

Blake Shaffer

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Personal

Born: September 27, 1977
Citizenship: Canadian
Languages spoken: English and French
Software proficiency: R, Stata, Matlab, Excel, L^AT_EX

Research Interests

Energy and environmental economics, electricity markets, climate policy

Appointments and Affiliations

Assistant Professor, University of Calgary, Dept. of Economics and School of Public Policy, 2020–
Research Fellow, University of Calgary, School of Public Policy, 2019–
Fulbright Postdoctoral Scholar, Stanford University, 2019
Visiting Scholar, Toulouse School of Economics, Fall 2018
Lab Economist, Creative Destruction Lab, 2019–
Energy Policy Fellow, C.D. Howe Institute, 2016–

Education

Ph.D. Economics, University of Calgary, 2014–2018
Dissertation: Three Essays on Electricity Demand
**Selected as the University of Calgary's nominee in the category of Fine Arts, Humanities and Social Sciences for the Canadian Association of Graduate Studies Distinguished Dissertation Award*
Committee: Dr. Trevor Tombe (Supervisor), Dr. Lucija Muehlenbachs, Dr. Ken McKenzie
Examiners: Dr. Max Auffhammer (External), Dr. Pamela Campa (Internal)

M.Phil. Economics, University of Cambridge, 2002–2003
Masters Thesis: Road congestion charging: A preliminary analysis of the London scheme
Supervisor: Dr. Georgina Santos, Examiner: Dr. David Newbery
Graduated *with merit*; achieved Ph.D. continuation level

B.Sc. (Hons) Environmental Sciences, Queen's University, 1995–2000
Honours Thesis: Mine Reclamation in the Canadian Arctic: An Analysis of Policy Alternatives
Graduated with 1st class distinction

Exchange year, University of Melbourne, 1997
Received letter of distinction in Philosophy

Employment

University of Calgary

Assistant Professor, Economics and Public Policy, 2020–
Sessional Instructor, 2018
Graduate Teaching Assistant, 2014–2017
Graduate Research Assistant, 2014–2017

Government of British Columbia

Expert Advisor, B.C. Hydro Transformative Review, 2019–

Government of Canada

Consulting Policy Advisor, Ministry of Environment and Climate Change, 2018–

Government of Alberta

Consulting Policy Advisor, Department of Energy, 2016– (occasional)
Expert Advisor, Economic Diversification Advisory Committee, 2017
Expert Advisor, Electricity Transition Governance Committee, 2016
Member, Royalty Review Secretariat, 2015–16
Member, Natural Gas Expert Panel (unpaid service), 2015–16

Transalta Corporation, Calgary, AB

Director, Head of Trading, 2012–14
Senior Power Trader, 2010–11

Barclays Capital, New York, NY

Senior Power Trader, 2007–10

Lehman Brothers, New York, NY

Vice-President, Power and Gas Trading, 2006–07

Powerex Corp. (BC Hydro), Vancouver, BC

Manager of Analytics, 2003–06
Term Power Trader, 2001–02
Spot Power Trader and Analyst, 1999–01

Teaching

Courses Taught

PPOL 611 - Energy Transitions and Policy (Masters), Winter 2020
ECON 329 - Economics of Electricity Markets (Undergraduate), Fall 2019
ECON 373 - Game Theory (Undergraduate), Spring 2018 (**awarded Department of Economics Graduate Student Teaching Award*)

Student Supervision

2020: Nicholas Schumacher (MPP), Brenda Flores (MPP), Jordan Neff (MPP), Kiana Goddard (SEDV), Sounderya Venkatesan (SEDV)

Grants and Awards

EEPRN Research Grant (\$37,055), Principal Investigator (co-investigator Dr. Nic Rivers), 2019–20
 Fulbright Scholar, Canada-US Fulbright Program, Stanford University, 2019
 University of Calgary Graduate Student Teaching Award, 2018
 Victor Yang Song Graduate Scholarship in Teaching Excellence, 2018
 University of Calgary Faculty of Graduate Studies Travel Award, 2018
 John D. Petrie, QC Memorial Graduate Scholarship, 2017–19
 James D. Gaisford Research Prize (Top 2nd year PhD research paper), 2017
 Queen Elizabeth II Scholarship (SSHRC and Vanier National Finalist), 2015–17
 Talisman Graduate Scholarship in Energy and Related Studies, 2015–16
 Top Macroeconomics Prize, 1st year PhD, 2015
 Economics Society of Calgary Scholarship, 2014
 Cambridge Commonwealth Trust Graduate Scholarship, 2003
 Carl Reinhardt Scholarship in Geological Sciences, 1997
 Morley E. Wilson Scholarship in Geological Sciences, 1996
 Queen's Applied Science (Engineering) Dean's List, 1996
 Queen's Anniversary Entrance Scholarship, 1995

Publications

Journal Articles

Misunderstanding Nonlinear Prices: Evidence from a Natural Experiment on Residential Electricity Demand, *American Economic Journal: Economic Policy*. 2020; 12(3).

ABSTRACT: This paper examines how consumers respond to nonlinear prices. Exploiting a natural experiment with electricity consumers in British Columbia, I find evidence that some households severely misunderstand nonlinear prices\ incorrectly perceiving that the marginal price applies to all consumption, not simply the last unit. While small in number, the exaggerated responses by these households have a large effect in aggregate, masking an otherwise predominant response to average price. Previously largely unexplored in the literature, this type of misunderstanding has important economic, policy and methodological implications beyond electricity markets. I estimate the welfare loss for these households to be the equivalent of 10% of annual electricity expenditure.

Stretching the duck: The effect of climate change on the level and timing of future electricity consumption (with Nic Rivers), *The Energy Journal*. 2020; 41(5).

ABSTRACT: Rising temperature due to climate change is expected to alter the demand for heating, cooling and other electricity services. This paper examines the marginal effect of rising temperature on the level and timing of future electricity demand. We find the aggregate effect on the level of demand is small due to savings from reduced heating demand in a cold country, such as Canada, largely offsetting increased summer cooling demand. This finding holds even when incorporating adaptation in the form of increased air conditioner adoption. However, it masks important regional heterogeneity and significant changes to the timing of electricity demand. Seasonal peaks are projected to shift from winter to summer and the diurnal range of hourly demand expands. The latter is of particular importance, exacerbating changes coming from the supply side where growing variable renewable energy shares are increasing the need for flexibility in managing diurnal variation.

Location Matters: Daylight saving time and electricity demand, *Canadian Journal of Economics*. 2019; 52(4).

ABSTRACT: The primary rationale for daylight saving time (DST) has long been energy savings. Whether it achieves this goal, however, remains a subject of debate. Recent studies, examining only one location at a time, have shown DST to increase, decrease or leave overall energy use unchanged. Rather than concluding the effect is ambiguous, this paper is the first to test for heterogeneous regional effects based on differences in (natural) sun times and (societal) waking hours. Using a rich hourly data set and quasi-experimental methods applied across Canadian provinces, this paper rationalizes the differing results, finding region-specific effects consistent with differences in sun times and waking hours. DST increases electricity use in regions with late sunrises and early waking hours.

Media coverage: *National Post, Macleans, CBC, Global, 660 News*

Preliminary results of the London congestion charging scheme (with Georgina Santos), *Public Works, Management and Policy*. 2004; 9(20): 164–181

ABSTRACT: This paper is the first to empirically estimate the effect of the London Congestion Charging Scheme. Preliminary results show a significant response to the £5 (\$8) charge. Congestion over the first year decreased by 30 per cent, overall traffic levels within the charging zone fell by 16 per cent, speeds for car travel increased by over 20 per cent and bus travel became more reliable. Elasticities of demand for trips by car with respect to generalized costs are estimated to be between -1.32 and -2.10 . The average marginal congestion cost within the central zone is estimated at £1.65 per veh-km (approximately \$2.58 per veh-km). The net economic benefits of the Scheme for the first year were £50 million (\$78 million) and the net revenues, £68 million (\$106 million). Net revenues are being mainly used to improve public transport.

Working Papers

Paying for performance: The role of policy in energy storage deployment (with Mokhtar Tabari). [Under review]

ABSTRACT: Energy storage has long been viewed as a solution to the growing challenge of intermittent electricity supply. However, energy storage deployment remains limited despite falling costs. One reason for this is current market rules inadequately compensate storage for all the value it can provide. A recent policy change in the United States seeks to rectify this situation by requiring grid operators to compensate providers of frequency regulation services based on speed and accuracy. This seemingly subtle change has a beneficial effect for fast-acting storage resources. Using a difference-in-differences method, exploiting the fact the Order covers a subset of U.S. electricity regions, we find a greater than 30% increase in the number of storage projects in the covered regions. This result highlights the importance of getting prices right and the material effect properly reflecting the value of storage can have on storage deployment.

Canadian electricity markets during the COVID-19 pandemic: An initial assessment (with Andrew Leach and Nic Rivers). [Under review]

ABSTRACT: This paper examines the effect of the COVID-19 pandemic on electricity markets across select Canadian provinces with available data. Using high frequency electricity data, we find electricity demand declined by roughly 10% in Ontario, and by about 5% in Alberta, British Columbia, and New Brunswick. On the supply side, in Alberta we find reductions from some natural gas plants and an increase in net generation from the oil sands region, while Ontario sees an increase in net electricity exports. Policy implications include potential rate impacts due to fixed charges spread over a smaller rate base, the potential use of electricity data as a real-time economic indicator during the pandemic, and a call to arms to make electricity data across all Canadian provinces more readily available.

Peer-reviewed Policy Papers

The Role of Storage in Alberta's Electricity Market: Summary of a School of Public Policy Roundtable Event, Sep 2019, *University of Calgary, School of Public Policy Summary Paper*, 12(28)

All's Well that Ends Well: Addressing End-of-Life Liabilities for Oil and Gas Wells (with Ben Dachis and Vincent Thivierge), Sep 2017, *C.D. Howe Research Paper*, no. 492

The Challenge of Integrating Renewable Generation in the Alberta Electricity Market (with G. Kent Fellows and Michal C. Moore), Sep 2016, *University of Calgary, School of Public Policy Summary Paper*, 9(25)

The Political Economy of Free Allocations (with Mark Purdon and David Houle), Apr 2016, *Ecofiscal Commission Position Paper Series on Carbon Pricing Revenue Recycling*

Lifting the Hood on the Alberta Royalty Review, Feb 2016, *University of Calgary, School of Public Policy Briefing Paper*, 9(7)

Policy Notes

As Electricity Demand Sinks, Ontario Power Costs Rise 24 Percent With More to Come (with Grant Bishop), Apr 21, 2020, *C.D. Howe Intelligence Memo*

Power demand in the time of COVID-19 (with Andrew Leach and Nic Rivers), Apr 16, 2020, *School of Public Policy, Energy & Environmental Policy Trends*

Using forward contracts to deliver reliable and affordable power, Oct 18, 2019, *C.D. Howe Intelligence Memo*

Will electric vehicle subsidies spur widespread adoption?, May 23, 2019, *School of Public Policy, Energy & Environmental Policy Trends*

You get what you pay for: Considering cost and value in renewables procurement, Dec 18, 2018, *C.D. Howe Intelligence Memo*

To change or not to change? The daylight saving debate won't die, Mar 6, 2018, *C.D. Howe Intelligence Memo*

Alberta's renewable auction sets a new low for prices, but tweaks are needed in the future, Dec 14, 2017, *C.D. Howe Intelligence Memo*

What's the Real Deal with Keystone XL?, Nov 21, 2017, *C.D. Howe Intelligence Memo*

Smooth transitions: Shifting from cap-and-trade to a carbon tax (with Trevor Tombe and Dale Beugin), Nov 15, 2017, *Ecofiscal Commission*

On Site C: Dam(ned) if you do, dam(ned) if you don't, Nov 3, 2017, *C.D. Howe Intelligence Memo*

An Ontario surprise: A good idea about electricity pricing, Sep 10, 2017, *C.D. Howe Intelligence Memo*

Does Daylight Saving Time Reduce Energy Consumption (with Nic Rivers), Part 1 & Part 2, Mar 7 & 8, 2017, *C.D. Howe Intelligence Memo*

Reconciling pipelines with Canada's climate goals (with Trevor Tombe), Dec 8, 2016, *C.D. Howe Intelligence Memo*

What does a capacity market mean for Alberta? Nov 24, 2016, *C.D. Howe Intelligence Memo*

Popular Media

Alberta's government is using coronavirus as a shield for laying off education workers (with Trevor Tombe), Apr 5, 2020, *Globeandmail*

Beyond pipelines: The nation-building project that could electrify Canada (with Sara Hastings-Simon), Mar 17, 2020, *Globeandmail*

Alberta's carbon-pricing policy is imperfect – but in one significant way, it's actually better than Ottawa's, Oct 29, 2019, *Globeandmail*

Les Canadiens ont les voitures les plus grosses et les plus énergivores au monde, May 13, 2019, *The Conversation Canada* (translation)

When it comes to vehicles, Canada tops the charts for poor fuel economy, May 1, 2019, *The Conversation Canada*

Redwater decision is progress, but environmental liabilities run deep (with Simon Dyer and Chris Ragan), Feb 4, 2019, *Globeandmail*

Canada's new large-emitter pricing system might defeat the carbon tax's own purpose, Nov 5, 2018, *Macleans*

Will LNG Canada increase greenhouse gas emissions? Oct 3, 2018, *Macleans*

On Policy Durability, Aug 13, 2018, *The Hill Times*

Why John Horgan deserves credit for going ahead with Site C, Dec 11, 2017, *Macleans*

Why the B.C. Liberals and NDP are both wrong about bridge tolls, Apr 10, 2017, *Macleans*

Saskatchewan swallows the fiscal pill Alberta refuses (with Trevor Tombe), Mar 24, 2017, *Macleans*

Paying for pipelines: How consumers can end up footing the bill, Feb 9, 2017, *CBC*

Making sense of energy efficiency programs (with Sara Hastings-Simon and Trevor Tombe), Jan 31, 2017, *Macleans*

Alberta Electricity: There's something happening here, what it is ain't exactly clear, Nov 27, 2016, *Calgary Herald*

Carbon tax: The real debate is about the revenue, Oct 15, 2016, *Globeandmail*

Making sense of a \$15 minimum wage in Alberta (with Trevor Tombe), Jul 1, 2016, *Macleans*

Alberta's climate plan requires serious debate, May 27, 2016, *Globeandmail*

Making sense of a provincial debt downgrades: Why Canadians in all regions should watch mounting provincial debt levels with concern (with Trevor Tombe), Dec 22, 2015, *Macleans*

Proceedings

Conference Presentations and Invited Seminars

2020: AESO Economics Seminar Series (delivered online); TWEEDS, Portland (Postponed); Berkeley POWER Conference, University of California at Berkeley (delivered online); Sustainable Prosperity Institute Annual Symposium, Ottawa (Feb)

2019: Ivey Electricity Workshop, Toronto (Oct); C.D. Howe Energy Council, Toronto (Oct); University of Calgary Environmental Law Society, Calgary (Oct); NBER Electricity Markets and Regulation Workshop, Lake Tahoe (May); Pacific Institute for the Mathematical Sciences (PIMS) Workshop on Mathematical Sciences and Clean Energy Applications, UBC (May); Berkeley Energy Institute, University of California at Berkeley (February)

2018: Toulouse School of Economics, Environmental Economics Seminar (September); World Congress of Environmental and Resource Economists, Gothenburg, Sweden (June); Canadian Economics Association 2018 Annual Conference, Montreal (June)

2017: Canadian Resource and Environmental Economics 2017 Annual Meeting, London (September); Toulouse School of Economics, 11th Conference on the Economics of Energy and Climate Change, Toulouse (June)

2016: Canadian Resource and Environmental Economics 2016 Annual Meeting, Banff (October)

Conference Organization

Market Design in Alberta: A roundtable, School of Public Policy, University of Calgary, March 2020. [In-person roundtable postponed. Video webinar convened in lieu.]

The potential for energy storage in Alberta: A roundtable, School of Public Policy, University of Calgary, March 2019. Co-organized a roundtable of expert international panelists and attendees on the potential for energy storage in evolving electricity markets.

Electricity Journalism Workshop, Calgary, May 2018. Co-organized a workshop for journalists to better understand the fundamentals of electricity markets and policy with C.D. Howe Institute, Canada West Foundation and the Pembina Institute.

Integrating renewables into the Alberta electricity market: A roundtable, School of Public Policy, University of Calgary, Sep 2015. Co-organized a roundtable of 40 stakeholders and experts to discuss policy and operational issues related to integrating renewables into the Alberta electricity market.

Invited Workshops

Berkeley Energy Camp, University of California at Berkeley, June 2019. Invited attendee.

NBER Electricity Markets and Regulation Workshop, Lake Tahoe, May 2019. Invited speaker.

1st Annual Innovation Program of ReDeveLoP, an NSERC-funded program under the CREATE Initiative for the responsible development of low-permeability hydrocarbon resources, University of Calgary, Canada, May 2018. Invited speaker.

An Uncommon Dialogue: North American Hydropower, Stanford Steyer-Taylor Centre for Energy Policy and Finance, Stanford Woods Institute for the Environment, Stanford University, Palo Alto, March 2018. Invited panelist.

Alberta Energy Challenge: An international case competition focussing on the energy sector, University of Alberta, Edmonton, September 2017 (guest speaker). Invited speaker.

Berkeley Summer School in Environmental and Energy Economics, University of California at Berkeley, August 2017. Selected attendee.

IASS Expert workshop on coal power, Institute for Advanced Sustainability Studies, Potsdam, Germany, November 2016. Invited speaker.

Summer Institute on Field Experiments, University of Chicago, July 2015. Selected as one of 20 global scholars to participate in this inaugural workshop organized by Dr. John List.

Memberships

Canadian Economics Association (CEA), Canadian Resource and Environmental Economics Study Group (CREE), American Economics Association (AEA), Association of Environmental and Resource Economics (AERE), International Association for Energy Economics (IAEE)

Referee Service

American Economic Journal; Economic Policy; Journal of the European Economic Association; International Journal of Industrial Organization; Journal of Environmental Economics and Management; Resource and Energy Economics; Energy Journal; Energy Policy; Energy Economics; Economic Inquiry; University of Calgary School of Public Policy; C.D. Howe Institute; Ecofiscal Commission

References

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Dr. Nicholas Rivers
Professor, Economics
University of Ottawa
nicholas.rivers@uottawa.ca
(613) 562-5800 ext. 4676

Dr. Meredith Fowlie
Professor, Agric. and Resource Economics
University of California at Berkeley
fowlie@berkeley.edu
(510) 642-4820

Dr. Georgina Santos (Masters supervisor)
Senior Lecturer, School of Geography and Planning
Cardiff University
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Dr. Frank Wolak (Postdoctoral advisor)
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Dr. Maximilian Auffhammer
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