Mineral Overview of the PNWER Region: *A secure source of Critical Minerals*

Mining Session Co-Chairs

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MONTANA STATE LEGISLATURE

&

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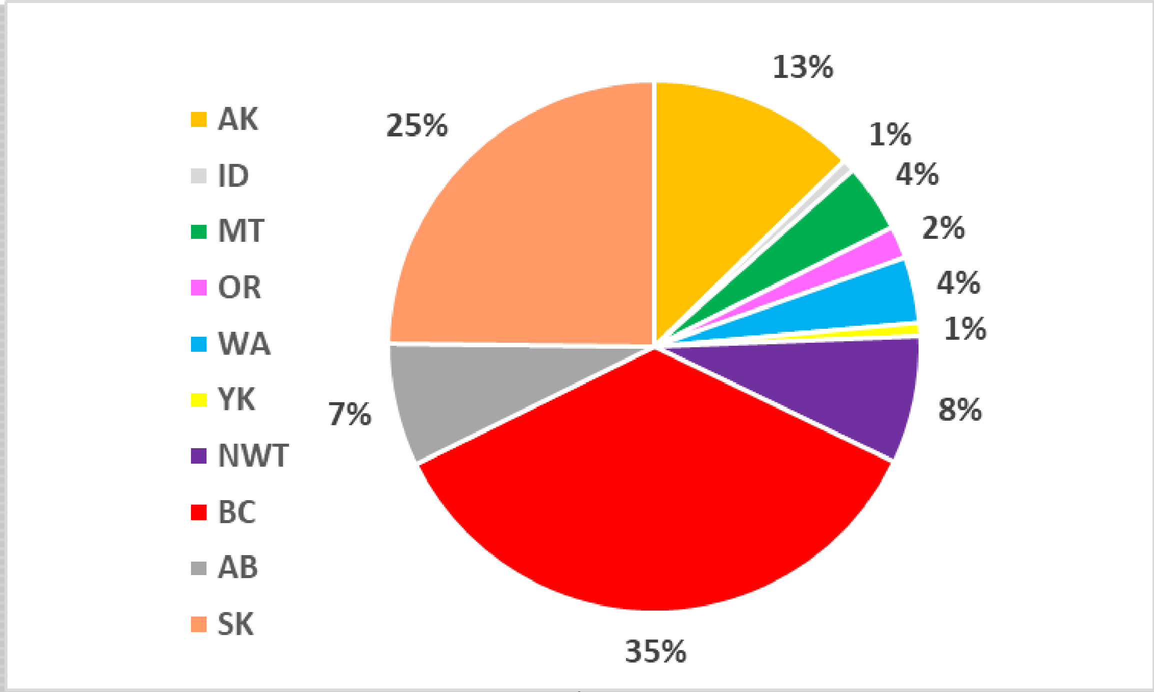
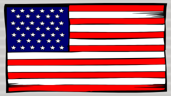
SASKATCHEWAN MINING ASSOCIATION

TUESDAY JULY 23, 2019

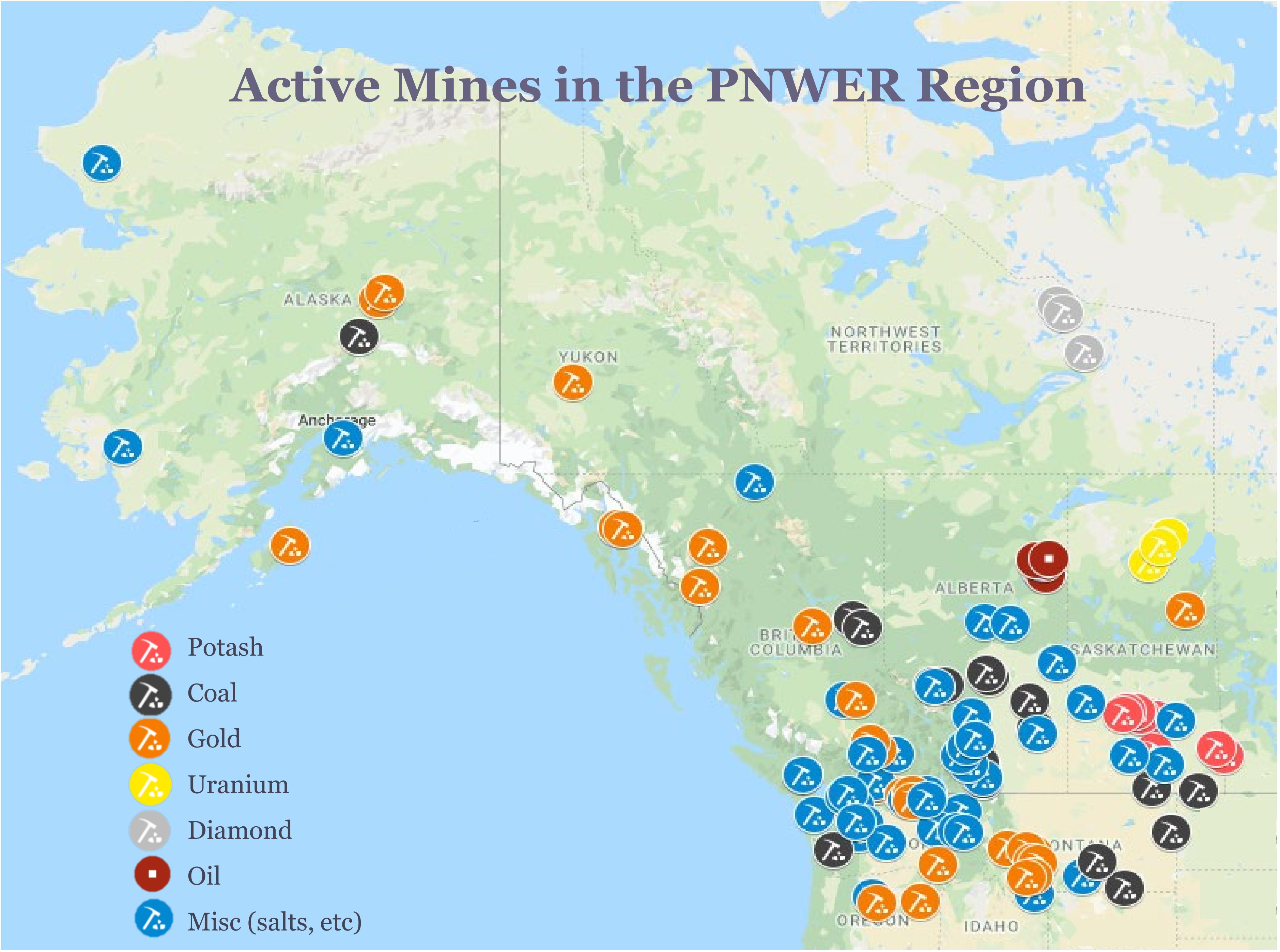
2018 Value of PNWER Mineral Production $27.6 B



- 2018 Mineral production from the PNWER region was $27.6 B (metal & industrial minerals n/i US coal & construction materials s&g)
-  PNWER = $6.8 B (8% of total USA mineral production – n/i coal)
-  PNWER = $20.8 B (45% of total Canadian mineral production)

PNWER Mineral Markets & Trade

- U.S.A total primary mineral exports in 2018 est US $20.7 B (including $8.6 B met coal)
- Canada total primary mineral exports in 2017 C$97.5 B
- Key exports included aluminum, nickel, copper, gold, silver, uranium, met and thermal coal, potash, zinc, diamonds and iron ore
- Key "non-domestic" markets – China, India, South Korea, Japan, EU
- Rail transport and port facilities are key to mining success in PNWER Region.
  - Mining accounts for >50% of rail traffic revenues in Canada
  - PNWER region has strategic port facilities to Asia-Pacific gateway
- Key Mineral Port Facilities – Oregon, Washington, British Columbia, Alaska

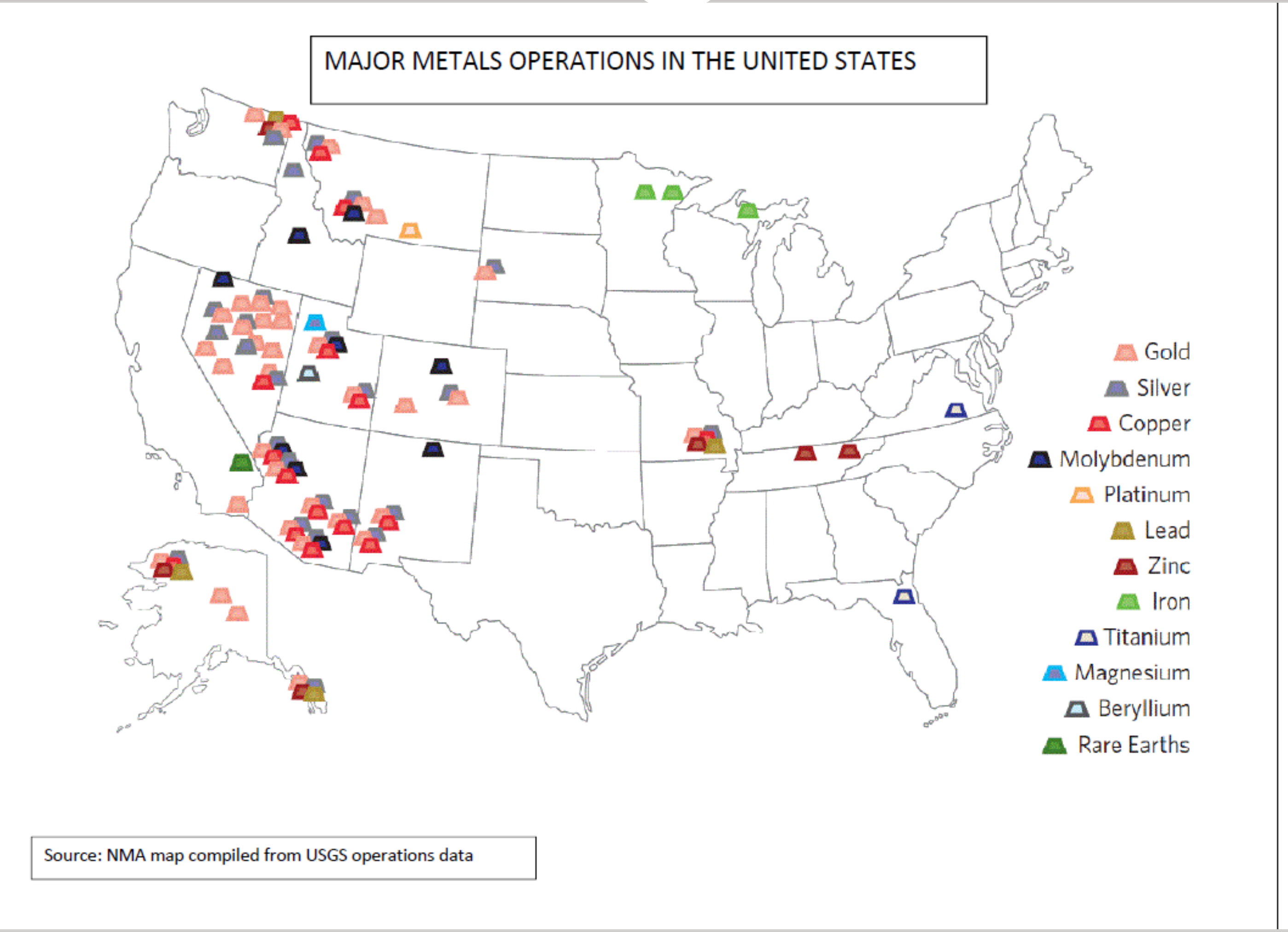

Active Mines in the PNWER Region
ALASKA
YUKON
NORTHWEST TERRITORIES
ALBERTA
SASKATCHEWAN
IDAHO
Potash
Coal
Gold
Uranium
Diamond
Oil
Misc (salts, etc)

2018 Key Facts & Figures PNWER Mineral Region

note: stats derived from NRCan and USGS sources (value of coal n/i in US data)

PNWER Region	Mineral Sales	# Mines	Key Commodities	Comment
AK	$3.44 B	6	Gold, lead, zinc, silver, coal, sand and gravel (construction),	• Ranked 7 out of US • 4.15% US Mineral Value • Port facilities
AB	$2.0 B	8	coal	• Coal thermal and met • Ranked 7th in Canada
BC	$ 9.7 B	20 (9 coal; 9 metal; 2 industrial)	Coal (met and thermal), Cu-Au-Ag,Mo, Pb, Zn	•Port facilities (potash, coal) •Ranked #3 in Canada (value of sales) •Largest copper and met coal producers in Canada
ID	$0.208 B	2 metal	Silver, Lead, lime, phosphate rock, sand and gravel (construction), stone (crushed).	•Ranked 35th state in US •0.25% of US Mineral Value •Diversity of mineral potential
MT	$1.13 B	15 (6 coal)	Coal, Cement (portland), copper, palladium metal, platinum metal, sand and gravel (construction)	•Ranked 24th state in US •1.37% of US Mineral Value •PGM, Diversity of minerals
NWT	$2.1 B	3	Diamonds	• Also Ni-Co, REE deposits; past Au, Ag, Cu • Ranked #6 in Canada(value of sales)
OR	$0.53 B		Cement (portland), diatomite, perlite (crude), sand and gravel (construction), stone (crushed).	•Ranked 36th state in US •0.64% of US Mineral Value •Port facilities (potash, fly ash, coal)
SK	$6.7 B	27	Potash, uranium, coal, gold, sodium sulphate, salt	#1 world – potash #2 world – uranium 4th overall in Canada
WA	$1.09 B	<5	zinc /germanium & lead, Cement (portland), diatomite, sand & gravel (construction), stone (crushed),	•Ranked 25th state in US •1.33% of US Mineral Value •Port facilities (coal, potash)
YK	$.22 B	1 + >100 placer	Cu, Ag, Au	• Au dominant • Ranked 11th in Canada

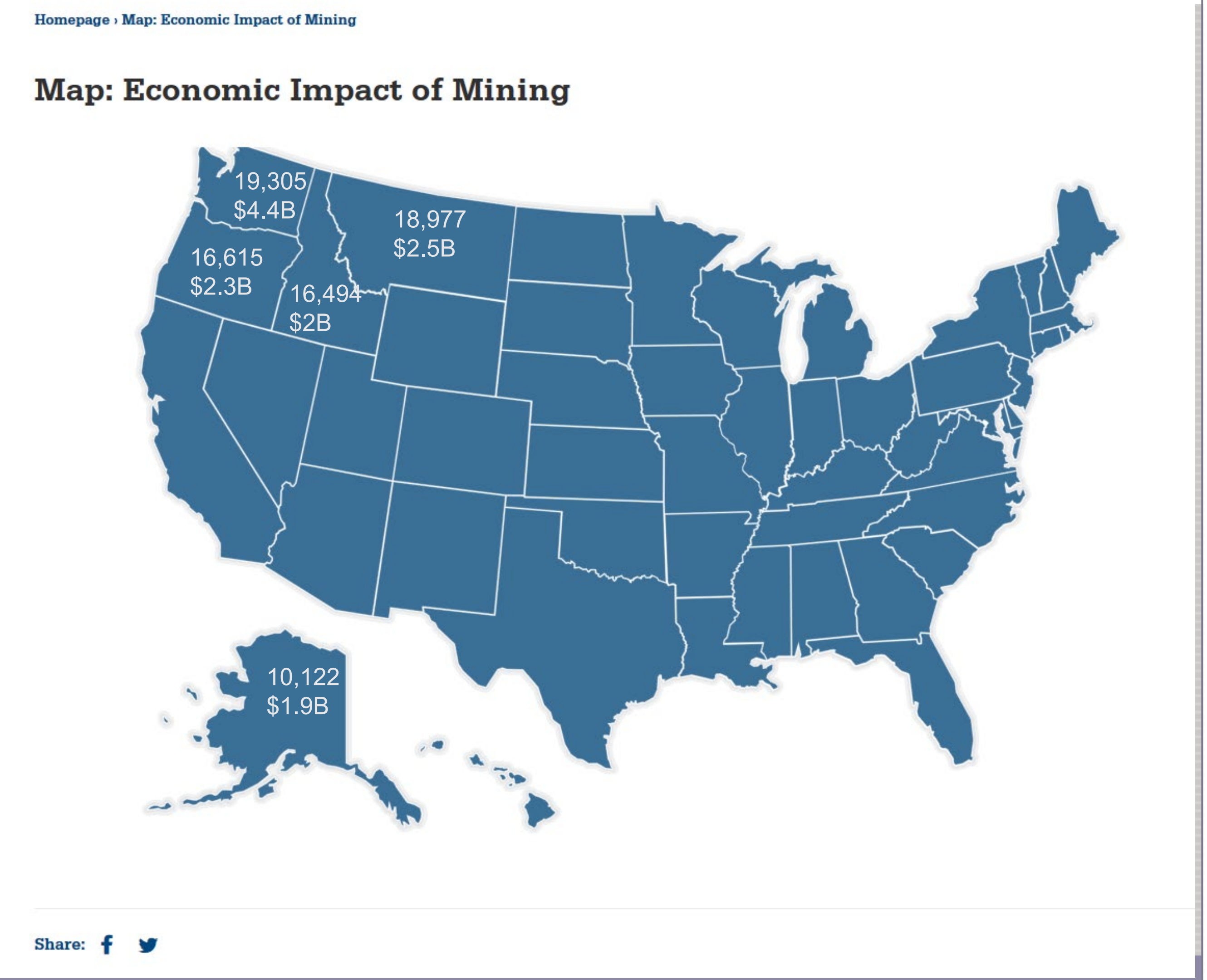
2017 Major Metal Operations in the USA



2017 Economic Impacts of Mining in US PNWER States (Direct, Indirect, Induced)

- 81,513 Jobs
- $13.1 B GDP

Source: National Mining Association website



Canadian PNWER Region accounts for $20.7 B (44%) value of mineral production

Yukon: $217 M (Au, Ag, Au); #11

NWT: $2.1 B (diamonds); #6

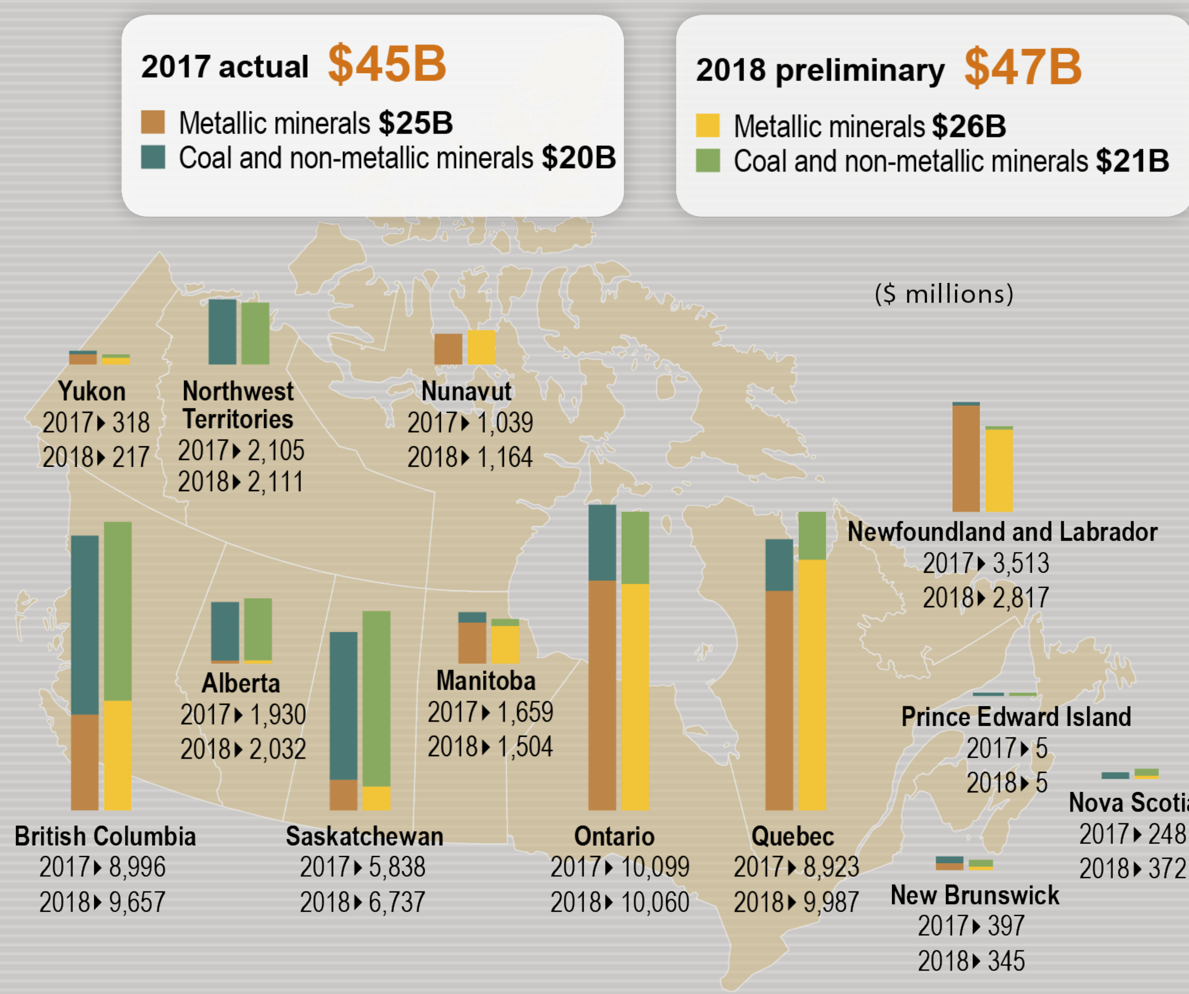
BC: $9.7 B (met. coal, Au, Cu); #3

AB: $2.0 (thermal & met. coal); #7

SK: $6.7 B (potash, U, Au, thermal coal, salt, sodium sulphate); #4

Source: NRCan website

2018 Canadian Mineral Production



2018 Fraser Institute ranking of PNWER Jurisdictions

Out of 83 international jurisdictions in Canada, USA, Australia, Oceania, Africa, Argentina, Latin America, Asia, Europe

PNWER Jurisdiction	Policy Perception	Mineral Potential	Investment Attractiveness
Alberta	14	74	51
Yukon	24	10	9
Saskatchewan	*1	7	3
Alaska	26	3	5
Northwest Territories	42	4	10
British Columbia	44	13	18
Idaho	13	21	16
Montana	35	28	31
Washington	40	78	71
Oregon	n/a	n/a	n/a

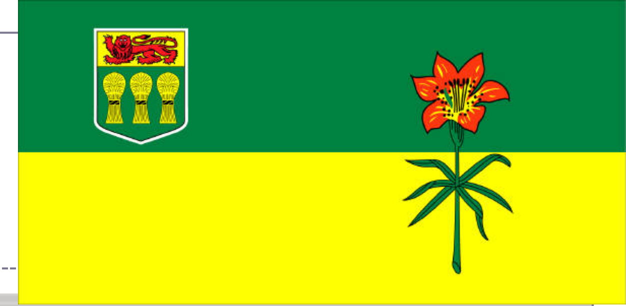
British Columbia

- $9.7 B - 2018 value of mineral production
- 3rd in Canada
- Met Coal ($>5B); metallics ($3.76 B) 20.6% of Canadian production
- 20 coal and metal mines; 2 industrial mineral mining operations (coal, Cu, Au, Ag, Zn, Mo, Pb, silica)
- $1.5 B in capital expenditures invested by companies in 2017
- $859 M in revenues to Governments in 2017 (n/i Corporate Taxes)
- >10,000 direct employees in 2017
- Key mineral port facilities (Vancouver, Ridley, Neptune, Westshore – Met and therm coal, potash
- $290.9 M mineral exploration expenditures forecast in 2018

Alberta

- $2 B - 2018 value of mineral production
- 4.3% share of Canadian production
- 7 th in Canada
- 6 thermal and 2 met coal mining operations
- $39.7 M in mineral exploration in 2018
- landlocked

Saskatchewan



- $6.7 B - 2018 value of mineral production
- 14.3% share of Canadian production
- #4 in Canada
- #1 in world for potash (33%) *
- #2 in world for uranium (17%) *
- 27 mining operations (potash, uranium, coal, gold, salt, clay, sodium sulphate);
- Deposits of graphite, helium, chromite, PGE, REE*
- $165.1 M in mineral exploration in 2018
- landlocked

SASKATCHEWAN - CANADIAN & GLOBAL LEADER IN MINING - 2018

#1
Canadian Mineral Investment Attraction
#3 Global

#1
Potash Producer
Global
(32%)

#2
Uranium Producer
Global
(13%)

#4
Value of Mineral Product $6.7B
(ON, QB, BC)

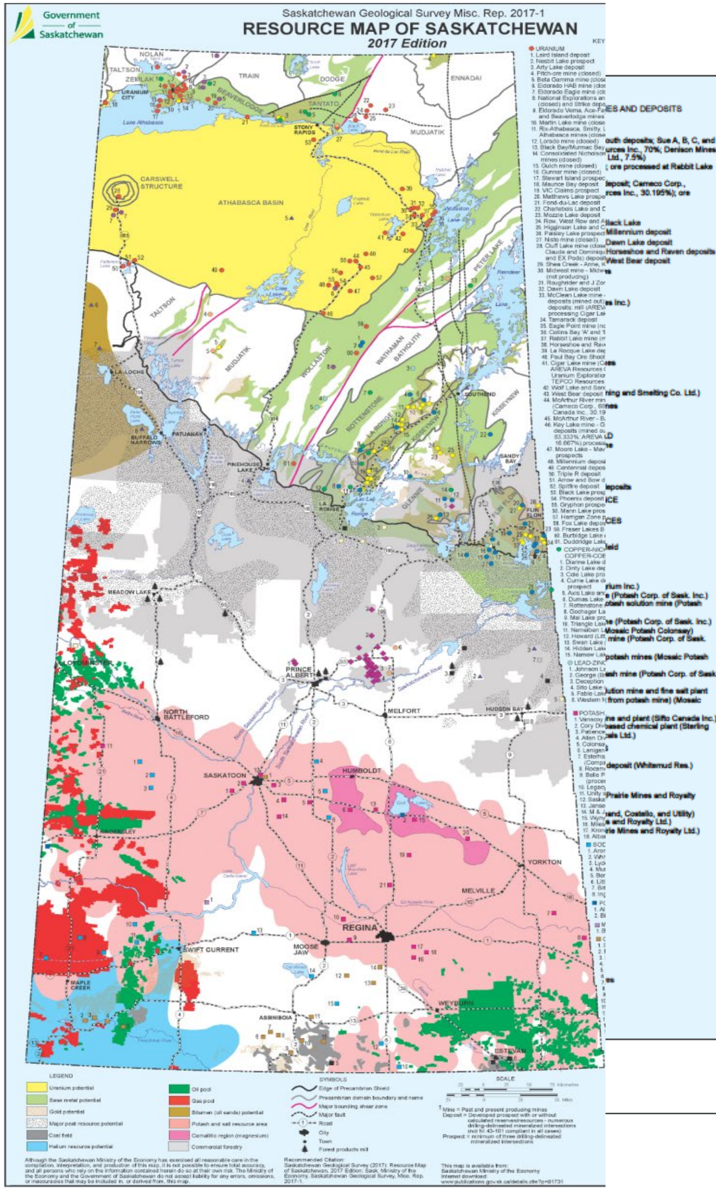
#1
Industrial Employer of Indigenous people

#4
Canadian Expln $247 (ON, QB, BC)

Leading Client of Rail and Vessel Transport (Value & Volume)

SMA
Saskatchewan Mining Association

SK NATURAL ADVANTAGE



- >23 SK mine facilities
- Geology is SK Advantage – world class deposits
  - ✓ Potash
  - ✓ Uranium
  - ✓ Diamonds

    Potential for REE, Chromite
- Skilled & Trained Labour Force
- Strong supply chain
- Government Policy (sometimes)

SMA
Saskatchewan Mining Association

SK MINING BY THE NUMBERS
Employment & Payroll

= > 30,000 employees

& >$2.5 B payroll

SMA
Saskatchewan Mining Association

SK MINING BY THE NUMBERS

Business Support – SK Procurement

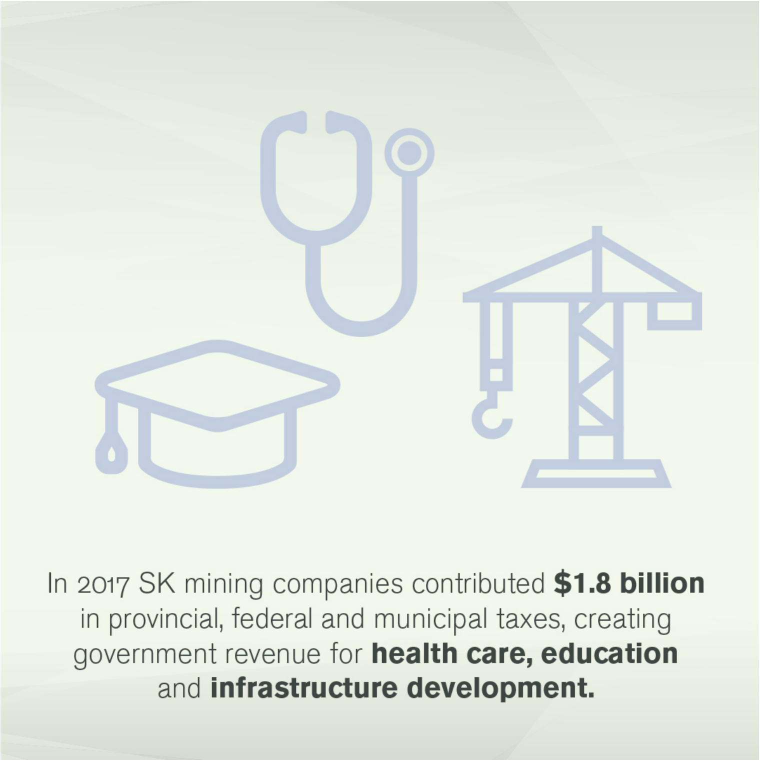
s

= $5 B Total

SMA
Saskatchewan Mining Association

SK MINING BY THE NUMBERS

Contributions to Governments & Communities (annual)



$1.8 B

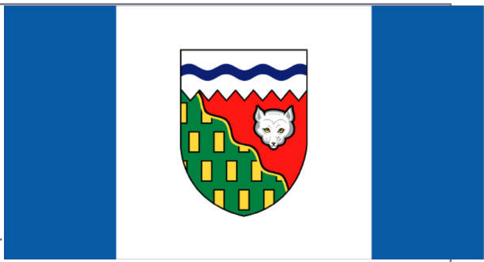
>$22 M

SMA
Saskatchewan Mining Association

Yukon

- $0.217 B - 2018 value of mineral production
- 0.5% Canadian production
- Metallics (Au)
- 1 mining operations (Zn, Pb, Cu, Ag, Au) + >100 placer gold operations
- $172.3 M in mineral exploration in 2018
- Port access

Northwest Territories



- $2.11 B - 2018 value of mineral production
- 4.5% of Canadian production
- 6th in Canada
- 3 diamond mines
- $81.3 M in mineral exploration in 2018
- Landlocked

Alaska

- $>3.4 B - 2018 value of nonfuel mineral production
- 4.15% U.S total;
- 7th in U.S.A
- 6 Mines - Gold, zinc, silver, lead, sand and gravel, coal principal minerals
- 5 producing metal mines, including one of the world's largest Zn mine (Red Dog), 1 coal mine
- $135 Min mineral exploration in 2018
- $170 M on mine construction and capital investment in 2018
- 6 Advanced exploration including REE & Graphite
- Key mineral port facility (Zn, Pb, coal, precious metals) – Skagway, Delong Mountain Terminal, Seward
- 9200 direct and indirect mining jobs in 2018
- $715 M direct and indirect payroll in 2018
- $183 M in state & local government revenue via rents, royalties, fees and taxes in 2018
- $358 M in payment to Alaska Native Corporations in 2018

Washington

- $1.09 B - 2018 value of nonfuel mineral production
- 25th in U. S. A.
- Zinc, germanium, lead, s & g, crushed stone, portland cement, diatomite
- <5 mines
- Key port facilities - coal, potash (Port of Vancouver, Kalama, Longview, Seattle, Tacoma)

Oregon

- \$0.53 B - 2018 value of mineral production
- 0.64% of U.S. total
- 36th in U.S.A
- Crushed stone, s & g , portland cement, diatomite, perlite, pumice, zeolites
- 0 metal mines mines
- Key mineral port facilities – Port of Portland (potash, fly ash); Coos Bay, Morrow (coal?);

Idaho

- $0.21 B - 2018 value of mineral production
- 0.25% of U.S. total
- 35th in U.S.A
- Silver, molybdenum, phosphate, s & g, gemstones, gold, crushed and dimension stone, zeolites
- 2 metal mines, 1 phosphate (?)
- Landlocked

Montana

- $1.13 B - 2018 value of nonfuel and coal mineral production
- 1.37% U. S. total (non-fuel)
- 24th in U.S. A (non-fuel)
- Coal, copper, palladium, molybdenum, platinum, gold, talc, silver, gemstone, dimension stone, iodine, sulfur, tungsten
- 15 mines (6 coal)
- Landlocked

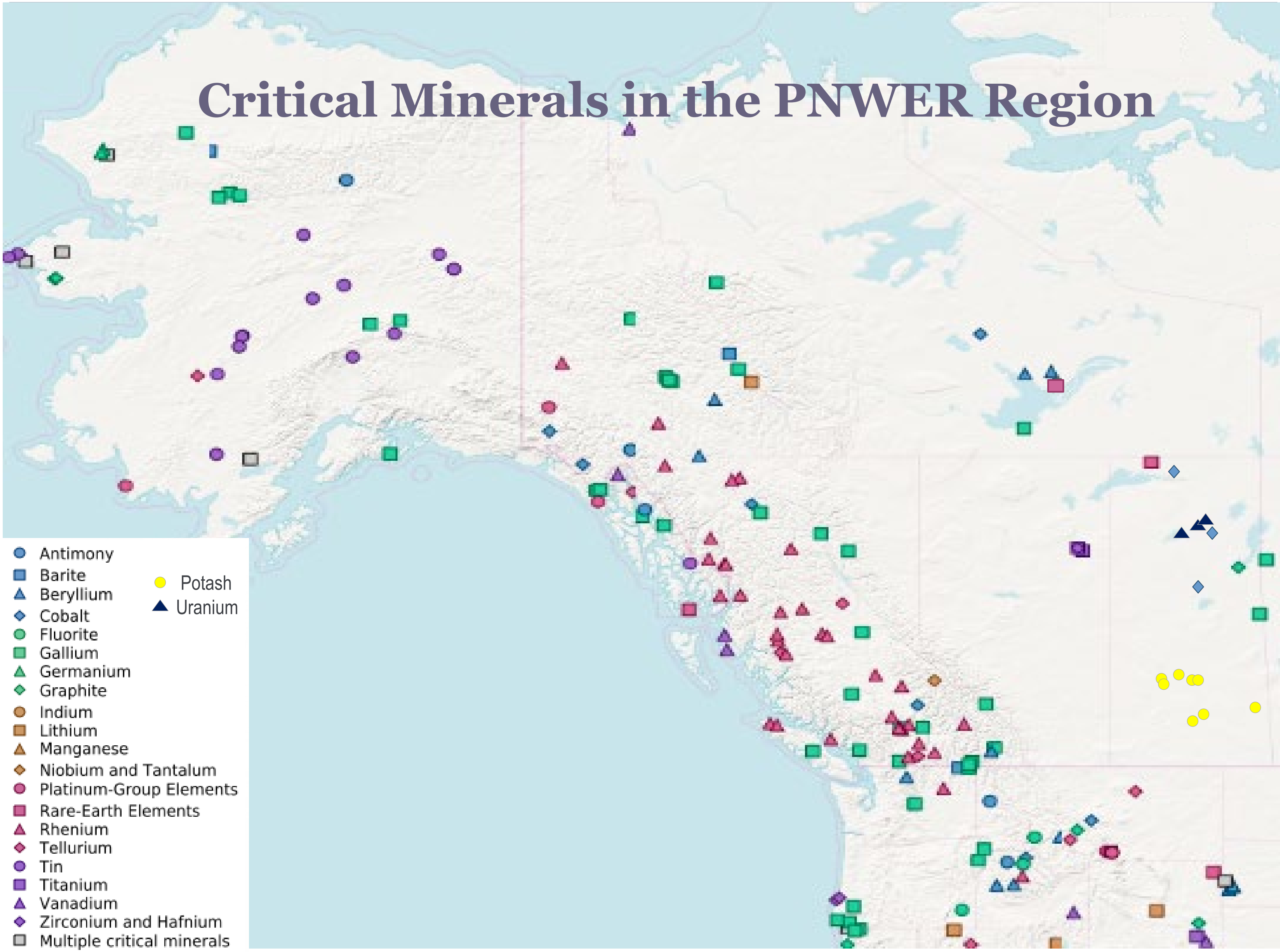
Listing of “Critical Minerals”

- US is heavily reliant on imports of certain mineral commodities vital to the Nations’ security and economic prosperity
- Designated as “Critical” based on the measure of a country’s concentration of production and the USGS net import reliance metric
- Published as Executive Order 13817, February 16, 2018, by the Secretary of the Interior in the **Federal Register** (83 FR 7065).
- “Critical minerals” list consists of **35** minerals or mineral matter groups

Aluminum (bauxite), antimony, arsenic, barite, beryllium, bismuth, cesium, chromium, cobalt, fluorspar, gallium, germanium, graphite (natural), hafnium, helium, indium, lithium, magnesium, manganese, niobium, platinum group metals, potash, the rare earth elements group, rhenium, rubidium, scandium, strontium, tantalum, tellurium, tin, titanium, tungsten, uranium, vanadium, and zirconium

Source: Dept. of Interior, Office of the Secretary USA

Critical Minerals in the PNWER Region



Conclusions

- Mining and mining-related industries (ports, rail) are a vital part of the economy of all jurisdictions within the PNWER Region
- The PNWER Region is host to a number of “critical mineral” mines, deposits and showings
- The PNWER jurisdictions are well-positioned to provide input into the US-Canada joint action plan on critical minerals, including ensure future competitiveness of the region’s minerals industries, and in developing secure and reliable supply chains.

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