June 1, 2016

The Honourable Kathleen O. Wynne
Premier of Ontario and Minister of Intergovernmental Affairs
Room 281, Main Legislative Building, Queen's Park
Toronto, Ontario M7A 1A1

"If I had an hour to solve a problem I'd spend fifty-five minutes thinking about the problem and five minutes thinking about solutions." – Albert Einstein

Dear Premier Wynne,

In the coming days your government is scheduled to release Ontario's official Climate Change Action Plan, a document that will lay out the provincial strategy to combat climate change, anchored by the newly legislated cap-and-trade system.

Ahead of the official Action Plan, the *Globe and Mail* published leaked cabinet-confidential draft documents detailing the planned phase out of residential natural gas, among other things. While concern and speculation regarding the future of natural gas has captured public and media attention, the Ontario Society of Professional Engineers (OSPE) remains resolute in driving attention to the larger issue afflicting Ontario's public policy processes: a lack of meaningful consultation and expert analysis in planning.

Matters of complex science, functionality, and design are areas that demand the expertise of engineers to inform public policy decision-making. Sadly, the engineering community does not yet have an effective seat at the policy table. Often, by the time engineers are involved, high-level planning decisions have already been made by non-technical persons. These individuals are often unaware of the engineering ramifications of their choices. This approach gravely limits policy discussions on more cost-effective options and diminishes Ontario's ability to deliver the best-possible solutions to tackle its most complex problems.

In terms of its significance, complexity, and size, combatting climate change is arguably the greatest global challenge in human history. As such, establishing Ontario's cap-and-trade system is a significant and bold undertaking that demands expertise, meaning the consultation of engineers is necessary throughout the conceptualization and implementation phases. Addressing climate change will demand technological advancement and innovation—and engineers are aware of the current state of technology solutions and the timeframes to commercialize new innovations to meet our ambitious targets. Simply put: engineers understand not only how things work, but also how things work together; for today and tomorrow.

As your government looks to establish a complex framework involving markets and allowances, incentives and compliance tools, and timeframes and technology, the engineering community is a natural ally that is accustomed to total lifecycle costing, complex analysis, and fully developed simulation studies to achieve desired outcomes.

The way to forecast and realize outcomes is to conduct detailed technical and economic analyses combined with appropriate simulation studies. Whether the province is planning to build a new road or develop a community health program, it makes sense to collect data, develop models, run trials or simulation studies, and consult with experts to establish a plan. When we consider the issue of climate change, a challenge known for its massive scale, complexity, and impact, it is only logical that the province invest resources to fully understand the problem and design a costed and comprehensive plan before taking action. Given the overall importance of this plan for Ontario's future, it is critical that government engage engineering specialists in their existing organizations (i.e. Ministries and Agencies) and as third-party advisors and reviewers to ensure proposed policies are robust, optimized, and affordable. Only once this has been accomplished is it reasonable for government to proceed – not before.

We have seen how failing to engage with Ontario's engineering community to formulate Ontario's green energy policy and implementation plans led to undesirable and costly outcomes. Ontario's 2009 Green Energy Act stands as a clear example of this problem and its consequences. Ontario's electrical grid was originally designed to operate at minimum cost. Consequently, the Ontario grid contains inflexible base-load generation with minimal amounts of energy storage. The large amount of intermittent generation added to the grid after 2009 has precipitated over-capacity situations, and this problem gets worse as more intermittent generation is added. This energy cannot be economically stored using present storage technologies, meaning it must be curtailed—essentially wasted— and sold significantly below its total cost of production to neighbouring jurisdictions. This has contributed to a rapid rise in Ontario's electricity rates. Ontario is contractually obligated to continue existing power purchase agreements, and breaking these agreements would bankrupt wind and solar power companies, at the same time destroying confidence in the government.

However, we <u>can</u> and <u>must</u> learn from experience.

All power generation needs to be part of a well thought-out supply mix that respects production and demand characteristics and takes into consideration the cost of each generation technology. The shortcomings of policy decisions in Ontario's Green Energy Act underscore the need for engineers to be engaged to perform pro-forma engineering and cost analyses and simulation studies on various options as part of the policy making process. This will help to ensure our environmental goals are achieved at an affordable cost. While Ontario's Green Energy Act resulted in an 80% reduction in carbon emissions from the electrical grid by the end of 2015 compared to 1990 levels, it resulted in a significant additional cost to Ontario's economy.

Failure to engage in proper analysis and simulation in policy development is akin to attempting to pilot a plane across an ocean without instruments or a plan—insisting that visual cues will suffice. Just because an individual can fuel a plane, sit in the pilot's seat, turn the ignition, and take off does not guarantee a successful trip. Real challenges arise halfway through the flight when clouds roll in, it gets dark, and the situation changes. Here, a lack of planning, systems, and expertise lends itself to disastrous results, and the same could be true for Ontario's cap-and-trade program if proper analysis and simulation are not undertaken.

In closing, it is important to recognize that your government does not need to fly alone on its climate journey. Engineers hold a variety of senior management positions in government and across industry, and their expertise is underutilized by the province. Furthermore, Ontario is home to more than 250,000 engineering graduates, many of whom stand ready to help the government achieve its environmental goals at the lowest practical cost. At OSPE, we too stand as a willing partner in combatting climate change. We are an organization that understands how to mobilize and leverage Ontario's engineering talent, and it is critical that your government realize the potential of these partnerships.

For cap-and-trade, and the larger Climate Change Action Plan of which it is part, Ontario is running out of runway to get things right. The need to consult with engineers, have them conduct analysis and simulations, and participate in establishing a credible plan to combat climate change is of paramount importance to the continued prosperity of our province.

Sincerely,

Sandro Perruzza
Chief Executive Officer
Ontario Society of Professional Engineers

Michael Monette
President and Chair
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cc: Honourable David Zimmer, Minister of Aboriginal Affairs
Honourable Jeff Leal, Minister of Agriculture
Honourable Madeleine Meilleur, Attorney General and Minister Responsible for Francophone Affairs
Honourable Tracy MacCharles, Minister of Children & Youth Services and Minister Responsible for Women's Issues
Honourable Michael Chan, Minister of Citizenship, Immigration and International Trade
Honourable Dr. Helena Jaczek, Minister of Community and Social Services
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Honourable Michael Coteau, Minister of Tourism, Culture and Sport; Minister Responsible for the 2015 Pan and Parapan American Games; and Minister Responsible for Anti-Racism
Honourable Reza Moridi, Minister of Training, Colleges and Universities and Minister of Research and Innovation
Honourable Mario Sergio, Minister Responsible for Seniors Affairs
Honourable Steven Del Duca, Minister of Transportation
Honourable Deb Matthews, Deputy Premier, President of the Treasury Board, and Minister Responsible for the Poverty Reduction Strategy