ONTARIO SOCIETY OF PROFESSIONAL ENGINEERS

October 30, 2023

**Hon. Todd Smith, MPP, Minister of Energy**
77 Grenville Ave., 10th Floor
Toronto, ON M5S 1B1

**Susanna Zagar, Chief Executive Officer**
Ontario Energy Board
2300 Yonge Street, 27th floor
P.O. Box 2319
Toronto, ON M4P 1E4

Subject: Power Advisory Study prepared for the OEB, dated: Apr 13, 2023
Titled: Electric Delivery Rates for Electric Vehicle Charging

Dear Minister Smith and Ms. Zagar,

The Ontario Society of Professional Engineers (OSPE) is the advocacy body and voice of the engineering profession. Ontario currently has over 85,000 professional engineers, 250,000 engineering graduates, 6,600 engineering post-graduate students and 37,000 engineering undergraduate students. OSPE has been actively engaged with the Ministry of Energy and the Ontario Energy Board (OEB) in matters concerning Ontario's electricity grid. This includes collaboration during the formulation of the Ultra-Low Overnight (ULO) rate plan.

Upon reviewing the report in question, we have identified several comments and concerns. First and foremost, OSPE would like to commend the Ministry of Energy and the Ontario Energy Board (OEB) for commissioning this report and demonstrating a dedicated effort to ensure equitable electricity rates for all stakeholders. This includes a focus on fairness for clients, operators of electric vehicle (EV) fast charging stations, as well as industrial and commercial consumers. It is crucial to avoid imposing higher electricity rates on businesses that cannot afford to subsidize EV owners.

The Power Advisory study conducted by the OEB is commendable for its thoroughness and the quality of its work, especially within the specific scope that it was assigned. However, it's essential to recognize that the challenge of accommodating fast electric vehicle (EV) chargers is considerably more extensive than what the report's narrow focus addressed. Specifically, the report primarily concentrated on the task of reducing demand charges for EV fast charger operators to ensure fairness without disproportionately burdening other consumers.

Ontario should have four very serious concerns when it comes to DC Fast Chargers (DCFCs):

1. Electric vehicle (EV) batteries and Direct Current Fast Chargers (DCFCs) are progressively increasing in size as consumer demand calls for larger vehicle batteries and faster charging capabilities. The report references 50 kW and 100 kW fast chargers, which, while suitable for current needs, may prove inadequate for future demands. Notably, DCFCs are already pushing the limits to 250 kW and even larger chargers are under consideration, particularly for accommodating larger commercial vehicles.

2. The province faces a significant challenge in rapidly expanding power system capacity to align with the 2050 net-zero goal, especially if a substantial number of people opt for Direct Current Fast Chargers (DCFCs) without employing behind-the-meter electrical storage to regulate power flow continuously throughout the day. It's imperative to establish incentives for DCFC owners to maximize the utilization of off-peak idle system capacity. Given that transportation sector energy demand is nearly twice the current electricity energy demand, a substantial capacity buildout is necessary to accommodate increased daytime demand from DCFCs.

3. The retail electricity price is poised to experience a substantial and disproportionate increase beyond the rate of inflation unless we enhance the current 65-70% operating load factor of the power system. This phenomenon is due to the fact that in a net-zero power system, fixed costs account for over 90% of the total expenses, and these costs are at least double those of high-emission power systems (excluding carbon taxes). While variable (fuel) costs in a net-zero power system are typically below $10/MWh (1 cent/kWh) for a mix of nuclear, hydroelectric, wind, and solar PV sources, the use of higher-cost biomass and synthetic net-zero fuels is expected to be limited in the future due to their expense. Future electricity rates will be driven by fixed costs not variable costs.

4. The Global Adjustment (GA) charges embedded within the commodity price, applicable to commercial and industrial consumers with power demand exceeding 50kW, amount to roughly twice the cost of the delivery charges that the report focuses on. It's essential to note that the GA charges for rate classes exceeding 50 kW do not adhere to time-of-use pricing[1]. This non-alignment makes it financially unfeasible for DCFC owners to justify procuring adequate electrical storage to stabilize their power consumption patterns, consequently impeding their ability to lower delivery demand charges and contribute to enhancing the overall power system's operating load factor.

[1] Large industrial and commercial consumers who qualify for the Industrial Conservation Initiative can dramatically reduce their annual global adjustment charges by reducing their loads during the highest 5 demand hours in a year. Unfortunately, the ICI program lower GA charge was set at zero. The cost of behind-the-meter natural gas fired standby generators and electrical storage have come down in recent years and it is now possible to drive the GA charges to zero for the entire year for an ICI consumer. The ICI program is therefore too generous. This means the ICI consumer can free-ride the electricity system's install capacity and transfer fixed costs, in excess of a billion dollars a year in 2017, to non-ICI consumers according the OEB Market Surveillance Panel report of Dec 2018. Those cost transfers were growing at the time of the report.

Additionally, apart from the concerns about DCFCs mentioned earlier, there is a growing issue with federal government energy policies that encourage building owners to adopt electric air source heat pumps as part of efforts to achieve net-zero emissions from buildings by 2050. The total energy demand for heating is approximately double that of the current electricity system, with most of this demand concentrated in a few cold months. This situation necessitates a substantial expansion of the electricity system's capacity. However, this added capacity is expected to operate at a low-capacity factor, which will further drive-up retail electricity rates. It's important to note that alternatives to air source heat pumps, such as district heating networks in high-density urban areas and ground source heat pumps in low-density rural areas, could exert less strain on the electricity system. Nevertheless, these alternatives are not being deployed in sufficient quantities at present to mitigate potential future stress on the electricity system.

OSPE strongly advises the Minister of Energy and the OEB against implementing the proposed rate changes for DCFC owners until a thorough and comprehensive analysis of their potential impact on the electricity system, taking into account the concerns raised above, has been conducted.

We sincerely hope that the Minister of Energy and the OEB will give careful consideration to the concerns and recommendations put forth by OSPE.

Furthermore, we are eager to arrange a meeting with representatives from the OEB and the Ministry of Energy to share our expertise and engage in a more detailed discussion on this matter. Please do not hesitate to reach out if this is a possibility.

For any further questions, please contact the Manager of Public Affairs, Paola Cetares, pcetares@ospe.on.ca, 416 223 9961 Ext. 225.

Sincerely,

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Chair and President
Ontario Society of Professional Engineers

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