

FUTURE OF ENERGY IN CANADA

A Policy Perspective Towards a Sustainable Future

EXECUTIVE SUMMARY

This report explores the issue of future of energy in Canada and addresses how the challenges related to an increased demand for energy can be balanced with the need to reduce carbon emissions, while still aiming to provide energy at a low cost for all Canadians. The intent of this report is to review the issues from a technical perspective and provide policy recommendations assuming the hypothetical role of an “Engineer General” (or Chief Engineering Policy Advisor) in order to help guide energy policy towards a sustainable future.

Currently, the Government of Canada has a plan to achieve net zero emissions by 2050, affecting everything from power generation and transportation to the economy. While Canada is a world leader in clean power generation in hydroelectric and nuclear power generation, to achieve its goals, it must move away from coal and natural gas. Continued investment into nuclear and hydroelectric sources is recommended for Canada along with exploring the integration of variable renewable energy sources in order to continue providing power at a sustainable pace for generations to come. The study emphasizes the need for exploring the marginal cost of integrating variable renewable generation technologies, and the potential for advanced nuclear small modular reactors (SMRs), battery technologies and hydrogen to complement these sources.

The report also highlights the potential for electrifying private mode transportation and the need for continued investment in EV battery manufacturing, research, and development. It is recommended for the Government of Canada to promote public-private partnerships with major OEMs and invest in EV battery recycling facilities. To improve public transit, the report suggests greater investment in sustainable public transportation initiatives, promoting the use of existing public transit modes in large cities. There is also the potential to reduce demand as well through public transit initiatives, which will improve traffic congestion and reduce the number of vehicles on the road, resulting in reduced carbon emissions. Intelligent transport systems can also help reduce congestion by optimizing travel routes and adapting traffic signals to the demand.

As a whole, this report presents the benefits of implementing specific policy-oriented decisions for the improvement of Canada’s energy sector. Assuming energy to be a mandated priority for the Canadian Government, this report aspires to drive transformational change within this sector both in the present and future.