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Submission to the Ontario Electrification and Energy Transition Panel

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Introduction

This submission follow-up my earlier submission and materials provided to the Electrification and Energy Transition Panel. It outlines key principles the panel may wish to follow in the areas of overall planning approaches; energy resource development; and plan review and approval, flowing from previous and current work on electricity, climate change and energy transition issues in Ontario.

Overall Planning Approach

The overall directions for electricity and energy planning in Ontario should be established through legislation. These should reflect the goal of achieving a net zero energy system by 2050 while advancing principles of energy sustainability as follows:

Table 1.1. Sustainability Principles and Foundations (adapted from Winfield, Hill and Gaede 2023)

Principle	Foundations
Maintain ecological, social and cultural integrity	All perspectives; cultural and social dimensions highlighted in Indigenous perspectives and values
Address Intragenerational justice and decolonization	Brundtland; Indigenous rights and values; sustainability assessment; energy democracy and justice
Advance Intergenerational justice	All perspectives
Strengthen Community and relationships	Indigenous values; energy justice and democracy
Ensure democratic and transparent energy governance	Sustainability assessment; energy justice and democracy; Indigenous values

Recognize complexity and interconnectedness of human and non-human systems	Indigenous perspectives; systems thinking
Precaution, adaptation, and avoidance of catastrophic risks	Systems thinking; sustainability assessment; Indigenous values
Advance economic and resource efficiency and opportunity	Economic perspectives; sustainability assessment; Indigenous values

The planning approach should seek to advance sustainability and net-zero goals while minimizing negative trade-offs among the above sustainability principles. Pathways that lead to mutually reinforcing gains among the goals should be emphasized, and pathways that lead to significant negative trade-offs avoided to the greatest extent possible.

Approaches to energy transitions should take an energy systems integration approach, including demand side measures, and a full range of sectors (power, buildings, transportation), vectors (electricity and fuels) and scales (local, regional, provincial and national).

The risks, impacts and roles of specific technologies should be assessed on a life-cycle basis, considering the full range of impacts and risks, not just direct GHG emissions at the point of conversion of primary energy (e.g. fuel) to electricity, but through fuel cycles, from extraction to emissions/disposal/final management, where relevant.

Transition planning needs to develop much stronger understandings of potential future energy demand in a net-zero context, including key areas of uncertainty and their implications.

Resource Development

Energy transition planning should prioritize resource options with the lowest negative trade-off risks first, and only consider high trade-off risk options where it can be demonstrated that the lower-risk options have been fully optimized and developed in the planning process. Specifically potential resources should be prioritized in the following manner:

1. Demand side measures to increase energy efficiency and productivity and reduce energy demand across sectors. All technically feasible, cost-effective and achievable opportunities should be pursued prior to the development of new, centralized generating resources. Demand response measures should be employed to support system management.
2. Distributed energy resources (DERs). These should be supported and developed to the greatest technical and cost-effective extent possible, and integrated with strategies around the electrification of transportation and space heating and cooling.

3. Low-impact and risk energy sources, with relatively short planning and construction timelines, and capacity for scalability. Examples of such resources would include wind, solar, and the optimization of existing hydro resources, along with advanced energy storage technologies (subject to technology specific assessment).
4. Existing extra-provincial hydro resources and new low-impact renewable resources, where available, particularly for energy storage and grid balancing purposes.
5. The development of higher-risk, impact and cost resources, including new nuclear, large hydro and new gas-fired generation. These options should only be pursued where it can be demonstrated that the potential development of options 1-4 has been exhausted, and significant supply shortfalls may still exist. Projects within this category need to be subject to individual, project-specific reviews to ensure a full understanding of their potential technological, economic, environmental and social risks, costs and impacts.

Plan Review and Approval.

Energy system and transition planning should be undertaken by a new, dedicated agency with a mandate encompassing electricity, space heating and cooling and transportation and other major energy end uses, employing an energy systems integration approach.

Energy system transition plans developed by the agency should be subject to meaningful and substantive public review by an independent regulatory body in terms of their conformity with the goals set through legislation and the approach to resource development laid out above. The regulatory body should have the authority to approve, approve with conditions or reject proposed plans.

The development of lower-risk and impact resources, including demand side measures, DERs, renewable and energy storage resources, and interjurisdictional arrangements, should be able to proceed on an individual program or initiative basis, while plan approval is pending. High risk, impact and cost (category 5) resources should not be able to proceed until an approved plan is in place.

Plans should be subject to a regular, 2-year review cycle, with major reviews/revisions/updates occurring every 5 years.

I would be pleased to discuss the principles and approach presented here with the panel members.

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