

## Waseda RIEEM / Tokyo Environmental Workshop

Date: Thursday, December 14, 2017  
Venue: Room 306, Building #3  
Waseda Campus, Waseda University

17:00 – 18:00

“Carbon Pricing with an Output Subsidy under Imperfect Competition:  
The Case of Alberta's Restructured Electricity Market”

David Brown  
(University of Alberta, Canada)

### Abstract

In this paper, we examine the use of carbon pricing and an output-based subsidy in a market with imperfect competition. We consider a carbon pricing policy in Alberta's electricity market as a case study. This policy consists of two phases. In the first phase, the carbon price is doubled with the output subsidy being based on a fraction of facility-level emission intensity. In the second phase, the carbon price will remain constant, while the output subsidy is altered to be uniform across assets and based on the emissions intensity of an efficient natural gas asset. Using a model of oligopoly competition, we simulate the short-run impacts of the two phases on electricity prices, emissions, and unit and firm-level profitability. We find that the mechanisms by which electricity prices and emissions change in response to carbon pricing differ depending on whether the market is perfectly competitive or oligopolistic. We demonstrate that regardless of market structure, changing the basis of the output subsidy has substantially larger effects than a doubling of the carbon price. The estimated effects of carbon pricing vary as the firms' generation portfolios change.

### Profile of Speaker:

David Brown is an Assistant Professor in the Department of Economics at the University of Alberta and a Research Fellow at the University of Alberta's Institute for Public Economics. He completed his PhD in Economics from the University of Florida where he held a position as a research fellow at the Public Utility Research Center. David's research lies at the intersection of energy economics, industrial organization, environmental economics, and regulation. He studies the effects of regulatory policies on strategic firm behavior, the integration of renewable generation capacity, and questions related to electricity market design.

- ※ Please contact us at [rieem.waseda\(at\)gmail.com](mailto:rieem.waseda(at)gmail.com) if you would like to attend the workshop.
- ※ Please take the escalator to get to Room 306 of Building #3.

Access to Waseda University and Waseda Campus: <https://www.waseda.jp/top/en/access>

- ※ This workshop is supported by Research Institute for Environmental Economics and Management (RIEEM). This event is also supported by Tokyo Environmental Workshop, Waseda Institute of Political economy, and the Environment Research and Technology Development Fund (ERTDF) 2-1707.

# Campus Map

