

GEOG 459 Energy and Sustainability

With the intent of exploring the fundamental connections between global climate change and energy consumption, this course will examine global energy systems using a multi-level perspective. Renewable (i.e. wind; solar; nuclear) and non-renewable (coal; oil; gas) energy supply systems are compared using economic and environmental measures. Consumption trends and conservation options are considered using a combination of political, socio-technical, and behavioural lens. This course is designed to developed applied knowledge necessary to measure energy performance and to evaluate options in energy transitions, efficiency and carbon intensity at multiple scales.

Learning objectives

1. To recognize and describe the source, conversion and use of fossil fuel, nuclear and renewable energy sources.
2. To outline and analyze the carbon intensity of various energy systems
3. To examine major Canadian and global energy systems and their components
4. To analyze and evaluate existing energy policies and programs at micro and macro scales (e.g. national, community and household levels).
5. To develop skills to measure energy performance and to evaluate options for improvements in energy efficiency and carbon intensity at multiple scales.
6. To develop national energy policy recommendations
7. To design a net zero home
8. To evaluate and create a community energy plan to understand the major Canadian and global energy systems.