

Seminar Series 2015 - 2016

Southern Ontario Centre for Atmospheric Aerosol Research
University of Toronto

Air quality co-benefits of climate policy

Rebecca Saari, PhD

Assistant Professor

Civil & Environmental Engineering
University of Waterloo



Combating climate change is a long-term global challenge with near-term local “co-benefits” from pollution reduction. Policies that reduce greenhouse gas emissions can also reduce outdoor levels of air pollutants that harm human health by targeting the same emissions sources. Climate policies are linked to health co-benefits through a complex policy-to-impacts pathway. Their design and scope can affect who gains from pollution reductions and by how much. In this seminar, we examine this relationship using a new integrated modeling framework. We identify policy approaches that yield significant ‘win-win’ benefits for avoiding dangerous climate change and protecting human health.

We present an integrated modeling framework that combines advanced models of the economy and atmosphere to compare air quality co-benefits to policy costs across different regions and income groups. We assess the relationship of air quality co-benefits to different policy designs (sector, flexibility), climate uncertainty and feedbacks, and income inequality. We find that the most cost-effective policies (cross-sectoral and cross-regional trading) have air quality co-benefits that can completely offset their costs. This is bolstered by reducing the effect of a warmer climate on air quality; this effect alone offsets a significant fraction of global climate stabilization policy costs, with growing importance over time. We find that inequality in exposure makes ozone reductions relatively more valuable for low income households. As a whole, this work links air pollution to the challenge of finding sustainable responses to climate change.

March 2, 2016, 3 – 4 PM

Wallberg Building, 200 College Street, Room 407

