Natural Resources Canada

Innovation, Science and Economic Development Canada

September 30, 2026

Submitted electronically via: electricity-electricite@nrcan-rncan.gc.ca

RE: Electricity Canada's Response to the National Electricity Strategy Supply Chain Roundtable – Discussion Guide Questions on Electrical Grid Supply Chains

Stronger electricity supply chains will support Canada as an energy superpower

Electricity Canada appreciates the opportunity to provide our response to the National Electricity Strategy Supply Chain Roundtable questions shared by Natural Resources Canada (NRCan) and Innovation, Science and Economic Development Canada (ISED).

Electricity Canada is the national voice for electricity in Canada. Our members generate, transmit, and distribute power to homes and businesses across Canada. We represent integrated electric utilities, independent power producers, transmission and distribution companies, power marketers, and system operators. Our members deliver electricity to all Canadians, in every province and territory.

Electricity Canada strongly supports the objectives of the National Electricity Strategy which seeks to ensure Canada can build new infrastructure to double our electricity supply and accelerate electrification across the economy.

To grow and modernize our electricity system there must be an aggressive build-out of power infrastructure over the next twenty-three years. Addressing these needs will require new generation capacity across all technologies, expanded transmission networks to connect communities, and significant modernization of distribution systems. Simultaneously, existing infrastructure must be

613.230.9263
info@electricity.ca
electricity.ca | electricite.ca

1500-275 Slater Street
1500-275, rue Slater
Ottawa, Ontario K1P 5H9

replaced and the grid hardened against extreme weather events, wildfires, cyberattacks, and other risks.

Electricity supply chains are under strain

The supply chains that provide all the equipment necessary for these investments are under strain. Electricity companies are competing globally for a limited supply of materials and equipment, stretching lead times and pushing up costs. In the longer term, this demand creates opportunities for domestic manufacturers to build capacity. But today and in the medium term, it results in higher costs, longer schedules and more overall project risk.

Canada's electricity sector stands ready to partner with industry and the Government of Canada to deliver the infrastructure necessary to power economic growth, strengthen energy security, support national priorities such as emissions reductions and sovereignty, and improve Canadians' quality of life. **Achieving this requires increasing domestic equipment production, reducing equipment costs, and facilitating access to strategically important equipment, regardless of country of origin**.

The electricity supply chain is global. No country can "go it alone" to produce every component needed to build or maintain a modern electricity system. **Canada must work with trusted trade partners to ensure access to a sufficient supply of critical equipment that is not produced in Canada at scale**. **In return, Canada can make complementary strategic investments to provide what our trading partners cannot themselves produce.**

Addressing these challenges require long-term commitment to shared investment, regulatory certainty, and collaboration across governments, electricity companies, Indigenous communities, equipment producers and reliable trade partners. With the right policies and supports in place, Canada can build the electricity system that serves as the foundation of a more competitive, resilient, and prosperous future.

The following are Electricity Canada's responses to the questions posed by ISED and NRCan.

Overview

Canada's electricity sector is entering a period of generational infrastructure investment driven by electrification, economic growth, decarbonization objectives, increasing demand from data centres and industrial customers, asset replacement requirements, and system modernization needs.

Electricity companies across the country are experiencing significant supply chain pressures that affect the timely delivery of generation, transmission, and distribution infrastructure. These pressures include tariffs, manufacturing capacity constraints, extended equipment lead times, labour shortages, limited supplier diversity, geopolitical risks, inflationary pressures, and growing global competition for critical electricity equipment and materials.

A reliable, affordable, and secure electricity system requires coordinated action to strengthen supply chain resilience while maintaining access to both domestic and international sources of supply.

Key supply chain challenges

Electricity companies continue to experience challenges in procuring a wide range of critical electricity equipment. **While large power transformers, transmission towers, and specialized conductors remain among the most constrained categories, challenges extend across numerous generation, transmission, and distribution asset classes, including switchgear, bushings, tap changers, protection and control systems, generator components, turbine equipment, excitation systems, battery systems, specialty electrical steel, and other highly engineered electricity sector products**.

Many of these products are sourced from a relatively small number of global manufacturers with long production cycles and limited opportunities for rapid capacity expansion. Demand growth is occurring simultaneously across multiple sectors and jurisdictions, creating intense competition for manufacturing capacity.

Supply chain disruptions can result in project delays, increased capital costs, deferred system upgrades, reliability risks, and higher costs for customers. Electricity companies are increasingly required to place orders years in advance and accept greater uncertainty regarding delivery schedules and pricing.

The challenge extends beyond manufacturing capacity alone. Canada's electricity supply chain also relies on engineering expertise, testing facilities, certification processes, skilled labour, transportation

networks, and specialized service providers. Constraints in any one of these areas can affect project delivery and overall system reliability.

Areas of existing Canadian strength

Canada possesses significant strengths across several critical electricity supply chain segments. This includes manufacturing capabilities related to transformers, steel, aluminum, nuclear technologies, electricity company equipment fabrication, engineering services, maintenance services, and specialized technical expertise.

Canada also benefits from strong research institutions, a highly skilled workforce, established electricity company operators, and access to trusted international trading partners. These strengths provide an opportunity to build additional resilience and expand strategic manufacturing capacity where market conditions support long-term investment.

At the same time, the total Canadian market for this equipment remains relatively small when compared to larger international markets. As a result, there is often no business case for investing in domestic manufacturing capacity solely for Canadian use. Access to diversified global supply chains will continue to be essential for maintaining reliable and affordable access to critical equipment.

Manufacturing and supply chain gaps

Despite existing strengths, Canada faces important gaps across several strategic areas. Electricity companies continue to identify challenges related to the production of grain-oriented electrical steel, transformer cores, battery technologies, specialized cables, switchgear, large power transformers, and certain nuclear supply chain components. Electricity companies also remain dependent on international supply chains for numerous specialized components used in generation, transmission, and distribution infrastructure.

In addition to manufacturing gaps, Canada faces limitations in the supporting ecosystem required to design, qualify, test, certify, and deploy electricity equipment.

High-voltage testing infrastructure represents a particular challenge. Access to testing facilities is essential for validating equipment performance, supporting innovation, certifying new technologies, and enabling manufacturers to bring products to market. Limited domestic testing capacity can create bottlenecks, increase dependence on foreign facilities, and lengthen project timelines.

Technology qualification and certification processes can also create barriers for new suppliers seeking to enter electricity company markets. Expanding testing and qualification capacity would support both supply chain resilience and innovation objectives.

Importance of diversified supply chains

Supply chain resilience must not be viewed exclusively through a domestic manufacturing lens.

While increasing Canadian manufacturing capacity can strengthen resilience in selected strategic components, the electricity sector will rely on access to a combination of diversified domestic, international, and allied-nation suppliers. Excessive reliance on any single supplier, region, or country will expose critical infrastructure projects to disruption.

Future policy should therefore support a balanced approach that strengthens domestic capabilities while preserving access to trusted international markets and encouraging supplier diversification.

Given Canada's market size, certain products may never be economically produced at scale domestically. For these categories, maintaining reliable access to international suppliers remains essential.

Regional considerations

A national electricity supply chain strategy should recognize the diversity of Canada's electricity systems.

Electricity companies operate in substantially different geographic, climatic, and regulatory environments. Northern and remote communities face unique transportation and infrastructure challenges. Provincial electricity systems vary significantly in their generation mix, system configuration, market structure, and infrastructure requirements.

Policy approaches should be sufficiently flexible to reflect regional circumstances while advancing common national objectives related to reliability, affordability, resilience, and economic growth.

Lessons from international experience

International experience demonstrates that successful supply chain strategies require both resilient supply chain networks and credible long-term demand signals.

Historically, periods of rapid manufacturing expansion have sometimes been followed by significant reductions in demand, creating challenges for both manufacturers and investors. For this reason, manufacturing investments are most successful when supported by long-term visibility regarding future infrastructure requirements.

The electricity sector would benefit from improved collective demand forecasting, supply chain intelligence, and coordination mechanisms that provide greater visibility into upcoming infrastructure needs while respecting competition and procurement requirements.

Experience in other jurisdictions also demonstrates the value of supplier diversification, standards harmonization, trusted trading relationships, and long-term planning in reducing supply chain vulnerabilities.

Opportunities for Canadian leadership

Canada has opportunities to strengthen both existing industrial capabilities and emerging technology sectors.

Established strengths include transformers, steel, aluminum, nuclear technologies, engineering services, electricity infrastructure construction, and electricity company operations.

Emerging opportunities include energy storage technologies, low-emission switchgear alternatives, climate-adapted equipment, wildfire-resilient infrastructure, grid modernization technologies, advanced monitoring systems, and equipment designed for northern, remote, and extreme-weather operating environments.

Canada is particularly well-positioned to leverage its expertise in operating reliable electricity systems under diverse and demanding climatic conditions. This expertise may present opportunities for innovation, commercialization, and export growth.

Planning for asset renewal and growth

Electricity supply chain planning must address both new infrastructure development and the renewal of existing assets.

Significant investment will be required to maintain, refurbish, modernize, and replace aging generation, transmission, and distribution infrastructure over the coming decades. At the same time, electricity companies must build substantial new infrastructure to support economic development and growing electricity demand.

A comprehensive supply chain strategy should therefore consider the full lifecycle of electricity infrastructure assets, including maintenance, refurbishment, modernization, replacement, and expansion.

Recommended Federal Actions

1. **Develop a Canadian Electricity Supply Chain Roadmap**

The federal government should work with electricity companies, manufacturers, provinces and territories, Indigenous partners, and other stakeholders to develop a long-term Canadian Electricity Supply Chain Roadmap.

The roadmap should provide visibility into future infrastructure requirements and identify priority areas for investment, collaboration, and supply chain development.

2. **Improve supply chain intelligence and analysis**

The federal government should undertake ongoing analysis of critical electricity supply chains and support the development of sector-wide supply chain intelligence capabilities.

This work should include demand forecasting, supplier ecosystem mapping, category-level risk assessments, market monitoring, supply chain transparency, and analysis of strategic equipment categories.

Improved information sharing would help governments, manufacturers, and electricity companies make more informed investment decisions, and better allocate resources and efforts that result in improved and timely access to critical equipment.

3. **Support strategic domestic manufacturing**

Federal programs should support investment in domestic manufacturing where Canada possesses strategic advantages and viable long-term market opportunities.

Support should focus on areas where Canadian production can improve resilience, strengthen competitiveness, contribute meaningfully to domestic and export markets, and complement international trade agreements.

4. **Preserve access to global and allied supply chains**

Canada should maintain access to diversified international supply chains and strengthen relationships with trusted trading partners.

Policies should avoid unnecessarily restricting access to equipment, materials, or suppliers that are essential for meeting electricity infrastructure needs.

5. **Harmonize standards and certification requirements**

The federal government should work with electricity companies, manufacturers, regulators, and standards organizations to identify opportunities for greater harmonization of equipment standards and certification requirements with trusted international jurisdictions.

Greater harmonization can reduce market fragmentation, lower barriers to market entry, increase supplier participation, and improve access to critical equipment.

6. **Expand testing and certification infrastructure**

The federal government should support investments in testing, validation, certification, and technology qualification infrastructure.

Expanded domestic testing capacity would improve resilience, accelerate innovation, support manufacturers, and reduce dependence on international testing facilities.

7. **Strengthen workforce capacity**

Investments in manufacturing and electricity infrastructure should be accompanied by initiatives that expand the availability of skilled trades, engineers, technicians, and other specialized workers.

Workforce availability remains a critical constraint affecting manufacturing, construction, installation, commissioning, maintenance, and ongoing electricity company operations.

8. **Support innovation and technology development**

Federal support should encourage the development and deployment of innovative electricity technologies, including advanced grid technologies, energy storage systems, low-emission equipment, climate-resilient infrastructure, and other emerging solutions that improve reliability and resilience.

9. **Support strategic transmission development**

Continued federal support for strategic transmission infrastructure and interregional interconnections can strengthen energy security, increase system flexibility, improve reliability, and support economic growth across Canada.

Conclusion

Canada's electricity supply chain strategy should pursue three complementary objectives:

1. Build Canadian manufacturing capacity where it is strategic, competitive, and economically sustainable.
2. Maintain reliable access to diversified global and allied supply chains.
3. Strengthen the enabling foundations of the sector, including workforce development, testing infrastructure, standards harmonization, supply chain intelligence, innovation, and long-term planning.

Together, these actions can improve supply chain resilience, support economic growth, maintain affordability, and help ensure that Canada's electricity sector can deliver the infrastructure required for the country's future needs.

We would be pleased to meet with you to discuss these recommendations in detail.