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February 12, 2019

**Kirsten Walli**  
Board Secretary  
Ontario Energy Board  
P.O. Box 2319, 27<sup>th</sup> Floor  
2300 Yonge Street  
Toronto, ON M4P 1E4

Dear Ms. Walli:

**Re: Toronto Hydro-Electric System Limited**  
**Application for order or orders approving or fixing just and reasonable distribution rates and other charges, effective January 1, 2020 to December 31, 2024**  
**Board File No. EB-2018-0165**

We are counsel to the Distributed Resource Coalition (**DRC**) in the above-referenced proceeding (the **Proceeding**) and we provide this letter advising of the DRC's intention to file expert evidence in the Proceeding.

The DRC has intervened in this Proceeding to advance the interests of residential, small- and medium-sized commercial, and industrial customers of Toronto Hydro; non-profit organizations; and owners' associations with a focus on electric vehicles (**EVs**) and EV infrastructure that are directly affected by (i) optimizing existing energy assets; (ii) efficiently facilitating the integration of existing and innovative distributed energy resources (**DERs**) to achieve customer and grid solutions; (iii) and providing input on direct customer needs and local distribution company opportunities relating to EV-related DERs.

In accordance with the requirements of Procedural Order No. 2, this letter addresses: (i) the purpose and intent of the DRC evidence; (ii) the expertise of the DRC's expert witness; (iii) the form of the evidence; (iv) the anticipated filing date; and (v) a cost estimate.

**Purpose and intent of DRC evidence.** The DRC intends to commission expert evidence given by Dr. Josipa Petrunic (Ph.D.), Executive Director and Chief Executive Officer of the Canadian Urban Transit Research & Innovation Consortium (**CUTRIC**). The DRC intends to sponsor the evidence of Dr. Petrunic in order to address topics affecting the customers represented by the DRC, including (but not limited to):

- (i) customer efficiencies effected through progressive integration of EVs and related DER charging infrastructure into electricity distribution systems;
- (ii) EVs and related DER charging infrastructure as a reliability resource for electricity distribution systems;
- (iii) integration of EVs and related DER charging infrastructure into local electricity distribution system planning and related O&M considerations; and
- (iv) EV-related DER considerations for distribution rate base and rate design.

Dr. Petrunic's evidence will assist the Board in its consideration of the following issues as set out in the proposed issues list filed with the Board by Board staff on January 30, 2019:

**Issue 3.2:** Is the level of proposed 2020-2024 capital expenditures and capital in-service additions, arising from the distribution system plan, appropriate and is the rationale for planning and pacing choices appropriate and adequately explained?

**Issue 3.3:** Is the proposed treatment of renewable enabling improvement investments appropriate?

**Issue 4.1:** Is Toronto Hydro's 2020-2024 load forecast reasonable?

**Issue 4.2:** Are Toronto Hydro's 2020 other revenue and shared services forecasts reasonable?

**Issue 7.2:** Are Toronto Hydro's proposals for rate design (including, but not limited to, fixed / variable split, loss factors, retail transmission service rates, specific and other service charges) appropriate?

**Expertise.** Dr. Petrunic is leading the formulation of several national transportation technology trials related to zero-emissions transportation and "smart vehicles" innovation, including the Pan-Canadian Electric Bus Demonstration & Integration Trial, the Pan-Canadian Hydrogen Fuel Cell Demonstration & Integration Trial, and the National Smart Vehicle Demonstration Project. Dr. Petrunic has built up CUTRIC's consortium to include more than 100 private and public sector companies and organizations across Canada. She has extensive experience relating to the integration of EVs into electricity distribution systems. Previously, she served as the lead researcher in electric vehicle policy studies at McMaster University, and as a senior research fellow in the history and philosophy of mathematics at University College London (UCL) in the United Kingdom in Science and Technology Studies. Dr. Petrunic continues to lecture in Globalization Studies at McMaster University. She currently sits on the Board of the Women's Transportation Seminar (WTS) Foundation and InnovÉE, an electrical vehicle R&D funding body in Quebec. In 2018, she was named as one of Canada's Top 40 Under 40 by Bloomberg News. Dr. Petrunic's curriculum vitae is attached as Appendix "A" to this letter.

**Form of evidence.** Dr. Petrunic intends to provide her evidence by way of a written expert report. If the Board provides for oral testimony, Dr. Petrunic will be available to participate in the Proceeding for the purposes of direct- and cross-examination.

**Anticipated filing date.** The DRC expects to be in a position to file its expert evidence on or before the Board's deadline of March 12, 2019.

**Cost estimate.** The DRC roughly estimates that the cost of the preparation of its expert report and participation in the Proceeding will be in the range of \$15,000 to \$25,000, subject to the nature and extent of any interrogatories on the DRC's evidence. We have not included in our estimate any related hearing time, should Dr. Petrunic be required to testify before the Board.

In addition, the incremental time that will be spent by the DRC's legal counsel in relation to the expert evidence is likely to be in the range of 10 to 15 hours, weighted more toward senior legal counsel with appropriate involvement of junior legal counsel.

At this time, the DRC appears to be representing a unique and otherwise unrepresented interest in the Proceeding. The DRC does not therefore intend to commission its evidence jointly with other parties, but it will canvass interest accordingly.

We trust that this letter satisfies the Board's requirements set out in Procedural Order No. 2 and request that the Board grant the DRC eligibility to recover the costs associated with the participation of Dr. Petrunic and the preparation of her expert report. Please do not hesitate to contact us should you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to be 'Lisa DeMarco', with a long, sweeping horizontal line extending to the right.

Lisa (Elisabeth) DeMarco

c. Charles Keizer, Torys LLP  
Andrew Sasso and Daliana Coban, Toronto Hydro  
Distributed Resource Coalition

## **APPENDIX A**

## DR. JOSIPA G. PETRUNIĆ

TELSEC BUSINESS CENTRES  
1 YONGE STREET #1801  
TORONTO, ON M5E 1W7  
EMAIL: JOSIPA.PETRUNIC@CUTRIC-CRITUC.ORG  
PHONE: 647-981-4020

### CURRENT SUMMARY

As the Executive Director & CEO of the Canadian Urban Transit Research & Innovation Consortium (CUTRIC), I lead the formulation of several national transportation technology trials related to zero-emissions and low carbon “smart” transportation, including the Pan-Canadian Electric Bus Demonstration & Integration Trial, the Pan-Canadian Hydrogen Fuel Cell Demonstration & Integration Trial, and the Canadian National Smart Vehicle Demonstration Project. Over the past four years, I have grown CUTRIC’s innovation consortium to include more than 100 private and public sector companies and organizations across Canada with an operational revenue base that has increased from \$50,000 in 2015 to \$1,200,000 as of 2018.

### EMPLOYMENT HISTORY

<b>Chief Executive Officer &amp; Executive Director</b>	<b>February 2015 – Present</b>
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Canadian Urban Transit Research & Innovation Consortium (CUTRIC) / Consortium de recherche et d’innovation en transport urbain au Canada (CRITUC)

- Create, develop and launch industry-led globally relevant standardization and commercialization trials that advance innovative low carbon smart mobility technologies in Canada’s transit and transportation systems.

<b>Curriculum Designer &amp; Lecturer</b>	<b>September 2014 – Present</b>
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Master of Global Health, McMaster University

- Lead the design, research, and on-going development of the *Introduction to Globalization Economics (710)* core course utilizing interdisciplinary research methodologies.

<b>Lead Curriculum Designer &amp; Lecturer</b>	<b>February 2012 – Present</b>
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Master of Integrated Studies (MA-IS) Program, Athabasca University

- Lead the design, research, and on-going development of the *Interdisciplinary Research Methods (602)* core course in methodologies, including statistical and quantitative methods as well as interview, focus group, and observational analyses.

<b>Executive Director</b>	<b>September 2013 – February 2015</b>
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Social Costs and Benefits of Electric Mobility in Canada  
McMaster Institute for Transportation and Logistics (MITL), McMaster University

- Lead a research team in the design and collection of consumer, dealership, and transit fleet survey data related to electric mobility in Canada.

<b>Senior Research Fellow &amp; CICETT Project Team Lead</b>	<b>May 2013 – Present</b>
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McMaster Automotive Resource Centre (MARC), McMaster University

- Lead the development of a research framework assessing an *Electric Vehicle Technology Roadmap for Canada*; provide normative recommendations to federal, provincial, and municipal bodies aimed at increasing regional investments in sustainable transportation and automotive manufacturing, focusing on the comparative benefits of electrified transportation incentives (including rebates, subsidies, HOV lanes) for hybrid, plug in hybrid, and battery electric vehicles, fleets, and buses across Canada.

<b>Post-Doctoral Research Fellow</b>	<b>September 2011 – April 2013</b>
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Institute for the History and Philosophy of Science and Technology (IHPST), University of Toronto

- Engage in research, publishing and international scholarly networking activities to develop an international reputation in the area of cultures in mathematics; lead a network of global scholars in the history, philosophy, and sociology of mathematics, mathematical physics, and engineering.

<b>Head of Policy Research; Constituency Manager</b>	<b>October 2011 – May 2012</b>
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Alberta Legislative Assembly & Constituency Office of Edmonton-Gold Bar

- Engage in research, publishing and policy guidance related to energy and infrastructure policies vis-à-vis Alberta's oil and gas economy, as well as the province's electricity system and energy infrastructure expansion efforts (specifically, transmission line expansion).

<b>Post-Doctoral Research Fellow</b>	<b>September 2009 – September 2010</b>
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Department of Science and Technology Studies, University College London (UK)

- Lead research, publishing and network activities to expand the sub-discipline of sociology of scientific knowledge across Great Britain, building on the Strong Programme of Sociology of Scientific Knowledge (SSK); deliver graduate-level lectures and supervise graduate students.

<b>Senior Manager &amp; Director of Operations</b>	<b>September 2008 – October 2011</b>
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Prepskills Inc. 250 Merton Street, Suite 404, Toronto, ON

- Design and produce innovative curriculum products focusing on English literature, writing, algebra, calculus, and logic for students entering the private schooling system in Canada and the USA; manage and grow office staff and train instructors; financially plan for new product design and commercial launch, and generate monthly sales targets, employing productivity metrics to measure quarterly outputs; design and implement marketing campaigns via telephone advertising, traditional and social media, and school visits to support those client seminars; organize and lead client seminars (with 100+ clients per seminar).

<b>Intern Journalist</b>	<b>May 1998 – September 2002</b>
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*The Calgary Herald (1999); The Edmonton Journal (2000); The Globe and Mail (2001); The Toronto Star (2002)*

## **GOVERNANCE (BOARD & COMMITTEE) LEADERSHIP**

Current and recent directorship and Advisory Committee roles:

- Car of the Future: Government of Canada, Automated & Connected Vehicles Multi-Stakeholder Advisory Committee, September 2018-Present
- Board Director, International Women in Transportation Seminar Foundation (WTSF), 2018 - Present
- Advisor, International Association of Public Transport (UITP) JIVE Group on Hydrogen Fuel Cell Innovation, 2017 - Present.
- Members, Society of Automotive Engineers (SAE) International Standards Committee, J3105 Charging Standardization Committee, 2017 - Present
- Board Director, InnovÉE Quebec (Innovation en Énergie Électrique), 2017 - 2018
- Advisor, Sidewalk Labs/Waterfront Toronto Initiative, 2018
- Advisor, City of Vancouver, Electric Vehicle Strategy Advisory Committee, 2018
- Advisor, Ontario Ministry of Environment & Climate Change (MOECC) Climate Action Group led by Minister Glen Murray, 2015-2017

9. Advisor, Advisory Committee for Plug'n Drive, 2015 - 2016
10. Board Director, Electric Mobility Canada (EMC), 2014 – 2015

## REFEREED PUBLICATIONS

- Petrunic, J.G and Roschlau, M. (2019) Chapter 13: North America, in *A Research Agenda in Transport Policy*. Eds. John Stanley & David Hensher. Camberley, Surrey, UK.: Edward Elgar Publishing (EEP).
- Petrunic, J.G. (2016) Mathematical kinds? A case study in nineteenth century symbolical algebra, in *Natural Kinds and Classification in Practice (History of Philosophy of Biology)*. Ed. Katherine Kendig. New York, NY: Routledge, pp. 186-196.
- Petrunic, J.G. (2015). Democratic deficit: a case study analysis of e-voting and its implications for the Alberta Liberal Party leadership race (2011). In the *Digital Nexus: Identity, Agency and Political Engagement*. Ed. Raphael Foshay. Athabasca, AB: Athabasca University Press, pp. 2490-279.
- Emadi, A., Petrunic, J.G. (2014) Chapter One: Automotive Industry and Electrification, in *Advanced Electric Drive Vehicles*. Ed. Ali Emadi. New York, NY: Taylor & Francis, pp. 1-13.
- Petrunic, J.G. (2014) Advanced Automotive System, Electrification, and Policy Concerns. *Policy Papers: Automotive Policy Research Centre (APRC)*. Eds. C. Yates and B. Sweeney. pp. 1-35. Available at [www.socialsciences.mcmaster.ca/APRC/research](http://www.socialsciences.mcmaster.ca/APRC/research) [Last accessed 5 November 2014]
- Petrunic, J.G. (2014) Chapter Five: Evolutionary naturalism in mathematical innovation: William Kingdon Clifford's use of Spencerian evolutionism, in *John Tyndall and Victorian Science*. Eds. Bernard Lightman, Josh Howe and Michael Reidy. London, UK: Pickering and Chatto Publishers, pp. 89-112.
- Petrunic, J.G. (2013) James G. Frazer, in *Theory in Social and Cultural Anthropology: An Encyclopedia*. Vol 1. Eds. Jon McGee and Richard Warms. Thousand Oaks, CA: SAGE Publications, pp. 283-288.
- Petrunic, J.G. (2011) Algebra and Algebra Education, in *Encyclopedia of Mathematics and Society*. Vol 1. Eds. Sarah J. Greenwald and Jill E. Thomley. Pasadena, CA: Salem Press, pp. 31-35.
- Petrunic, J.G. (2009) Continuity and controversy: the problematic concept of continuity in William Kingdon's Clifford's account of differential calculus, 1860-1879. *Philosophia Scientiae*, 13(2), pp. 1-45.
- Petrunic, J.G. (2007) "Evolutionary Mathematics: the discourse of evolution in W.K. Clifford (1860-1879)." In Amanda Caleb, ed., *(Re)creating Science in Nineteenth-Century Britain*. Cambridge Scholars Press, Cambridge: 230-250.

## NON-REFEREED PUBLICATIONS

- Petrunic, J.G., Jami, A., Duffy, G., Franca, A. (2018) *Oxford County Feasibility Study: EVSE Data Mapping & Analysis in Support of Oxford County's Electric Vehicle Accessibility Plan (EVAP)*. Oxford County, Ontario, pp. 1-77.
- Petrunic, J.G., Jami A., Duffy, G., Franca, A. (2018) *Carbon Pricing Policies: Benefits and Challenges for the Transit Sector in Ontario*. Ontario Public Transit Association (OPTA), Ontario, pp. 1-155.
- Petrunic, J.G. (2016) *Ontario Power Provider's EV Working Group: LTEP 2017 Feedback & Final Report*. Canadian Urban Transit Research & Innovation Consortium (CUTRIC), Ontario, pp. 1-65.
- Petrunic, J.G. (2016) *Light-weight, Electrified, Automated and Cybersecure Transportation Innovation in Ontario*. Ministry of Economic Development and Growth (MEDG), Ontario, pp. 1-71.
- Petrunic, J.G. (2015) *Automotive and Transportation Innovation Across Canada & Regional Transportation Needs and Capacities as Targeted Research, Development and Demonstration (RD&D) Projects*. Industry Canada, Ottawa, pp. 1-138.
- Petrunic, J.G. (2014) Policy Dialogue: Automotive Manufacturing for the Twenty-First Century. *Auto Mayors Policy Dialogue Series*. Ford Motor Company, Oakville, ON: Automotive Policy Research Centre (APRC), pp.1-5.

Petrunic, J.G. (2010) Colonial Mathematics: The Spread of Metropole Knowledge in the Nineteenth Century. Vol 23. *Proceedings of the Twenty-Fifth Annual Meeting of the Canadian Society for the History and Philosophy of Mathematics*, Montreal 2010. Ed. Antonella Cupillari. Pennsylvania: CSHPM, pp. 120-129.

Petrunic, J.G. (2009) *Quaternion engagements and terrains of knowledge (1858-1880): A comparative social history of Peter Guthrie Tait and William Kingdon Clifford's uses of quaternions*. PhD Thesis. Edinburgh, UK: University of Edinburgh, pp. 1 – 418.

Petrunic, J.G. (2009) J. W. Gibbs and the development of Vector Analysis in the late-19th century. Vol 22. Ed. *Proceedings of the Twenty-Fifth Annual Meeting of the Canadian Society for the History and Philosophy of Mathematics*, Montreal 2010. Ed. Antonella Cupillari. Pennsylvania: CSHPM, pp. 121-130.

## FORTHCOMING

Petrunic, J.G. (2019, In Progress). The political appetite for electrified transport in Canada: a comparative case study of Ontario, Quebec and British Columbia's electrified transportation policies. *Canadian Public Policy*. 30 pages (7,500 words).

Petrunic, Ana Marija and Petrunic, J.G. (2019, In Progress) Enough to buy a new house: a case study analysis of remittance patterns and relationships among Croatian-Canadians (1970-1995). *Journal of Ethnography*. 32 pages (8,000 words).

Petrunic, J.G. (2019, In Progress) Cambridge mathematics in the north? The local nature of mathematical knowledge—a case study of Philip Kelland and Peter Guthrie Tait in Edinburgh 1858-1865. *Notes and Records of the Royal Society*. 20 pages (5,000 words).

## RECENT AWARDS

1. Bloomberg Canada's Top 40 Under 40 Award, June 2018
2. Croatian Women of Influence Award, March 2018
3. Canada's Clean 50 Award for Advocates & ENGOS, Canada's Clean 50, September 2017
4. Professional of the Year, Croatian Canadian Chamber of Commerce, May 2016

## EDUCATION

**PhD Science and Technology Studies (Sociology of Scientific Knowledge), University of Edinburgh, 2009**

Major awards: Commonwealth Scholarship, Archives Henri Poincare fellowship

**MSc Science and Technology Studies (Sociology of Scientific Knowledge), University of Edinburgh, 2004**

Major awards: Commonwealth Scholarship, Sir James Lougheed Award of Distinction

**MSc Political Theory, London School of Economics and Political Science, 2003**

Major awards: Sir James Lougheed Graduate Award of Distinction, Ontario Graduate Scholarship

**BJ Political Science and Journalism, Carleton University, 2002**

Major awards: Chancellor's scholarship award (full tuition), Dean's List 1997-2002, Senate Medal for Outstanding Academic Achievement, Hume Wrong Scholarship in Political Science (2002), John Bird Memorial Scholarship for Political Science (2002), Canadian Association of Journalism National Student Award (2002), Ottawa Citizen Scholarship in Journalism (2002), Pollara Research Prize for Advanced Quantitative Analysis (2001)

## LANGUAGES

English (fluent), Croatian (advanced), French (advanced), Italian (intermediate), German (beginner)