

Climate Change Solutions: Electric Mobility at York University



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Course: ENVS
4400/5050 -
Fundamentals of
Renewable
Energy

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Abstract

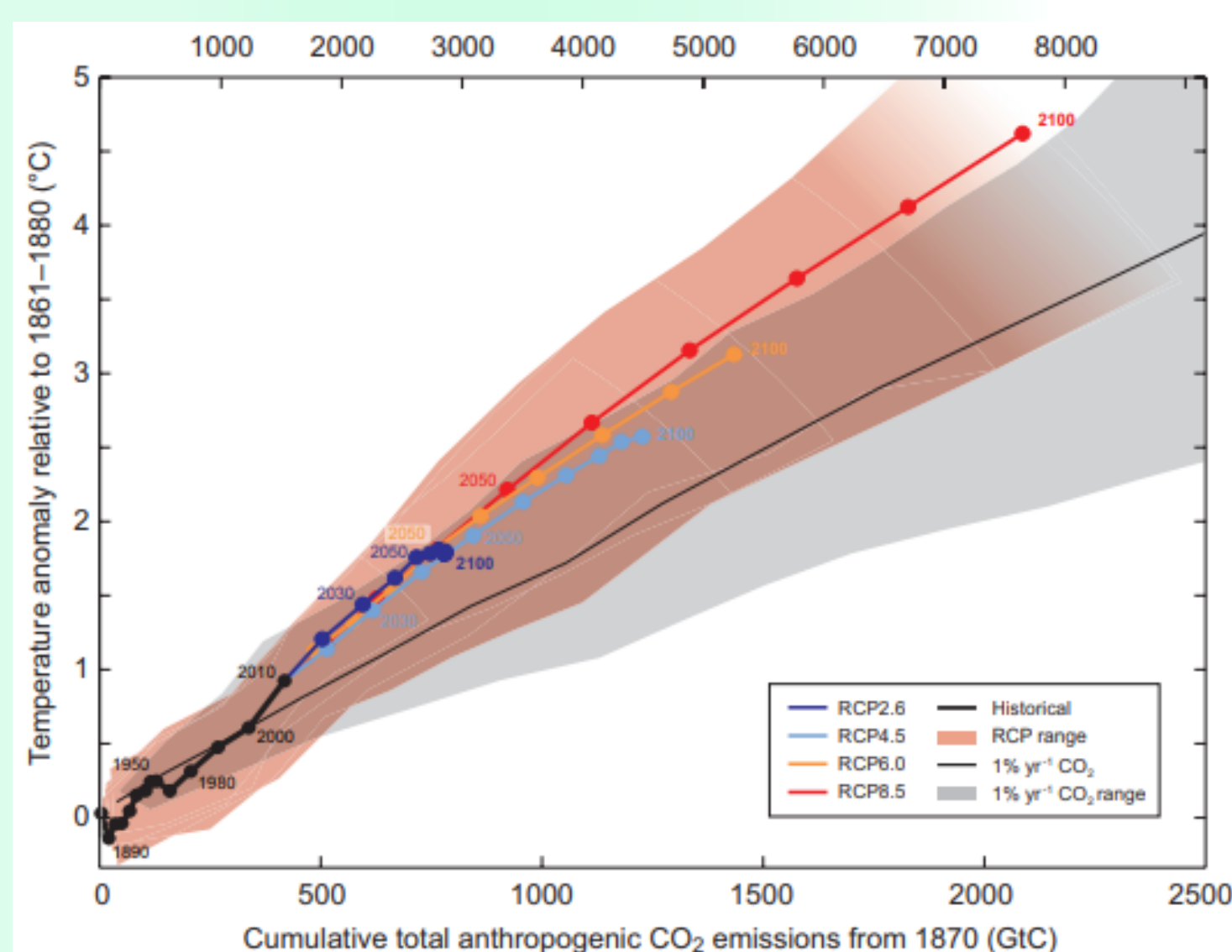
- Necessity to transition from conventional means of transportation to carbon free systems, in light of the climate crisis
- Determining suitable means of transportation within the campus, including electric bicycles, electric mobility charging stations and micro grid solutions
- Designing a pilot plan, and locating most efficient places on campus for establishing the required renewable facilities based on simulation results

Purpose of Research

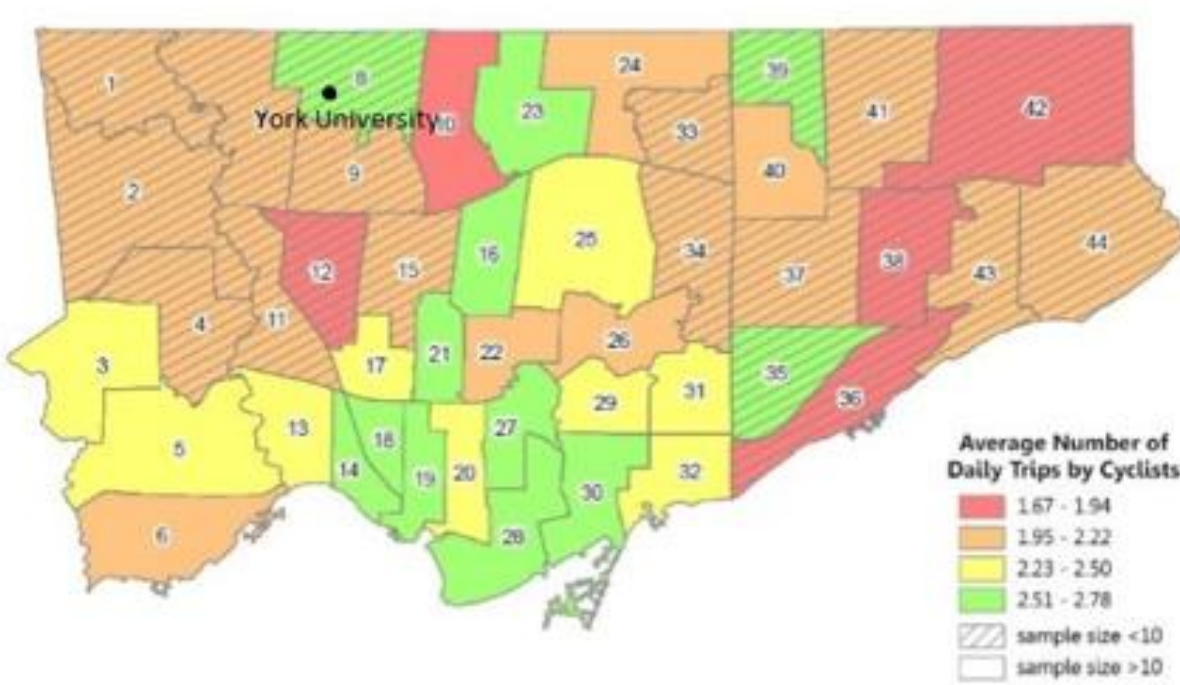
Can York University transition to 100% renewable energy, thus, creating a carbon free campus?

- To address United Nations' (2019) Sustainable Development Goals, i.e goal #11 – sustainable cities in an inclusive, renewable and accessible manner
- To develop renewable energy on the Keele Campus by deploying photovoltaic (PV) generating capacity
- To establish sustainable electric bicycle sharing and install an 'eco-stage' on the Keele Campus

Rationale Behind the Research Project



Cumulative total anthropogenic CO2 emissions from 1870 (IPCC, 2013)



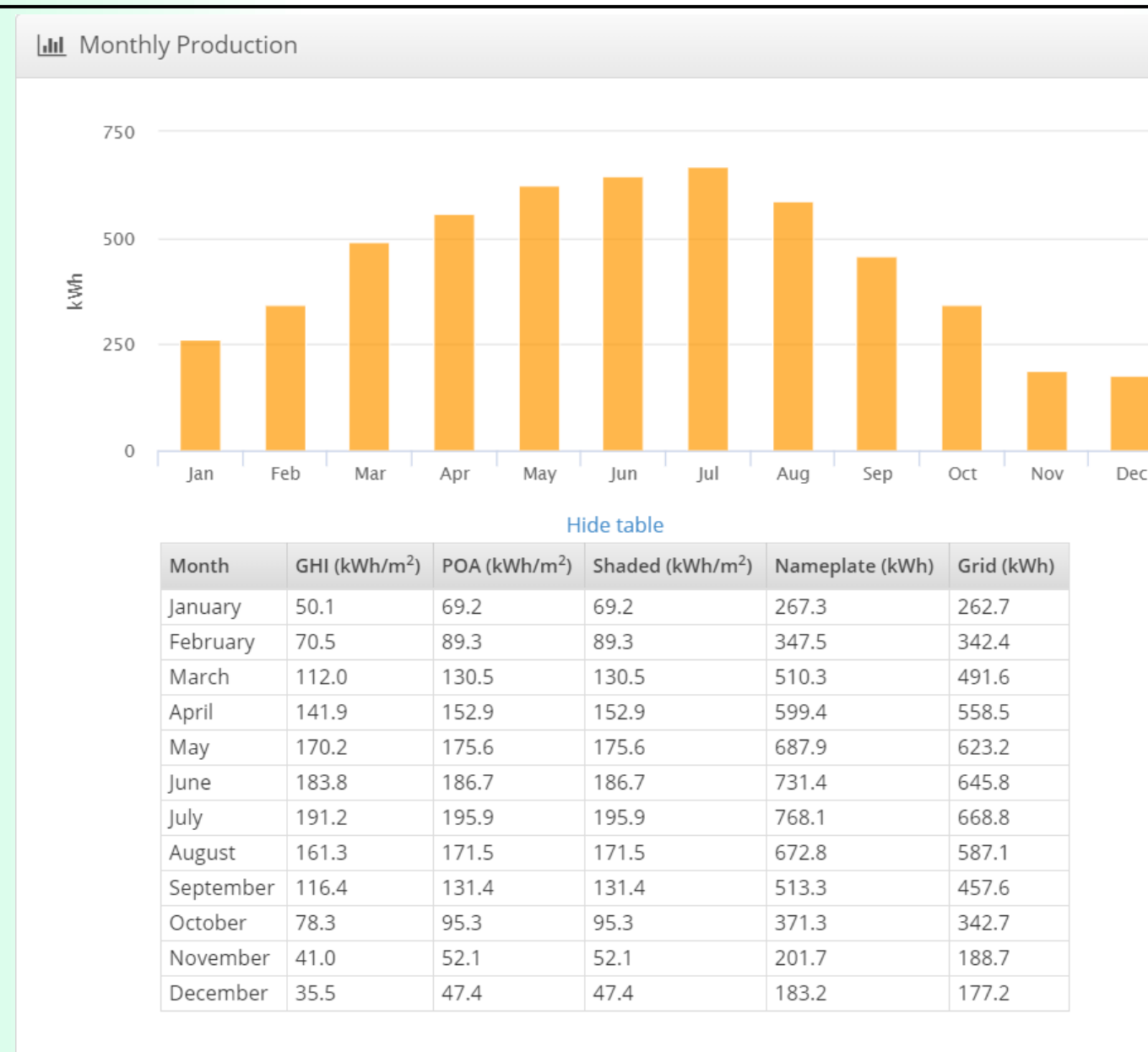
- Proposing further expansion for already installed solar panels in Scott library, electric vehicle stations and Black Creek Community Farm
- Engaging students in experiential learning, knowledge mobilization, and inspiration
- Creating and facilitating a sustainable "eco-stage", which can be utilized for arts and culture, and will further environmental education and awareness

Methodology & Results



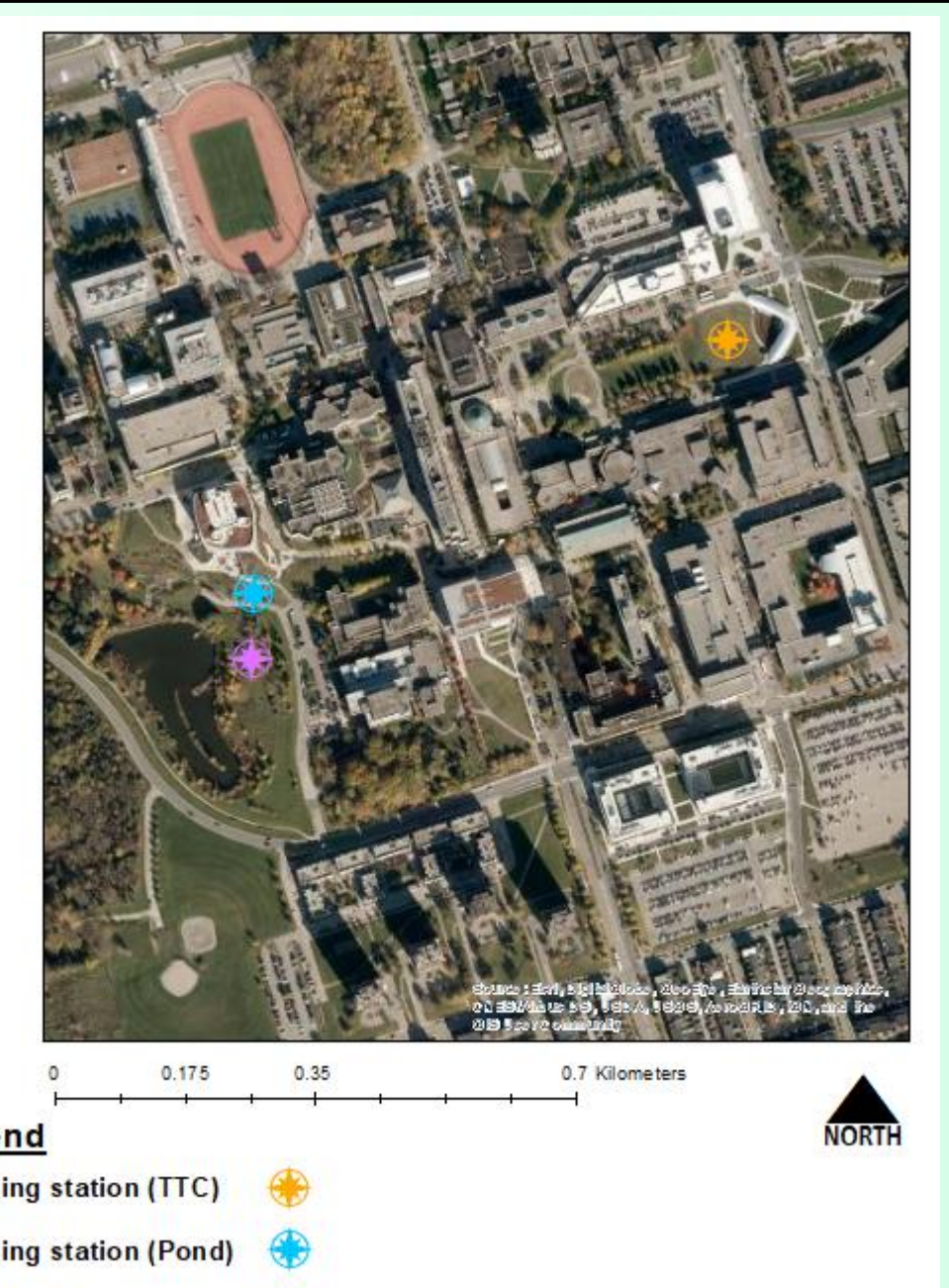
Statistical analysis

Collected and analyzed data from which set samples were drawn to locate the most efficient places on campus for establishing facilities based on simulation results.



Helioscope analysis

HelioScope was utilized to simplify the process of engineering, the overall design and the potentiality of solar installation.



Geographic Information System Mapping

We used geographic information system mapping to strategize the placement of the charging stations, where visible access by thousands of student and staff is readily available. The stations will be located in centralized points of York University

Conclusion

- There must be a transitioning from conventional means to carbon free and renewable systems (transportation, infrastructure, culture and art)
- Determining the feasibility of suitable renewable means of transportation within the campus, while aligning with the City of Toronto's goals of improving access and affordability of electric transportation to advance social equity

Envisioning the Future

- We intend to install an "eco-stage" with sustainability and innovation in mind as we aim to be inclusive, sustainable, accessible and resilient
- We seek to develop renewable energy on the Keele Campus and will locate the charging stations at strategic areas (i.e subway stations)
- We aim to develop renewable energy on the Keele Campus by deploying photovoltaic (PV) generating capacity
- All projects umbrella the climate change solutions park, and will be developed further by the Carbon Free Club at York University

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