

# Leadership for the Future

## Green Mining Innovation Workshop

May 31, 2018

Camsell Hall, 580 Booth Street

Ottawa, Ontario



## Mining Canada's Resource Potential

# The Canadian Minerals and Metals Plan

*In August 2017 at the Energy and Mines Ministers Conference, Federal, Provincial and Territorial ministers committed to work together to develop the Plan to position Canada as the leading mining nation and to lay the foundation for lasting success at home and abroad.*

## A National Plan Will



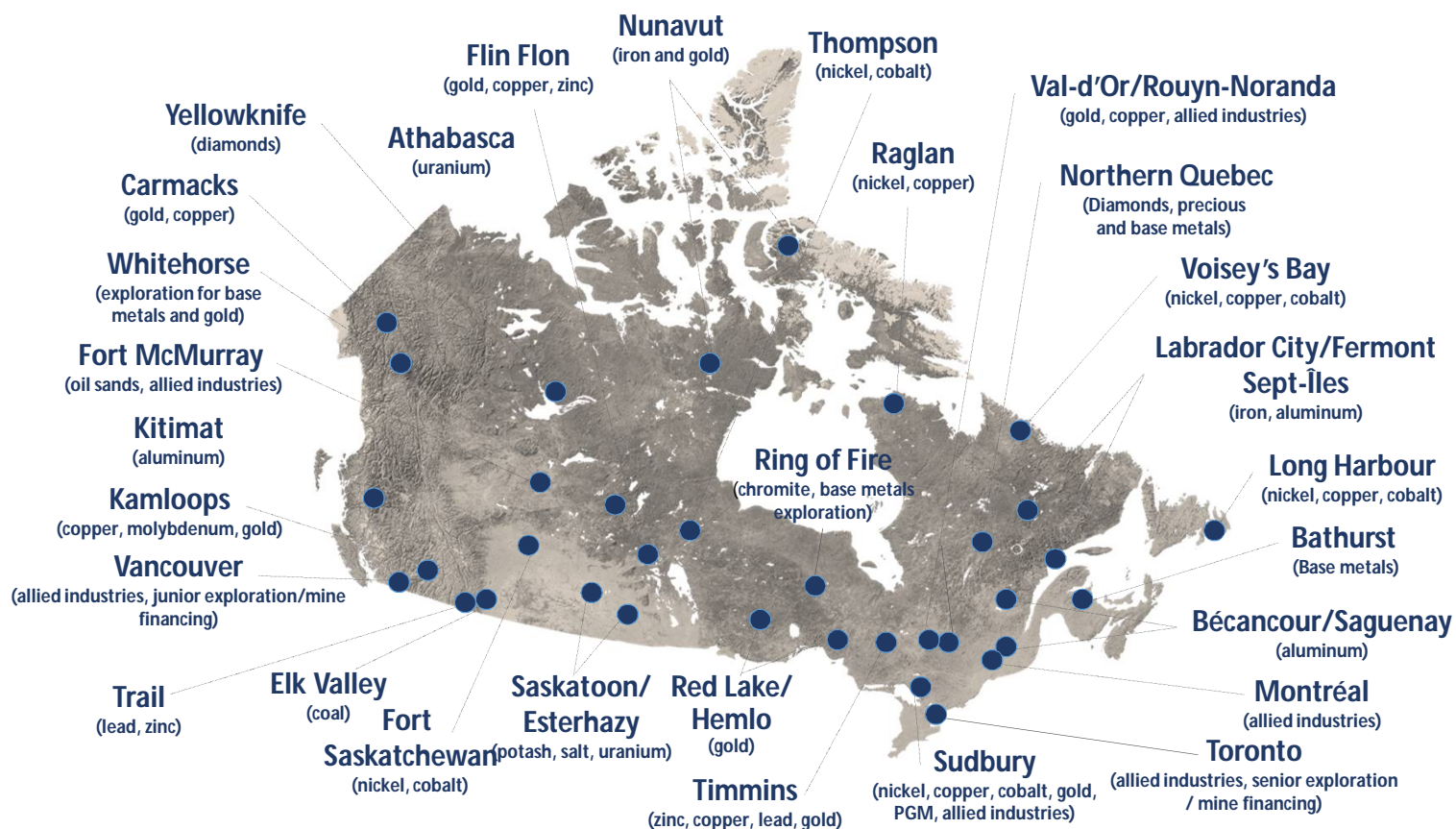
# Mining is Essential to Canada's Economy

Growing populations and rising standards of living demand more buildings, cars, clean technologies and consumer products.





# With a world class industry that spans the nation and the value chain



**200** mines , **7,000** quarries, over **60 minerals and metals** produced with **thousands** of small and medium sized businesses supporting remote, rural and Indigenous communities.

# There is an ever increasing demand for resources

## ❖ Rising global population and incomes

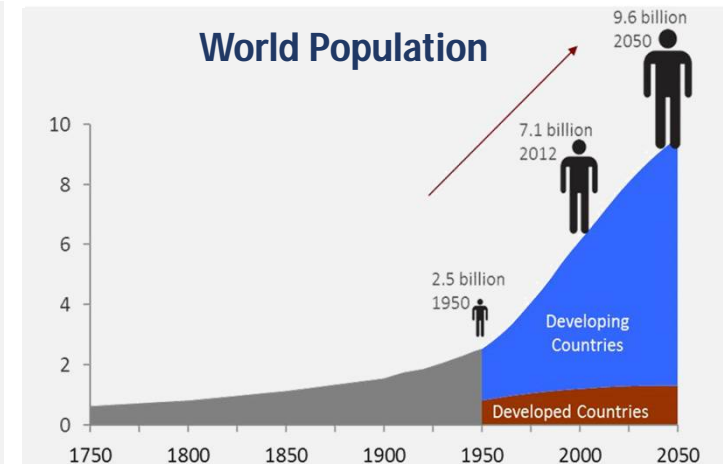
- ❖ Unprecedented global use of minerals resources is at 70 Gt/year with demand projected to increase tenfold by 2050 as global population reaches 9.6B and 1.8B new members of the global consuming class are added

## ❖ Rapid economic expansion in emerging markets (i.e. China, India)

- ❖ Aggressive infrastructure development in major countries will sustain demand
- ❖ Growth in high-value manufacturing activity in India and emerging markets has pushed demand for base metals higher, such as copper

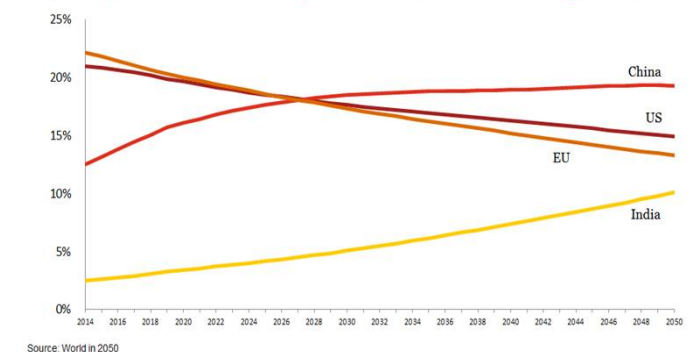
## ❖ Swelling mineral and metal requirements for clean technologies

- ❖ By 2050, low-carbon energy technology will need 1.5B tonnes of metals for infrastructure and wiring
- ❖ Rise in electric vehicle adoption alone is expected to increase demand for nickel 15-fold in the next 10 years and rare earths materials
- ❖ Mineral supply constraints are projected for rare earth metals as demand is projected at 550% of current global production by 2020
- ❖ Green technology economy is reliant on secure and responsible supplies of aluminum, copper, cobalt, nickel and zinc – all of which Canada produces



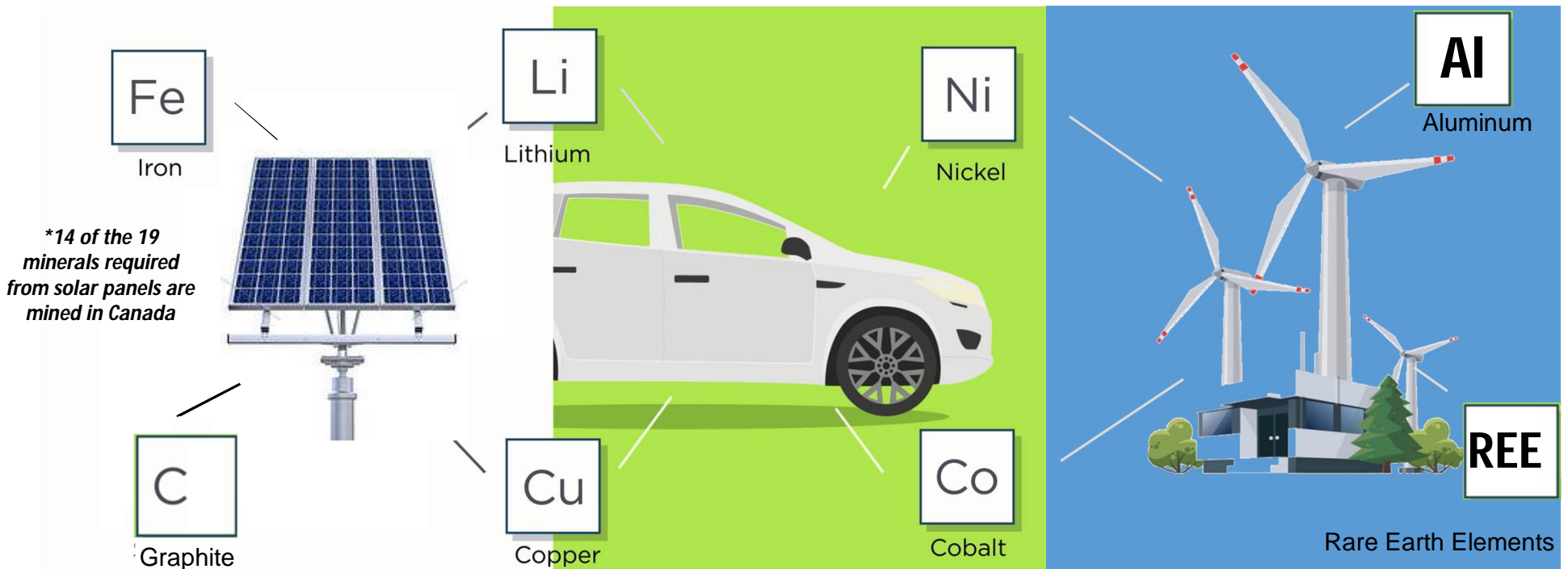
## Shifting global economic power

US, China, India and EU as a % of world GDP (at market exchange rates)



# Never before has the world needed minerals more

Canada is well positioned to supply the critical minerals and metals required for clean technologies that can reduce the carbon footprint of the modern economy.



**Lithium:** Canada is poised to meet soaring demand through new mines, like Nemaska's Whabouchi Mine

**Graphite:** Canada's nascent graphite industry will benefit from the burgeoning green technology economy

**Copper:** An essential ingredient in the clean energy transition and Canada is the world's 10<sup>th</sup> largest reserves

**Nickel:** Canada has abundant deposits of nickel with low production costs at Canadian mines in comparison to key competitors

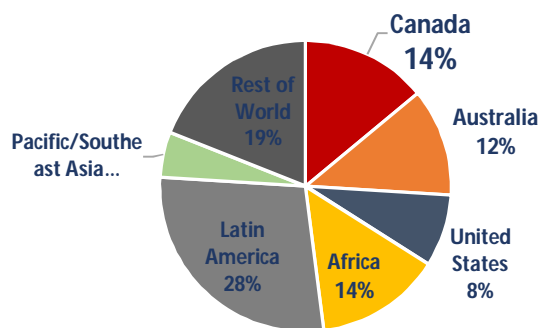
**Cobalt:** Global manufacturer seeking reliable and responsible sources of this critical battery ingredient are looking to Canada to meet demands

**Aluminum:** Canada is one of the world's most competitive producers of clean/green Aluminum— with low cost supply of electricity & large investment in R&D

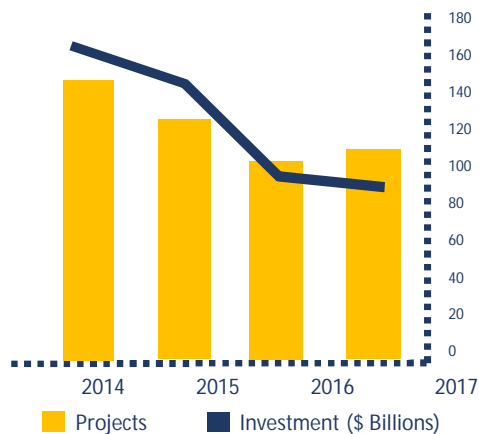
## ...but Canada's position as a leading mining nation has eroded

### Growth & Prosperity

Canada's Share of global exploration spending dropped 7% from 2005-2015

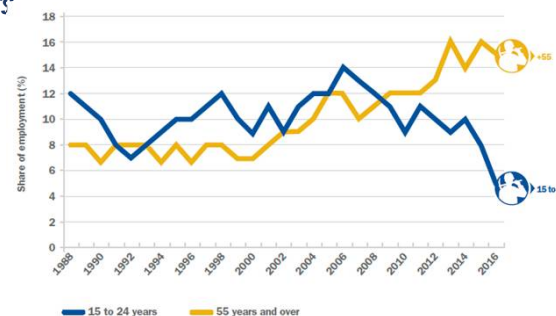


Between 2014-2017 the number of mining projects and the total investment in the sector has decreased

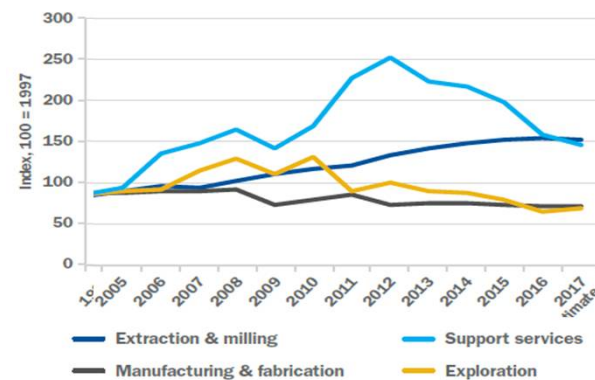


### Skills & Jobs

Over the last decade the share of workers 55 years and older has outpaced that of younger workers (15 to 24 years) creating challenges for companies seeking future skilled workers



Extraction and milling is the only mining sub-sector with consistent employment growth since the start of the 2000s



# Stacking up against the competition

## Canada is falling behind as key competitors implement reforms and make greater investments in their mining industries

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- **Australia** - implementing a new A\$100M **Junior Mineral Exploration Tax Credit**; comparative **flow-through shares** mechanism; a 43.5% refundable **R&D tax incentive**; A\$100M in the **Uncover Initiative for public geoscience**; A\$50M in MINEX CRC **innovation funding**; a **National Innovation Science Agenda**; dedicated mineral **investor assistance strategy**; established **METS Ignited – Growth Centre** for enhance mining supply and services sector; a **Major Projects Facilitation Group** and 'one stop shop' **environmental approvals**; \$A20M direct investment in a **lithium** project to shore up power stability; and, launched the **Resources 2030 Taskforce** to address mining competitiveness challenges.
  - **United States** – changes to **tax rules** to improve operating climate; revisions to **permitting processes** for increased transparency and greater investor certainty; establishing federal strategy to ensure secure and reliable supply of **Critical Materials**; a 5.8% increase to the **USGS funding** in 2018; increased government spending **on R&D** and to **promote strategic industries**.
  - **China** - investments in **infrastructure**, primarily through *Belt & Road* projects across the Eurasian subcontinent; **National Development & Reform Commission** supersizing coal sector through mergers; creation of the **Made in China 2025** initiative to make China's copper industry more efficient; **competitive 3% resource royalty** tax; relaxing restrictions on **foreign direct investment**; and, increasingly **open economic reforms**.



# Barriers to Enhancing Canada's Competitiveness

## Complex Regulatory Environment

*Regulation of major projects involves dozens of FPT acts and regulations*

## Uncertain Land Access

*Clarity is needed to reduce risk to investment*

## Increasing Costs to get Products to Market

*Long distances and high transportation costs*



## Lack of infrastructure to Unlock Stranded Mineral Deposits

*Investment in mining projects abroad has stagnated*

## Fragmented Research and Innovation

*Better alignment for the 4000 R&D programs*

## Competitors are Investing

*Australia has the largest share of mineral exploration activity in the world*

A new vision, reflecting today's realities will unlock the value of Canada's minerals in an environmentally and socially responsible fashion.

# A Call to Action



## The Canadian Minerals Metals Plan

Together with Provinces and Territories, Canada is developing a plan to re-establish itself as **the leading mining nation**.



## Working Together on a Shared Vision...



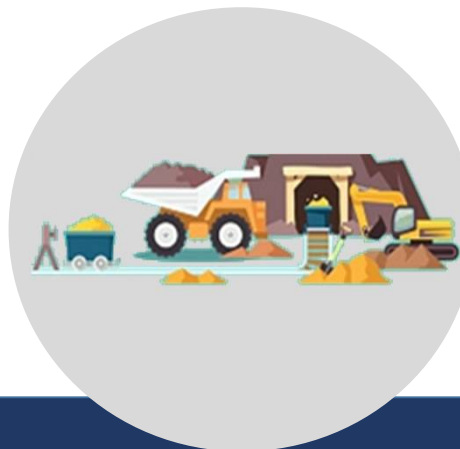
### FPTs

Mines IGWG  
EMMC  
NRCan Sectors  
Roundtables  
OGDs



### Indigenous

Bi-lateral Engagement  
National Indigenous -  
Forum  
Conferences



### Industry

Roundtables  
PDAC Convention  
Events

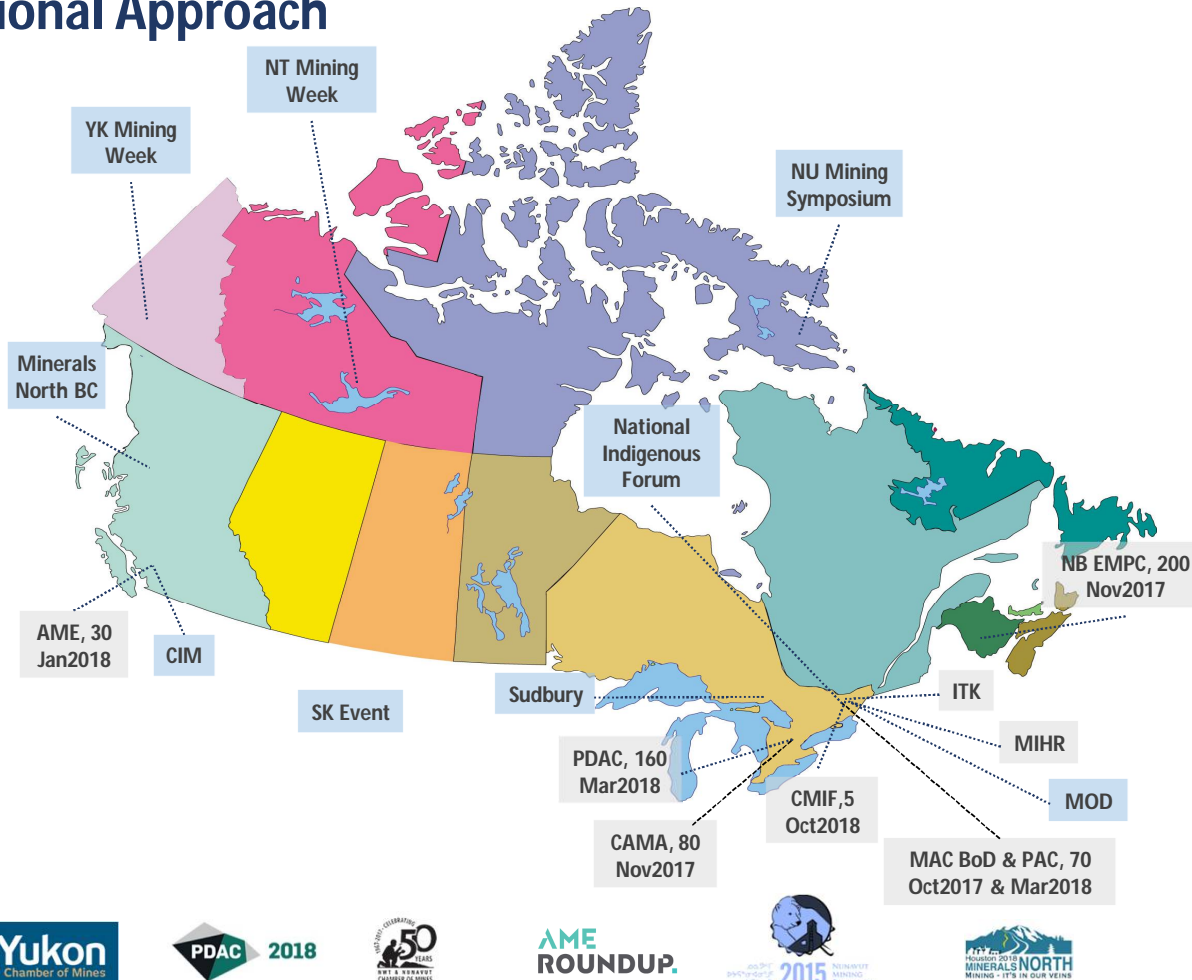


### Public

Online Portal  
Digital Engagement  
Social Media  
Conferences  
Workshops

... For the Next Generation of Canadians

## National Approach



## Digital Engagement



Minescanada.ca / #YourCMMP



## Indigenous



ASSEMBLY OF FIRST NATIONS



## Thought Leaders & Associations





### Recommended actions to help advance the mining sector include ...

- Develop enabling infrastructure (re stranded deposits)
- Continue to invest in public geoscience
- Establish a national mining innovation fund
- Coordinate/fund a national training program for highly qualified personnel
- Streamline existing permitting/licensing regimes
- Support community capacity building efforts (e.g. land use planning)
- Attract more women and new Canadians to the sector
- Increase education/training and mineral literacy for Indigenous people
- Advocate Canada's comparative advantages (e.g. Towards Sustainable Mining, or a Canadian Mining Brand)

**... and there are many more.**

# Bringing Focus to the Vision

## Unlocking Canada's Resource Potential

- ✓ Public Geoscience
- ✓ Incentivise mineral exploration and development in Canada
- ✓ Addressing infrastructure gaps

## Igniting Innovation

- ✓ Canadian innovation leadership
- ✓ Strategic and forward-looking approach to federal R&D
- ✓ Build & sustain public-private sector collaboration

## Capitalizing on Canadian leadership in a Global Market

- ✓ Solidify the Canadian Mining Brand
- ✓ Foreign Direct Investment Strategy (Invest in Canada)
- ✓ Exports of mining services & suppliers
- ✓ Responsible sourcing

## Providing Regulatory Certainty

- ✓ Integrated approach throughout regulatory process
- ✓ Clarity and predictability for industry, investors, and communities
- ✓ Access to prospective lands

## Realizing Community Benefits and Supporting a Diverse Workforce

- ✓ Increased mineral literacy
- ✓ Training, certification and mobility programs
- ✓ Equitable and inclusive growth
- ✓ Mining innovation in the workforce

## Advancing the Participation of Indigenous Peoples

- ✓ Community Readiness
- ✓ Economic development
- ✓ Participation in planning and regulatory processes
- ✓ Develop linkages between communities

# Next steps

## March 2018

Official announcement by Mines Ministers at PDAC

## August 2018

Draft plan to Canada's Mines Ministers

## Early 2019

Release of the Plan; establishing a generational vision

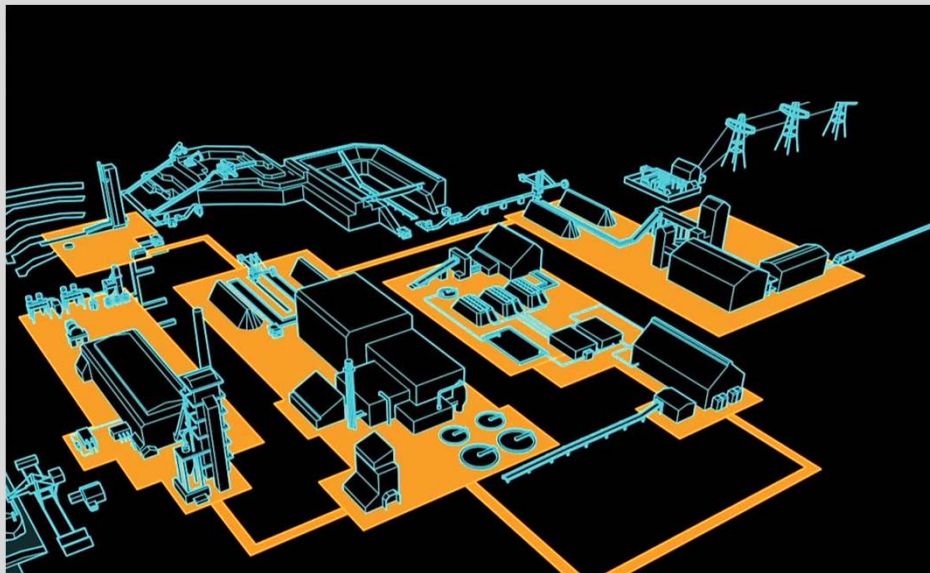


*Energy & Mines  
Ministers Conference*



## Delivering generational change

The Canadian Minerals and Metals Plan, through its concrete FPT actions, will position Canada as the leading mining nation in:



- Sustainable and responsible production
- Social and environmental leadership
- Attractive investment climate
- Innovation and clean growth
- Skilled and diverse workforce
- Clear and predictable regulatory environment
- Partnerships with Indigenous peoples

**A clean, modern economy with benefits for all**





THE CANADIAN  
MINERALS AND  
METALS PLAN

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**#YourCMMP**