Request for Proposals

Co-sponsored by Climate Positive Energy & Climate Positive Campus U of T

Introduction

The Climate Positive Energy research initiative is partnering with U of T's Climate Positive Campus to support research that assists the University in reaching its net-negative 2050 campus goals. The current estimate of our direct (Scope 1+2) emissions is 114 kT_{CO2}/yr. Achieving the climate positive 2050 goal requires a major transformation of the campus and a new model of sustainable growth. Facilities and Services are already implementing programs to reduce the carbon footprint associated with university operations, including responsible growth, cleaner and more efficient heating and cooling, low-carbon buildings, and Canada's largest geo-exchange system. These current initiatives are expected to reduce emissions (scope 1+2) to ~ 85 kT_{CO2}/yr by 2024. The purpose of this call is to engage UofT researcher's intellectual power to address the remaining emissions.

This funding is intended to support research projects that have the potential to be piloted at UofT within 5 years and mitigate or quantify a substantial portion of current emissions. This is an opportunity to innovate and advance science, technology, policy, and frameworks that can be proven and piloted at U of T as a living lab. Applications should address one of the following themes:

Theme 1: Enabling energy storage on campus

Achieving a climate positive U of T campus is likely to require integrating thermal and electrical energy storage systems on campus. See the Climate Positive Campus technical report for more details on campus energy needs. An example of a potential project would be planning, modeling and de-risking the conversion of existing U of T infrastructure to enable energy storage.

Theme 2: Expanding U of T emissions accounting

The university currently tracks Scope 1 and 2 emissions. This theme seeks to develop a framework and a methodology to assess emissions associated with activities and assets not owned by the university (Scope 3). Here again the opportunity is two-fold: advancing the universities ability to reduce our associated emissions and serve as an example to other organizations. Examples of applicable research directions include an analysis of system boundaries, emissions measurements, and approaches to measurements.

Theme 3: Generating renewable energy and improving energy efficiency

Achieving a climate positive campus requires the generation of zero-emission energy as well as improvements in energy use via improved efficiency. Potential zero-emissions energy projects should be systems utilizing U of T land, either on campus or off (e.g., the Gull Lake Survey Camp, Hart House Farm, etc.). Other examples of applicable research include energy efficiency retrofits for U of T infrastructure (including housing), electrification, and strategies to accelerate efficiency implementation.

Theme 4: Improving health, well-being, and behaviour

The adoption of sustainable practices, policies and infrastructure can have many co-benefits by improving the health and well-being of the U of T community alongside carbon reductions. This research theme will provide best practices and mechanisms to encourage, enable and track sustainable change with health and

wellness co-benefits. Examples of applicable research directions include developing financial, policy and infrastructure mechanisms to motivate behaviour change (for example, to encourage and enable active and public transit use), investigating strategies to build momentum and support for climate action movements, and assessing human factors in the use of energy.

Climate Positive Energy and Climate Positive Campus are inviting proposals for grants of up to $100, 000 (total, and spendable over 2 years).

Proposal Requirements

The projects are to be collaborative and multidisciplinary, reflecting the vision of Climate Positive Energy and the Institutional Strategic Initiatives program. Projects are to bring together diverse disciplinary expertise, with a minimum of 2 co-PIs, both faculty members at the University of Toronto. Provide a:

- **clear goal** that addresses a specific, and substantial, portion of UofT's current emissions (in kT/yr)
- **novel approach** that is at the forefront of research.
- **feasible implementation plan** for implementation at the UofT.
- Integration of **equity, diversity and inclusion** (EDI) considerations.

Proposal Format

The proposal form is short, and will be used to select projects for final selection via a live pitch session plus Q+A. The proposal form is due **March 10th, 2022** at **11:59 PM (EST)**. Sections:

Clear goal that addresses a specific, and substantial, portion of UofT's current emissions (in kT/yr). A spreadsheet is provided with the application form to be used in estimating the emissions reduction potential. [20 words max and (kT/yr) reduction potential, filled out estimations sheet]

Novel approach that is at the forefront of research. [300 words max, 1 diagram, 5 references max]

Team noting excellence, track record, and multidisciplinary [100 words max]

Feasible implementation plan to apply the research outcomes at the UofT, beginning within 5 years. [300 words max]

Statement on how **equity, diversion, and inclusion** will be embedded in the project and approach. [100 words max]

Budget [3-5 lines] Short, itemized budget, in accordance with the University's research funding guidelines

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