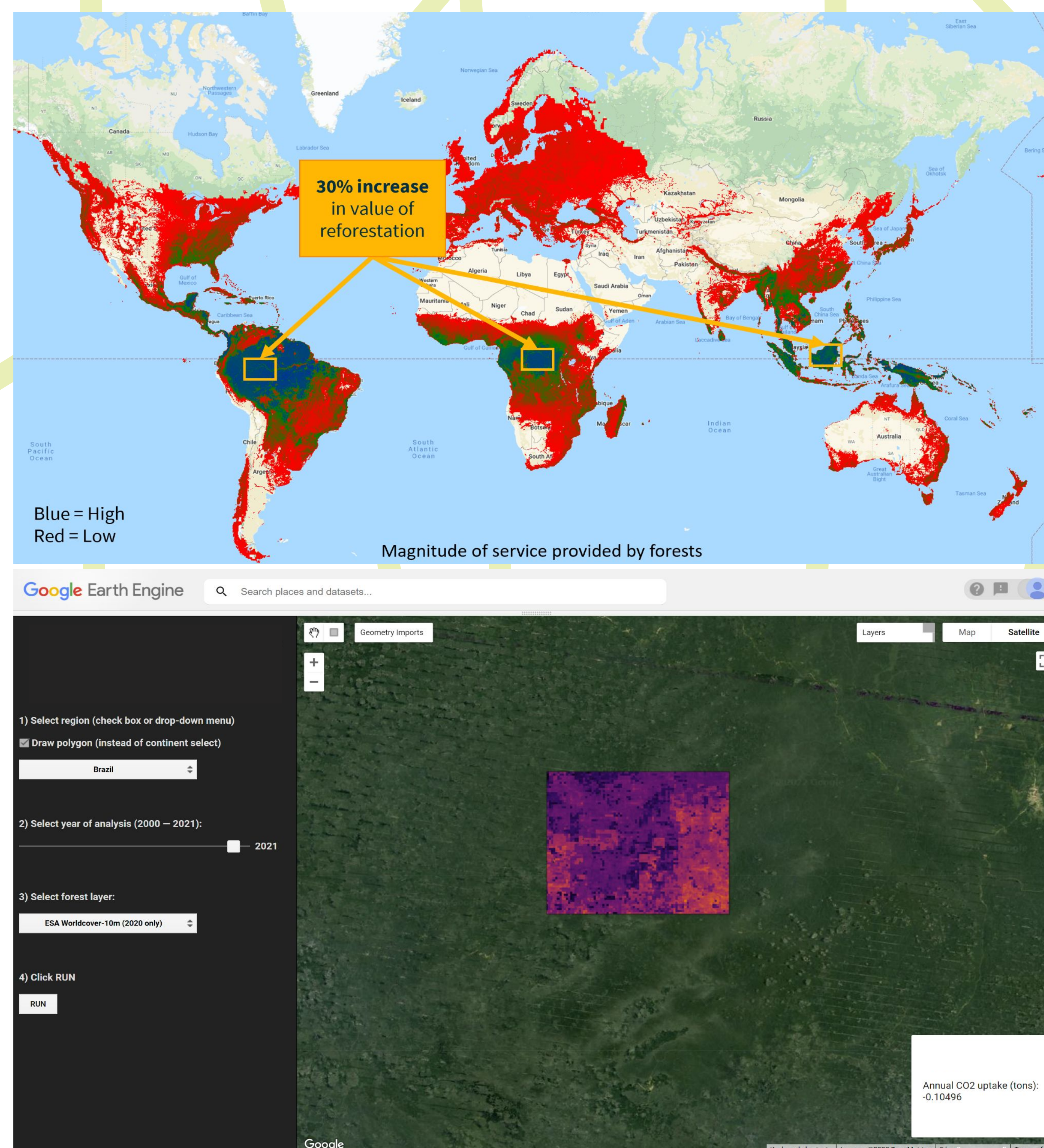
Team Mentor:  
Vahid Nikoonejad Fard

## What is the Problem?

- As climate change is becoming more of an issue, many companies have started buying carbon credits to offset their carbon emissions.
- Reforestation developers are facing many large problems such as hefty upfront costs, long investment return times, and an uncertain future in the under-regulated carbon market. These factors tend to push individuals away from starting reforestation projects.
- Our project sponsor Allie Shenkin and his colleagues have discovered a new climate cooling service that increases the profitability of carbon credits up to 30%.
- The current tools that support this new discovery are too slow, and our project aims to make these tools more efficient.

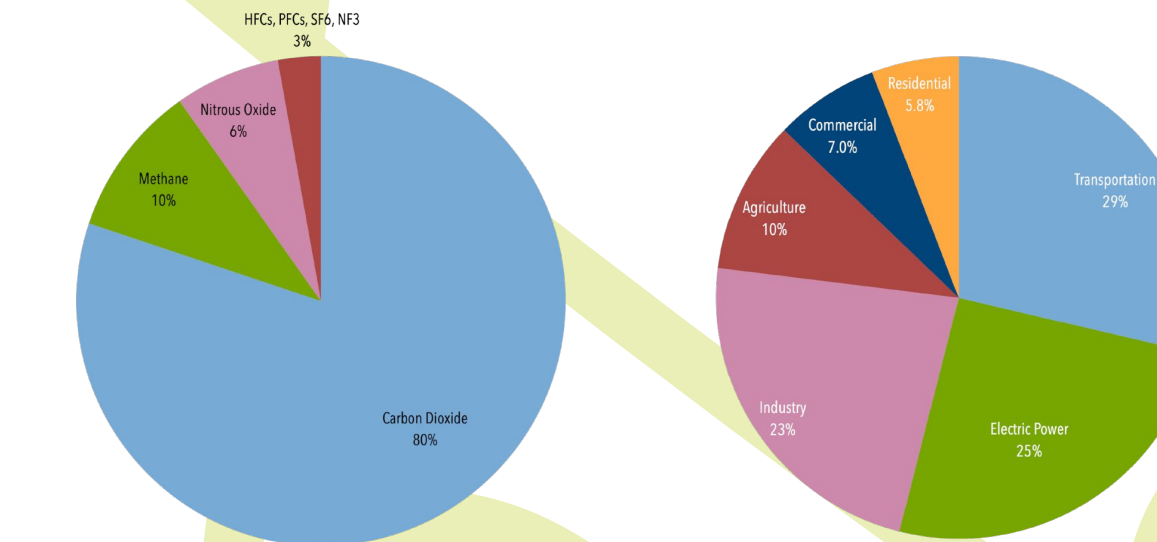


## Our Proposed Solution



## Feasibility

- A High Performance Computer will enable faster processing times
- A combination of a base layer map as well as javascript mapping libraries will provide a seamless user interface
- A database will host user information that allows for a more personalized experience



## Technologies Planned

- Language** - Python will be used throughout the project
- API** - REST API will be created to connect the frontend and backend
- Framework** - Django (python based) will be used as our web framework
- Database** - PostgreSQL will act as our backend database
- Library/Map API** - Openlayers will be used in conjunction with Bing maps API to provide an interactive map for the user

## Plans, Goals, Stretch Goals

### Plans / goals

- Fully functional and efficient global prediction system written in python
- Public-facing user interface that will pull data from the backend
- Simple user access control system
- Partner REST API to facilitate transfer of information between backend and the user

### Stretch Goals

- More advanced user system that would allow tracking and usage based billing
- Develop ArcGIS plugin to connect this service to ESRI's ArcGIS tool
- Performance upgrades (i.e. tiling rasters)

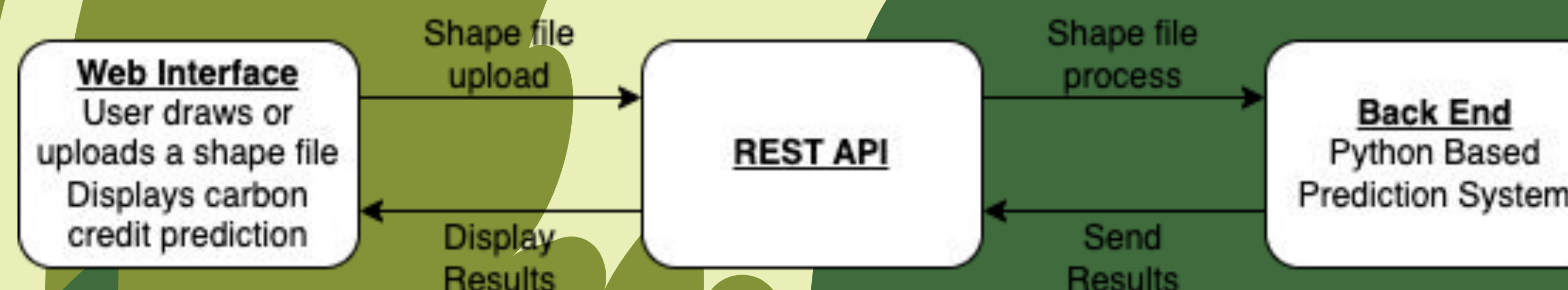
## Solution Overview

### Front End

- Zoomable and responsive consumer facing map
- Ability to upload a shape file or draw a polygon
- Carbon credit prediction display

### Back End

- Raster data computing
- Python based global prediction system
- Server hosted



OpenLayers

django

