

Critical minerals



Ministry of
Energy, Mines and
Low Carbon Innovation



The British Columbia critical minerals atlas

The British Columbia minerals atlas is the initial step in evaluating the critical minerals endowment of the province and in building awareness of critical minerals opportunities for the exploration and mining industries.

Al Aluminum	Co Cobalt	Cu Copper	Ge Germanium
In Indium	Mg Magnesium	Mo Molybdenum	Ni Nickel
Nb Niobium	Critical Minerals in British Columbia An atlas of occurrences and producing mines, 2023		
PGE Platinum group elements	REE Rare earth elements	Ag Silver	Ta Tantalum
 British Columbia Geological Survey Open File 2023-02		W Tungsten	Zn Zinc

Critical minerals are required to make electric vehicles, mobile phones, solar panels, wind turbines, electrical transmission lines, batteries, and medical devices, and to manufacture products needed for national defence.

With increased global demand, long-term critical minerals shortages are predicted. Consequently, jurisdictions around the world are developing strategies to ensure supply chains are robust and resilient.

British Columbia is presented with a generational opportunity to support the low-carbon transition, grow the provincial economy, diversify global supply chains, and continue as a preferred supplier for partner nations.

A contribution to the CleanBC Roadmap to 2030, the atlas will be used as one piece of information to develop the forthcoming British Columbia Critical Minerals Strategy.

Download atlas



Download strategy



Canadian and key global partner critical minerals lists

Coloured boxes indicate relevance to British Columbia: green are significant; yellow require further evaluation; red are unlikely to be produced.

Minerals	North America								Asia and Australia				Europe		South America	
	USA	CAN	AB	ON	QC	SK	YK	Japan	South Korea	India	AUS	EU	UK	Brazil	Chile	
Aluminum/bauxite	x	x	x						x		x	x		x		
Antimony	x	x		x	x		x	x	x	x	x	x	x			
Arsenic	x		x								x	x				
Barite/barium	x		x	x				x				x			x	
Beryllium	x			x				x		x	x	x				
Bismuth	x	x	x	x	x		x	x	x	x	x	x	x			
Borate/boron								x				x				
Cadmium					x					x						
Cesium	x	x		x	x			x								
Chromium/chromite	x	x	x	x		x	x	x	x		x					
Cobalt	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
Copper		x		x	x	x	x		x	x		x		x	x	
Feldspar												x				
Fluorspar/fluorine	x	x		x		x	x	x			x	x				
Gallium	x	x	x	x	x	x	x	x	x	x	x	x	x			
Germanium	x	x	x	x			x	x		x	x	x				
Gold															x	
Graphite/carbon	x	x	x	x	x	x		x	x	x	x	x	x	x	x	
Hafnium	x		x					x		x	x	x				
Helium		x	x			x						x				
Indium	x	x	x	x	x		x		x	x	x		x			
Iron															x	
Lead									x							
Lithium	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
Magnesium	x	x	x	x	x	x	x	x	x		x	x	x			
Manganese	x	x	x	x		x	x	x	x		x	x		x	x	
Metallurgical coal												x				
Molybdenum		x		x		x	x	x	x	x	x			x	x	
Nickel	x	x	x	x	x	x	x	x	x	x		x		x		
Niobium	x	x	x	x	x	x	x	x	x	x	x	x	x	x		
PGE	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
Phosphate/phosphorous	x			x						x		x		x		
Potash		x	x			x				x				x		
REE	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
Rhenium								x		x	x				x	
Rubidium	x							x								
Scandium	x	x	x	x	x	x				x	x	x				
Selenium				x				x	x	x	x					
Silica/silicon								x	x	x	x	x	x	x		
Silver																
Strontium								x	x	x		x				
Tantalum	x	x	x	x	x	x	x	x	x	x	x	x	x	x		
Tellurium	x	x		x	x		x	x		x	x		x			
Tin	x	x	x	x	x	x	x		x	x			x			
Titanium	x	x	x	x	x	x	x	x	x	x	x	x		x	x	
Tungsten	x	x		x		x	x	x	x	x	x	x	x	x	x	
Uranium	x	x	x	x		x	x							x		
Vanadium	x	x	x	x	x		x	x	x	x	x	x	x	x	x	
Zinc	x	x	x	x	x	x	x		x						x	
Zirconium	x		x	x				x	x	x	x					





What are critical minerals?

Critical minerals are defined by different groups for different purposes. Typically, critical minerals serve an essential purpose (e.g., national security, economic health) and may be at risk of supply disruption.

Based on specific demands and supply vulnerabilities, jurisdictions have different critical minerals lists. These variations reflect supply chain access, geography, and geopolitical circumstance. As demand shifts and technology evolves, the critical minerals list of any jurisdiction may change.

The atlas: occurrences and producing mines

The atlas is not British Columbia's official critical minerals list. Instead, it represents an inventory of commodities in the province that appear on the Canadian list or on those of key trading partners.

Critical minerals on the Canadian national list that British Columbia currently mines include copper, molybdenum, magnesium, and zinc. Not on the Canadian list, but on current or past lists of trading partners, British Columbia mines barite, gold, metallurgical coal, lead, silica, and silver. Aluminum is produced at the Kitimat smelter, and lead, zinc, gold, silver, germanium, indium, and cadmium are refined at the facility in Trail.

Supply problems may result from geopolitical pressures or from mining in jurisdictions that do not operate with the same high environmental, social, and governance standards as those practiced in British Columbia. Thus, the atlas is a foundational step for assessing critical minerals supply chain contributions from British Columbia.



Mining, exploration, and critical minerals in BC

Mining has been an integral part of the history of British Columbia, beginning with Indigenous peoples through to the first gold rushes of the 19th century and continuing with the new mines of today. Significant potential for additional discoveries exists because much prospective ground remains underexplored.

Mining contributes greatly to the economy of British Columbia, and exploration is the backbone of mining. In the last five years, the total value of mining production was \$63.4 billion and the mineral exploration expenditure was \$2.8 billion. Employing more than 35,000 people, these industries will continue to provide jobs, revenue, and economic opportunities for First Nations and advance reconciliation.

By increasing awareness of critical mineral opportunities for the exploration and mining industries, and by enhancing the critical minerals knowledge base, the province seeks to encourage investment that could lead to British Columbia being a significant supplier of the raw materials needed to reduce greenhouse gas emissions. Continued exploration for, and development of, critical minerals will help grow the provincial economy, mitigate climate change, and reduce global supply pressures.

Further information

Critical minerals and mineral systems in British Columbia

Hickin, A.S., Ootes, L., Orovan, E.A., Brzozowski, M.J., Northcote, B.K., Rukhlov, A.S., and Bain, W.M., 2024. In: Geological Fieldwork 2023, British Columbia Ministry of Energy, Mines and Low Carbon Innovation, British Columbia Geological Survey Paper 2024-01, pp. 13-51.

