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## **ERO 019-3281 Ontario's Critical Minerals Framework**

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 is pleased to present the following submission concerning **Ontario's Critical Minerals Framework**.

### Objectives for developing Ontario's critical minerals strategy

#### **1. Will these objectives support achieving Ontario's vision?**

OSPE believes that the ideas presented in this framework seem to support the vision proposed by the Ontario government: **one where the Province can generate investment and increase Ontario's competitiveness in the global market, while supporting the transition to a cleaner, sustainable global economy.**

Any effort to reduce mining and mineral processing barriers will always benefit a mineral-rich province like Ontario. Creating a lean, efficient regulatory process will lead to economic, environmental, and social benefits, including job opportunities for all citizens of Ontario, including engineers.

At the same time, OSPE is pleased to see that this strategy recognizes the importance of transitioning to a low-carbon economy. Each step in the supply chain, including exploration, construction, mining and manufacturing must be a sustainable practice. Ontario must play a leading role in supplying leading industries and supporting the low-carbon transition through its critical minerals.

Indigenous communities must be leaders and full participants in Ontario's critical minerals industry, in order for this strategy to succeed.

#### **2. Are there any other elements that need to be considered in the objectives?**

OSPE believes that this framework would be strengthened by the incorporation of the following key objectives:

- a. Increasing Ontario's technical innovation capacity so it becomes a global leader in critical minerals.*

Ontario needs to champion technical innovation within the province and put in place incentives to foster new research and development. From the universities to large mining companies to small startups, Ontario must provide access to capital, tax credits and other programs geared towards mineral innovations ensuring jobs and economic opportunities for the people of Ontario, now and in the future.

OSPE believes that this would lead to the positioning of Ontario as a province that can generate investment and increase Ontario's competitiveness in the global market, while supporting the transition to a cleaner, sustainable global economy.

*b. Developing a supply chain that is diverse and inclusive.*

The benefits of a diverse supply chain are well documented in research done by the Centre for Diversity and Inclusion and the Conference Board of Canada. Small to medium enterprises owned by women and members of other equity seeking groups provide value to large organizations, reduce the risk of streamlined supplier pipelines, and lead to economic growth. It is imperative that the provincial government establish social procurement programs to ensure that companies led by women and members of equity seeking groups are provided with access to public procurement opportunities.

*c. Ensuring the critical minerals development and exploration in Ontario is a sustainable practice and vertically integrated along the supply chain.*

The principles of sustainable development and environmental stewardship should be followed for all aspects of the critical minerals supply chain, as practiced by professional engineers within the guidelines provided by Professional Engineers Ontario. Through the *Professional Engineers Act*, professional engineers are the ones required to perform and validate any act of planning, designing, composing, evaluating, advising, reporting, directing or supervising that requires the application of engineering principles and concerns the safeguarding of life, health, property, economic interests, the public welfare or the environment.

### **3. What are some actions Ontario could consider to achieve these objectives?**

Ontario should consider:

- a. Establishing an **Ontario Critical Minerals Research and Market Development Council** dedicated to matters pertaining to research, development, design, consultation, innovation, and investigation in, and commercialization of critical minerals.
- b. Creating a campaign that encourages young Ontarians to pursue an engineering career in disciplines that will support a critical mineral industry, similar to the way the government has established a campaign to market and promote the trades.

- c. Reviewing and updating plans to ensure that development areas have the proper energy, transportation and high-speed communication capabilities to thrive.
- d. Consulting appropriately with surrounding communities where these developments would take place, and ensuring that they are aware of all the potential benefits, improvements, and job opportunities this industry can have in their local communities.
- e. Encouraging product designs that facilitate recycling and reclamation, as well as developing recycling programs to harvest critical minerals from used devices. This will also support the low-carbon transition by consuming less energy resources by reusing these minerals.
- f. Adopting Qualifications-Based Selection (QBS) for procurement of engineering services. Given Ontario's current economic situation, it is essential that all public infrastructure investments be transparent and return the greatest possible value for money. By adopting QBS as a best practice, the government will select engineering firms and professional engineers based on their credentials, previous performance, and availability to do a project over low-fee bidding structures. This best practice has been mandated by law in the United States since the 1970s (The Brooks Act), and more recently in the city of Calgary and province of Quebec. Ontario should do the same.
- g. Appropriately defining and providing criteria for what "responsibly produced" means.
- h. Developing programs that focus on the alternative use of "waste streams" and "post closure" assets to support environmental stewardship and sustainability.

A. Supporting partnership opportunities with Indigenous communities

**1. What opportunities do you see for Indigenous communities participating in resource development?**

There is opportunity for direct ownership of assets and companies as well as employment within the design, construction/operation of the mines/processing plants and manufacturing streams. There are also numerous opportunities that come with growth of communities like better services (hospitals, schools, hotels, restaurants, etc.).

It is extremely important that the government looks at Indigenous communities as leaders and full participants throughout this entire process.

**2. What are the barriers that Indigenous communities face in participating in resource development?**

Some of these barriers include:

- Lack of qualified engineers, tradespeople and other skills required to fill roles in constructions or operations of a mine/processing plant within their communities.
- Lack of trust due to past experiences with government and corporate relationships and practices.

**3. What supports might assist Indigenous communities with taking advantage of the many opportunities of a critical minerals strategy?**

Indigenous communities would benefit from a strategy where development of properties in or near indigenous territories are tied to potential equity stake, hiring, and servicing those communities. Another approach would be to have Indigenous led businesses and corporations own the projects.

The government should also ensure that Indigenous societal values of each community are understood and respected by engineers, planners, and developers.

They would also benefit from a fully funded program that fosters and mentors the development of required skills that result in the certifications and licenses (e.g. Professional Engineering license) that will be required to support the critical minerals strategy.

**4. What kinds of initiatives or partnerships could create more opportunities for participation in critical minerals projects and the supply chain?**

Some potential initiatives and partnerships include:

- A program to give mining companies tax credits, rebates, and/or incentives for employing Indigenous Ontarians as part of their workforce.
- Indigenous focused economic development initiatives that provide training and funding for start up product and service companies.
- Continuing developing educational partnerships with regional colleges and universities to ensure that Indigenous Ontarians have the necessary skills to be part of the development of the mining sector. These programs could be strengthened by increasing co-op opportunities for engineers in Northern Communities.

OSPE would also like to encourage the government to expand the cap of successful applicants through its Ontario Immigrant Nominee Program, so as to attract skilled newcomers to Northern Communities and let them participate and contribute to critical minerals projects.

**B. Developing an Ontario critical minerals list**

**1. Are there other considerations or factors that Ontario should take into account when developing a critical minerals list for Ontario?**

OSPE believes that the four-category list is appropriate. The evidence-based approach should be the deciding factor. An additional weighting factor in deciding whether a mineral is critical or not is how much of the value chain resides or could reside within Ontario, so as to capture more wealth from the resource extraction.

It is important that the Ontario critical minerals list be re-evaluated periodically as demand/supply of critical minerals can fluctuate significantly.

At the same time, the Federal Government has already created [Canada's list of critical minerals](#), which was developed in consultation with the provinces and territories and set out in the Canadian Minerals and Metals Plan. Ontario's list of critical minerals should be aligned with this established list.

The Ontario Government should also consider its trading partners and examine the critical mineral list adopted by American states like New York, Ohio, Pennsylvania, and Michigan. This might influence, change, or affect Ontario's trade opportunities with such states.

**2. Are there any other minerals in Ontario that should be added to the list because they are considered "critical," or that should be removed from the list?**

Ensuring the Ontario list is aligned with the one set out by the Federal Government in the Critical Minerals and Metals Plan seems appropriate.

**3. How can Ontario leverage its critical minerals list to demonstrate to the global investing community that the province is ready to supply the world with critical minerals?**

Ontario has a strong mining, materials and manufacturing industry and a well-developed chain of supply and service companies. Ontario must show the global investing community that it has a serious, sustainable plan to develop these resources appropriately. This means having a framework that understands the need to consult appropriately and engage with Indigenous and non-Indigenous communities, as well as industry partners. This framework should also demonstrate capability to develop the required infrastructure to develop and process these critical mineral deposits.

Ontario's global competitiveness in the area would definitely be strengthened by further investment in mining and exploration, ideally with the establishment of an **Ontario Critical Minerals Research and Market Development Council**. This would lead to value added products made in Ontario.

Doing this will send a clear signal that Ontario is truly open for business.

## C. Enhancing investment in mineral exploration and development

### **1. What else could Ontario do to promote the exploration for and development of critical minerals in order to enhance investment?**

A strong research and development-oriented approach is key. Ontario must prioritize and invest in exploration, development and processing science of the critical mineral projects throughout Ontario. They must provide tools, capital and expertise to support the mining services and supply sectors.

Investors need to see recent success stories of new mineral projects getting off to a successful start.

### **2. What else could Ontario do to prepare communities to be ready for, and actively participate in, exploration and development of critical minerals?**

Ontario must invest in the required workforce to develop the mining industry. Communities would benefit from a fully funded program that fosters and mentors the development of required skills that result in the certifications and licenses (e.g. Professional Engineering license) that will be required to support the critical minerals strategy.

As mentioned before, a program to give mining companies tax credits, rebates, and/or incentives for employing Indigenous Ontarians as part of their workforce would also encourage community participation in the development of critical minerals.

It is also important that the provincial government educate the general population on the societal benefits of exploring and developing these critical minerals, so as to ensure community buy-in from the start of the process.

### **3. How could the Ontario Geological Survey play a greater role in supporting critical minerals exploration and development in the province?**

OSPE believes that the government should consult with Professional Geoscientists of Ontario (PGO). Engineers would recommend the development of a program to perform geophysical and LIDAR surveys of the entire province with greater focus on high potential areas for critical minerals.

## D. Regulatory and policy reform

### **1. Are there any additional areas of the regulatory system that are creating barriers for critical minerals projects?**

Ontario should not focus solely on looking at critical minerals as the development of the mines but incorporating the processing of these minerals into the strategy. Ontario is well positioned to mine and produce Ontario made products.

Despite this Ontario does very little manufacturing with our minerals in our own province and country. For example: we need to be building battery manufacturing capacity to supply the electric vehicle market.

Therefore, Ontario should look at eliminating interprovincial barriers related to movement of critical minerals for processing and manufacturing to reduce the value exportation related to critical minerals and ensure that Ontario resources benefit the province and Canada first.

The government should also ensure that professional engineers are the ones required to perform and validate any act of planning, designing, composing, evaluating, advising, reporting, directing or supervising that requires the application of engineering principles and concerns the safeguarding of life, health, property, economic interests, the public welfare and/or the environment. This should be done by enacting demand-side legislation.

**2. Are there specific areas of policy guidance that industry and partners would find beneficial?**

The consultation process with all communities and stakeholders must start at the very beginning of planning these projects, to ensure local concerns are identified along with cultural and traditional values, where applicable. Starting these consultations too late creates mistrust.

The government should also introduce staged reviews and approvals of submissions instead of waiting for complete documents, in order to ensure a smooth process.

**3. What key considerations would you want looked at in a review of bulk sample thresholds?**

Increase allowable quantities of bulk samples to generate early revenue to help finance project and shorten payback period of capital investment.

**4. What are some of the challenges related to advanced exploration and mine closure planning with respect to the development of critical minerals?**

One of the biggest challenges is ensuring early engagement of required participants, proponents, and advisories to consult and identify fatal flaws in projects at an initial stage. This will allow resources to be directed towards other projects that have better chances of success.

**E. Supply chain and manufacturing opportunities**

**1. What are the barriers and opportunities facing the development of an Ontario-based critical minerals supply chain outside of mineral exploration and development?**

A significant barrier Ontario faces is the shortage of engineers, skilled workers, and tradespeople willing to participate in the areas of the provinces where critical minerals will be developed and processed. The development of an Ontario-based critical minerals supply chain should encourage Ontario citizens to believe that careers in mining and mining-related sectors are viable and desirable.

Another significant challenge lies on historical circumstances around the mistrust Indigenous communities have related to local and provincial governments. Indigenous communities must be leaders and full participants, consulted throughout all stages, in order for a robust critical minerals supply chain to flourish in Ontario.

## **2. How can Ontario attract investment in new processing capacity needs in Ontario?**

Ontario must develop and raise awareness of the need to provide and maintain domestic supply processing capability of these minerals through the full value chain.

## **3. What key industry partners should be engaged to best position Ontario in securing new supply chain developments?**

This is highly dependent on the critical mineral and its path to market. It could involve a myriad of partners across radically different business sectors, all coming together to establish the critical mineral supply chain and end users (e.g. automotive industry). A key partner would be OSPE, so as to ensure that engineering skills and knowledge is well positioned to deliver results throughout the supply chain.

Ontario Universities and Colleges would also have a crucial role in shaping the future talent that will continue to drive the mining industry for decades to come.

Additional partners will also include Hydro One, the Independent Electricity System Operator (IESO) and Ontario Power Generation for energy sources and infrastructure, as well as the Ministry of Transportation for road and rail transportation infrastructure, and the Canadian Manufacturer of Exporters.

## **4. Are there any missing linkages in critical minerals supply chain processes that should be included in an Ontario critical minerals strategy?**

Ontario should provide incentives (research and capital dollars) to increase recycling of critical minerals in existing processing facilities (smelters and refineries).

Ontario should also develop programs that focus on the development of alternative uses of “waste streams” and “post closure” assets to support environmental stewardship and sustainability.



**5. Are there any best practices from other jurisdictions that could be implemented in Ontario to better attract critical minerals supply chain investments?**

The National guideline on sustainable development and environmental stewardship for professional engineers is an excellent resource to ensure these principles are incorporated in the development of any project under the supervision of the engineering profession. Through demand side legislation, the province would ensure that engineers would be the ones tasked to conduct engineering work that safeguards the life, health, property, public welfare and the environment. This will help to support credibility of these projects in the eyes of investors, stakeholders, and community members.

Sincerely,



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