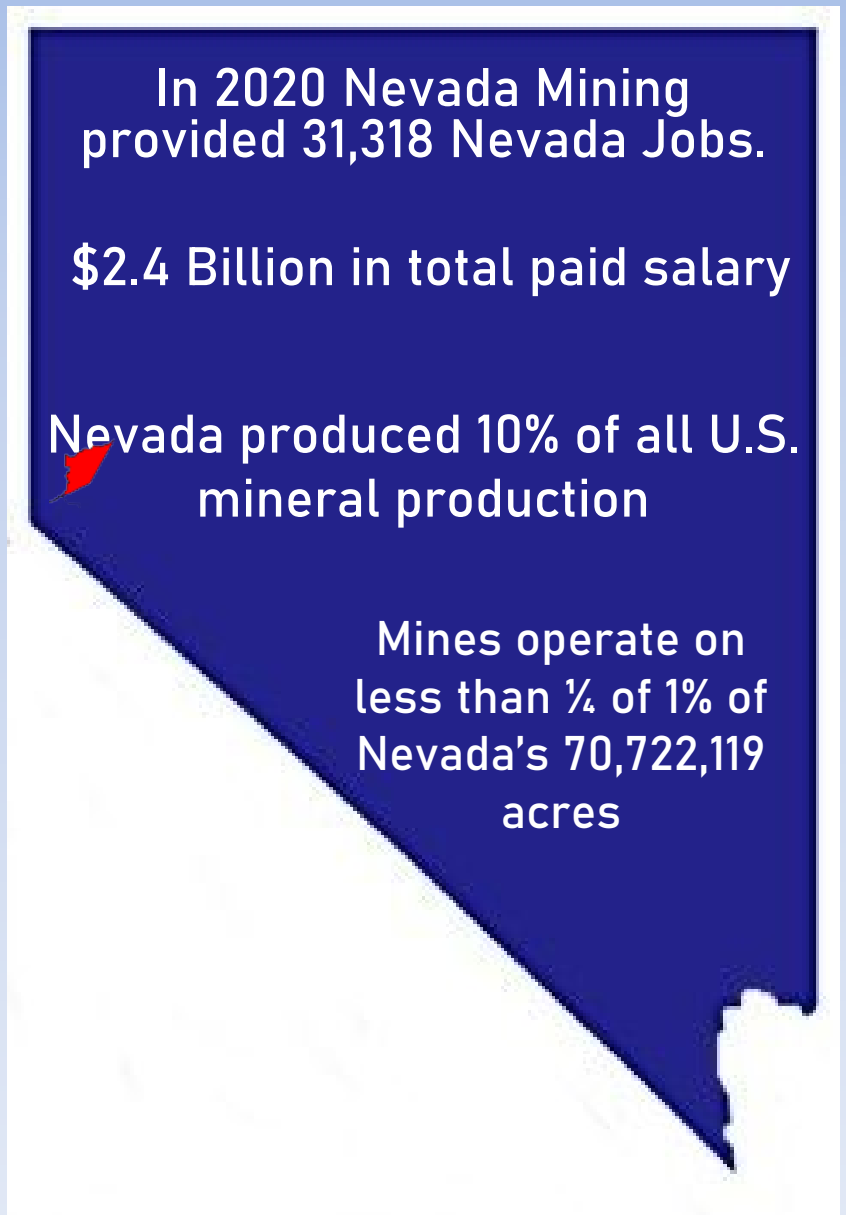
Nevada's Mining Sector Outlook
Mineral Production, New Mines, Exploration, Critical Minerals, Potential Impacts, and Trends

Society for Mining, Metallurgy and Exploration
Northern Nevada Section
April 11, 2022

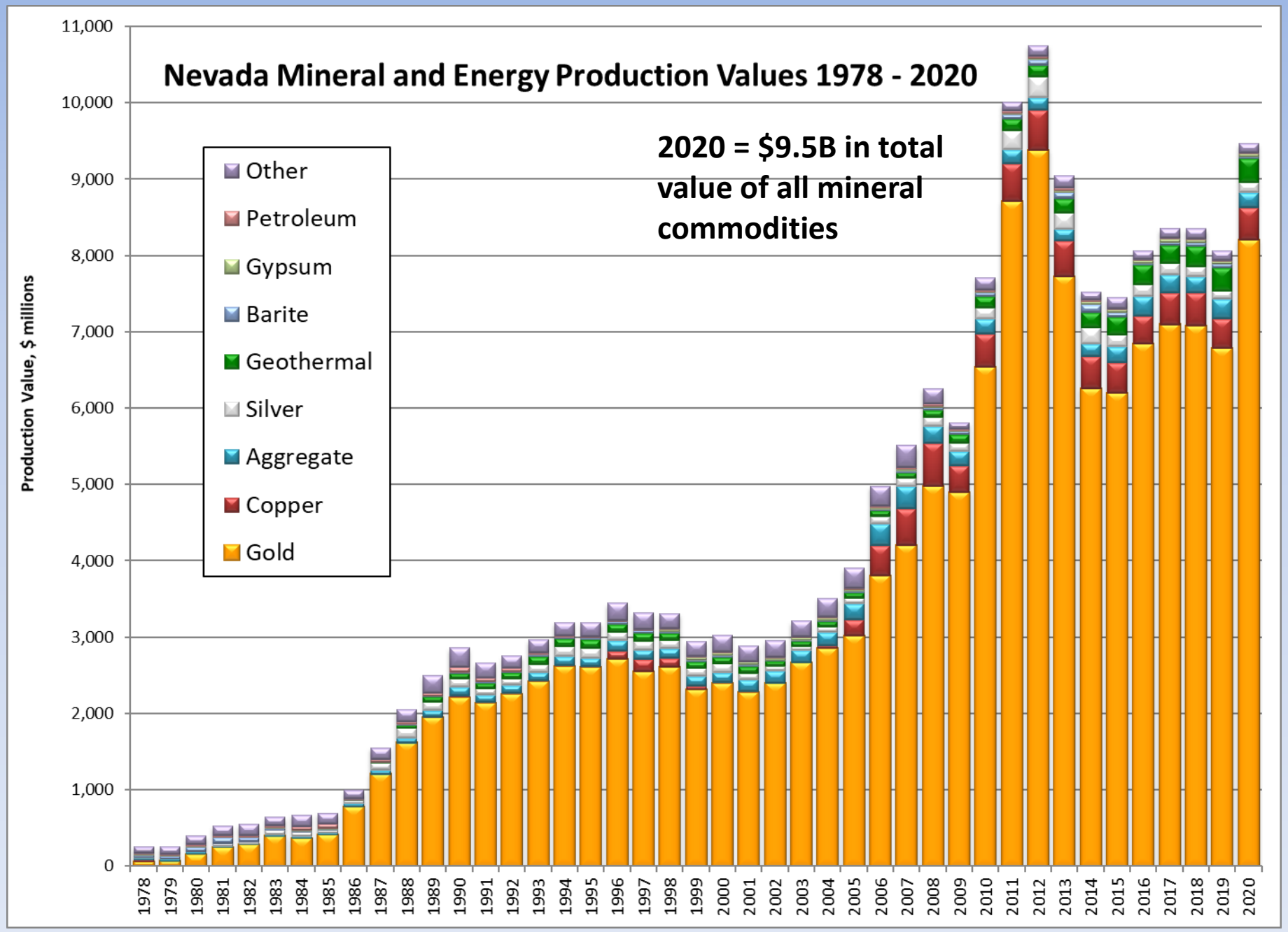
Michael Visher, Administrator
Nevada Division of Minerals

Isabella Pearl Mine, Mineral County

Nevada Mining Summary



- **In 2020, 4th leading producer of GOLD in the WORLD! (Behind China, Australia, and Russia)**
- **20+ minerals are produced in Nevada at over 100 mines**
- **$13.5B impact to Nevada's economy**
- **For 2020, Nevada ranked as #1 mining jurisdiction in the world (Fraser Institute, 2021)**
- **Lots of interest in new lithium (and other critical minerals)**


Nevada Mineral and Energy Production Values 1978 - 2020
2020 = $9.5B in total value of all mineral commodities
Production Value, $ millions
Other
Petroleum
Gypsum
Barite
Geothermal
Silver
Aggregate
Copper
Gold
11,000
10,000
9,000
8,000
7,000
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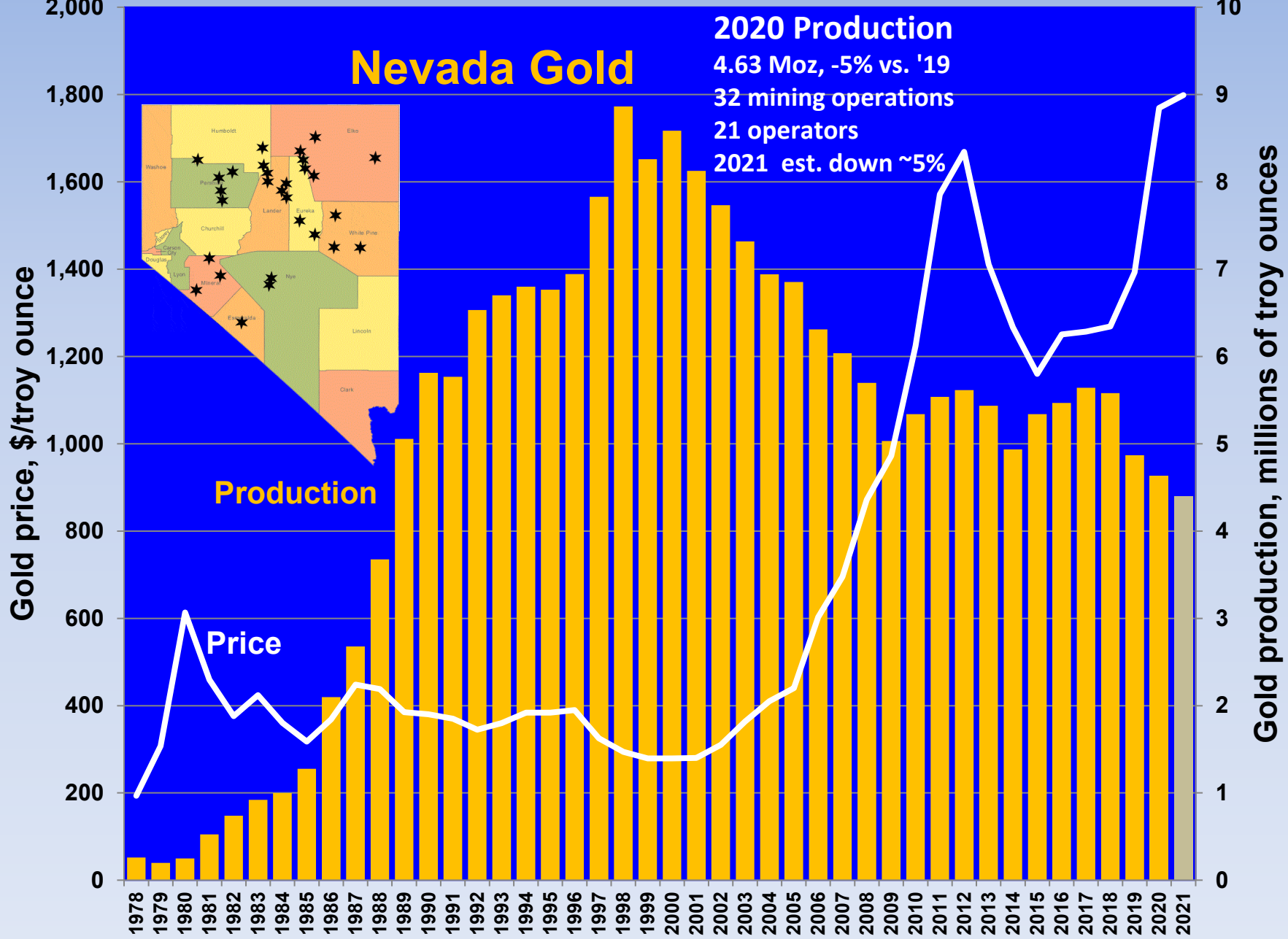
Nevada Gold
2020 Production
4.63 Moz, -5% vs. '19
32 mining operations
21 operators
2021 est. down ~5%
Production
Price
Gold price, $/troy ounce
Gold production, millions of troy ounces
2,000
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
10
9
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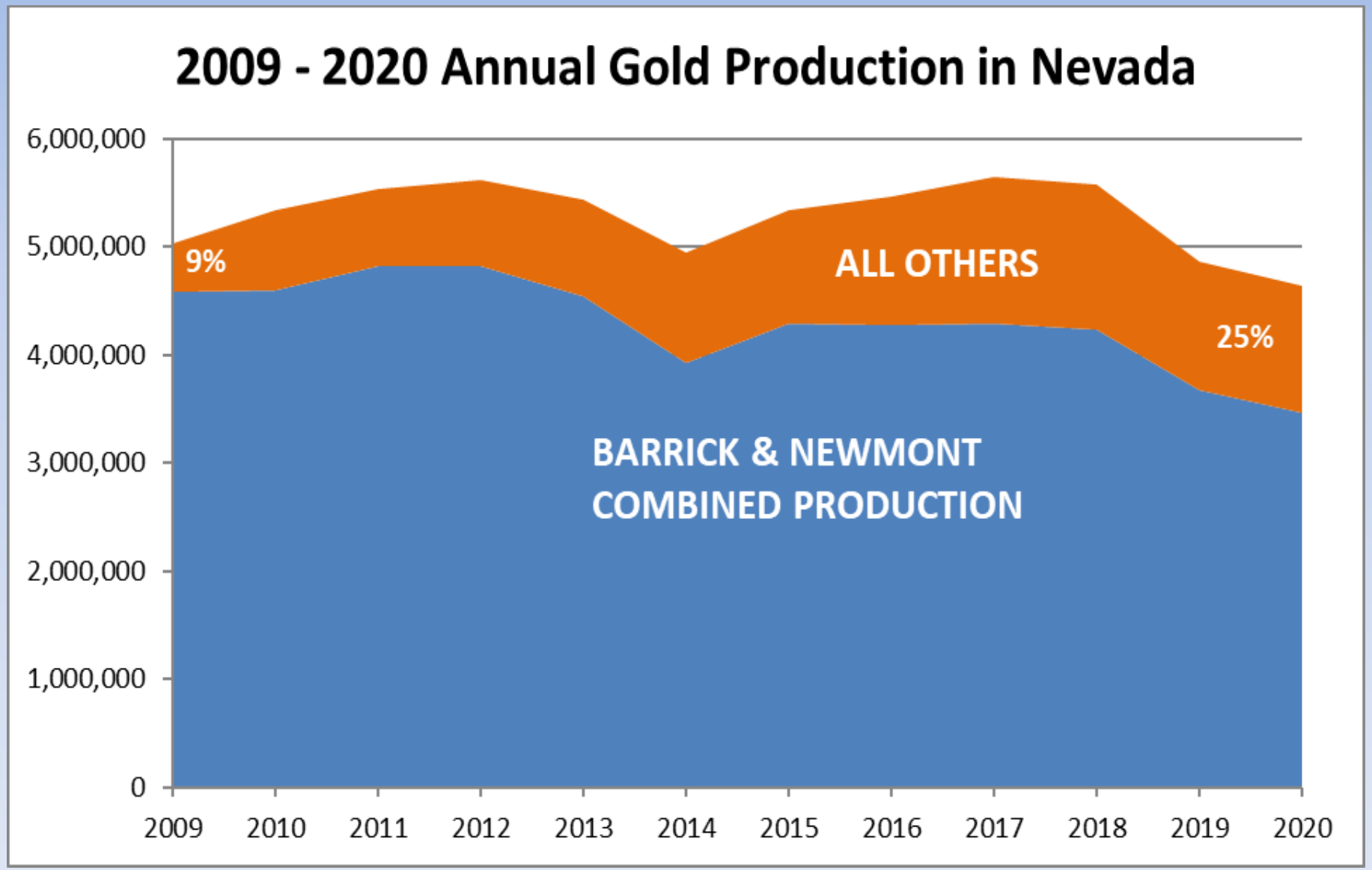
2021
Humboldt
Elko
Washoe
Pershing
Lander
Eureka
Churchill
White Pine
Carson City
Douglas
Lyon
Mineral
Nye
Esmeralda
Lincoln
Clark

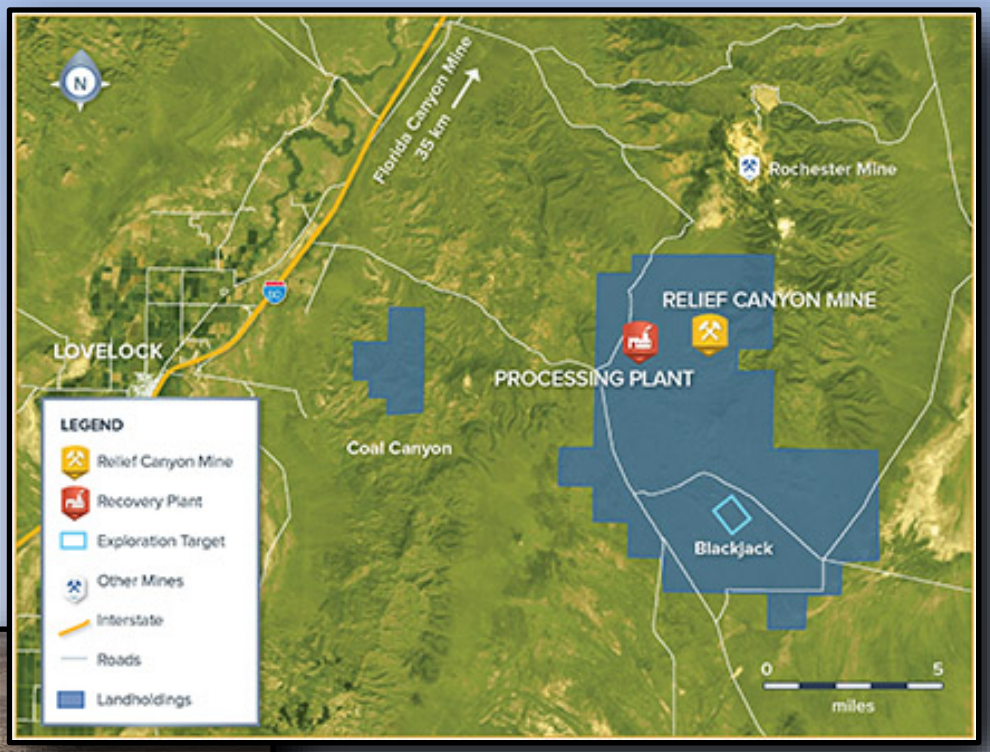
2020 NEVADA METAL PRODUCTION, BY PRODUCER - Final				
Ranked by gold production				
Operator	**Gold (ozs)**	**Silver (ozs)**	**Copper (lbs)**	**Moly (lbs)**
Nevada Gold Mines	3,469,998	1,289,700	41,957,856	
Kinross Gold	503,950	998,257		
SSR Mining	234,443	3,329		
Jerritt Canyon Gold LLC	112,749	0		
Florida Canyon Mining	46,866	27,490		
Fiore Gold	46,516	0		
KGHM International	38,801	199,382	109,639,248	426,538
Hecla (Klondex)	31,800	37,400		
Gold Resource Corp.	28,542	26,961		
McEwen Mining	27,910	0		
Hycroft Mining	27,392	178,836		
Coeur Rochester	27,147	3,174,529		
Rawhide Mining	24,078	159,049		
Gold Aquizition	5,072	14,330		
Ruby Hill Mining	3,252	5,153		
Mineral Ridge Gold	2,800	1,358		
Manhattan Gulch LLC	745	0		
Borealis Mining	310	896		
Nevada Copper	293	10,757	2,667,827	
Geo-Nevada	18	11		
Toquima Gold	8	0		
Totals	4,632,690	6,127,438	154,264,931	426,538

Nevada Gold Mines Production Comparison

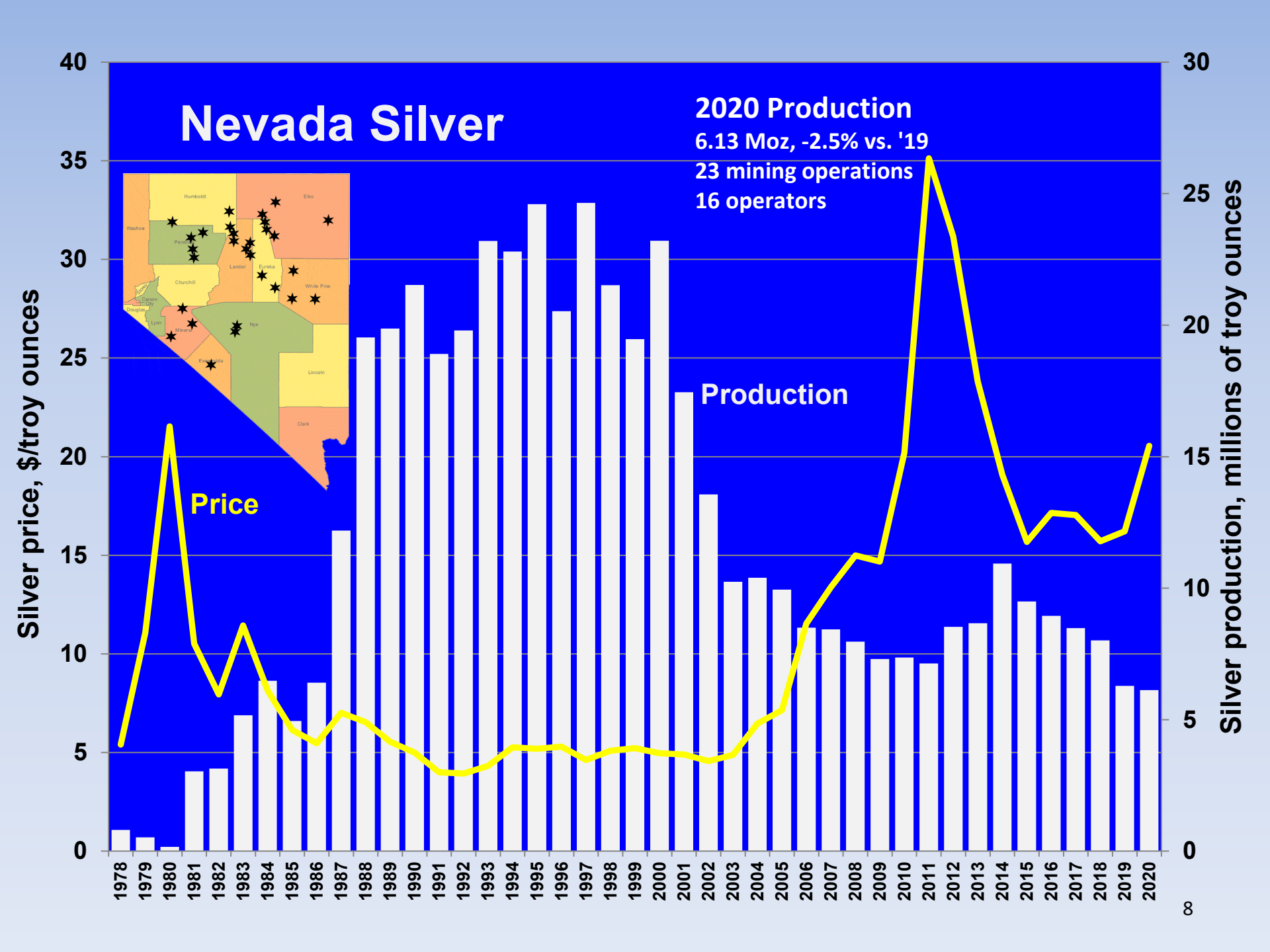


New Mining Operation for 2020
Americas Gold and Silver – Relief Canyon, Pershing County

- Past production – 1986 to 1990
- New construction began – May 2019
- Stockpiled ore placed on heap leach – December 2019
- First gold pour – February 2020
- Full mine production by Q2 2021
- Production target – 80-100 koz/yr
- Avg. Au grade - 0.8 g/t
- Current mine life – 6 years



- Mining ops suspended in August 2021
- Metallurgical testing program to be completed by mid-2022


Nevada Silver
2020 Production
6.13 Moz, -2.5% vs. '19
23 mining operations
16 operators
Production
Price
Silver price, $/troy ounces
Silver production, millions of troy ounces
0
5
10
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35
40
1978
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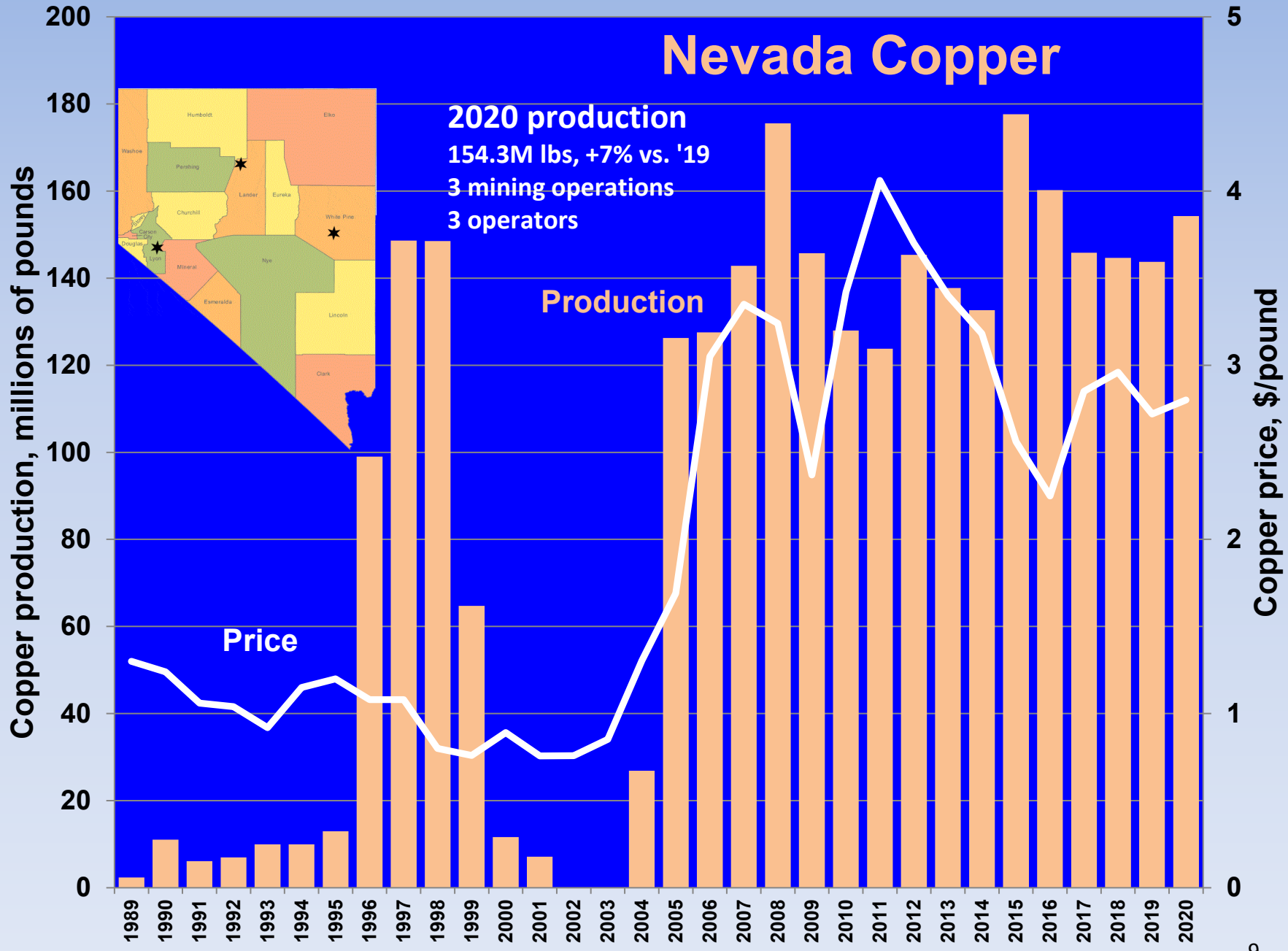
Nevada Copper
2020 production
154.3M lbs, +7% vs. '19
3 mining operations
3 operators
Production
Price
Copper production, millions of pounds
Copper price, $/pound
200
180
160
140
120
100
80
60
40
20
0
5
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3
2
1
0
1989
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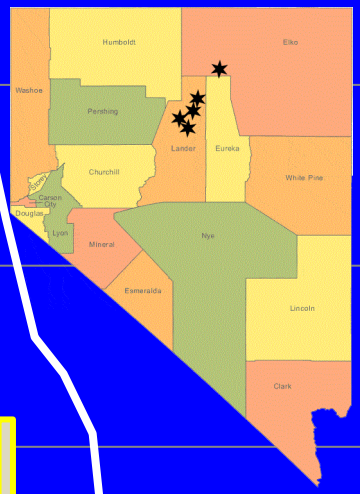
Humboldt
Elko
Washoe
Pershing
Lander
Eureka
Churchill
White Pine
Carson City
Douglas
Lyon
Mineral
Nye
Esmeralda
Lincoln
Clark

Nevada Copper's Pumpkin Hollow Mine, Lyon County

- 2 deposits with 6 billion contained pounds of Cu
  - Higher grade eastern deposit; underground
  - Shallower western deposit; open-pit
- Main shaft and materials handling system completed Dec. 2020
- First copper production occurred in Q4 2019 with temporary suspension from April to August 2020 due to the pandemic
- Production ramping up (3k tpd hoisting), anticipating steady state by H2 2022
- 13.5-year mine-life (underground) and 19-year mine-life (open pit)
- Becomes Nevada's 3rd copper producer in past 20 years

Nevada Barite



2020 Production
166,136 tons shipped
-61% vs. '19
3 producers
#1 producer in US

Oil Price

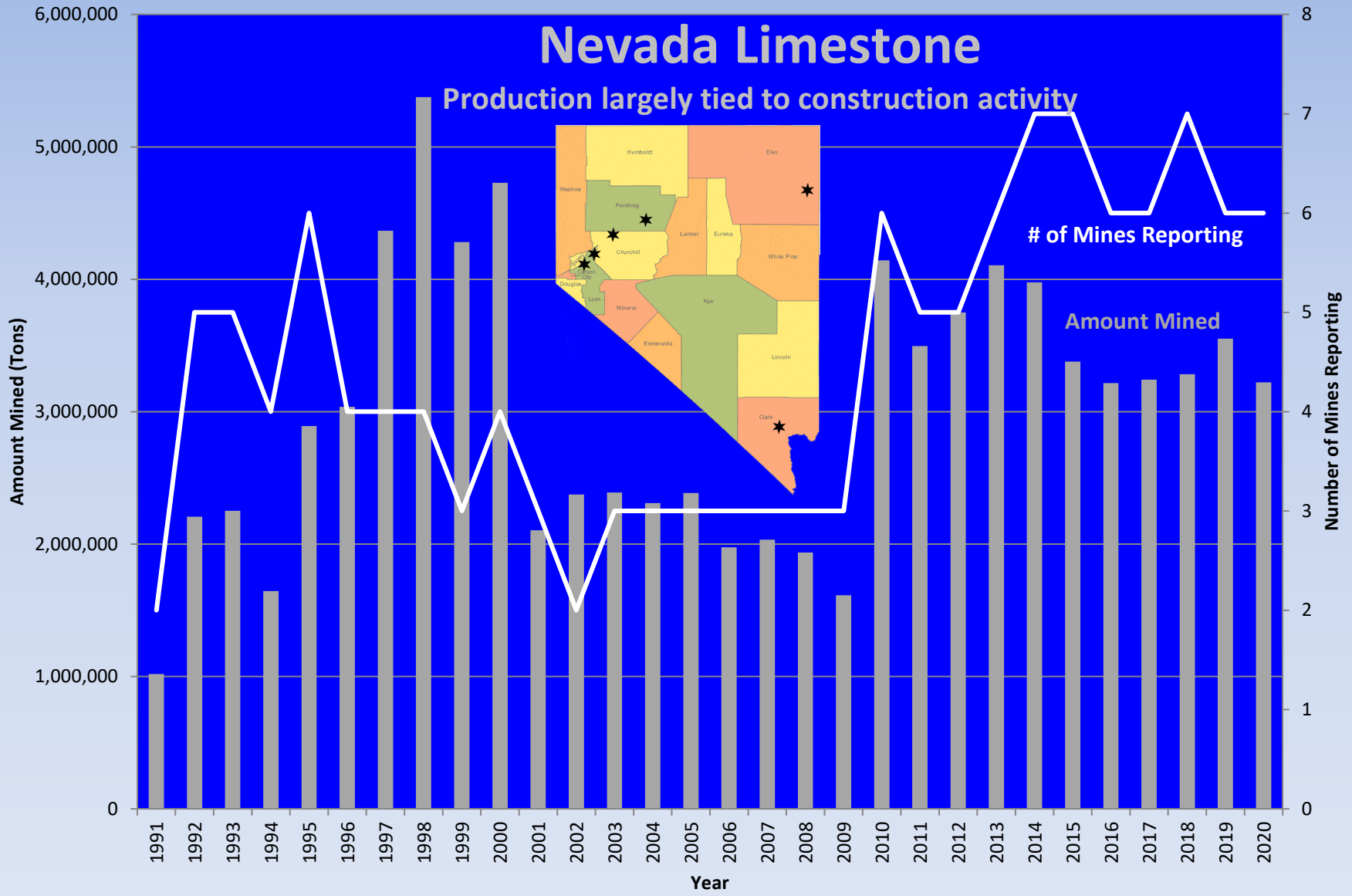
Production (1,000 short tons)

Average Annual Price per Barrel of Oil

3,000
2,500
2,000
1,500
1,000
500
0

$120
$100
$80
$60
$40
$20
$0

1970 1972 1974 1976 1978 1980 1982 1984 1986 1988 1990 1992 1994 1996 1998 2000 2002 2004 2006 2008 2010 2012 2014 2016 2018 2020


Nevada Limestone
Production largely tied to construction activity
# of Mines Reporting
Amount Mined
Amount Mined (Tons)
Number of Mines Reporting
Year
6,000,000
5,000,000
4,000,000
3,000,000
2,000,000
1,000,000
0
8
7
6
5
4
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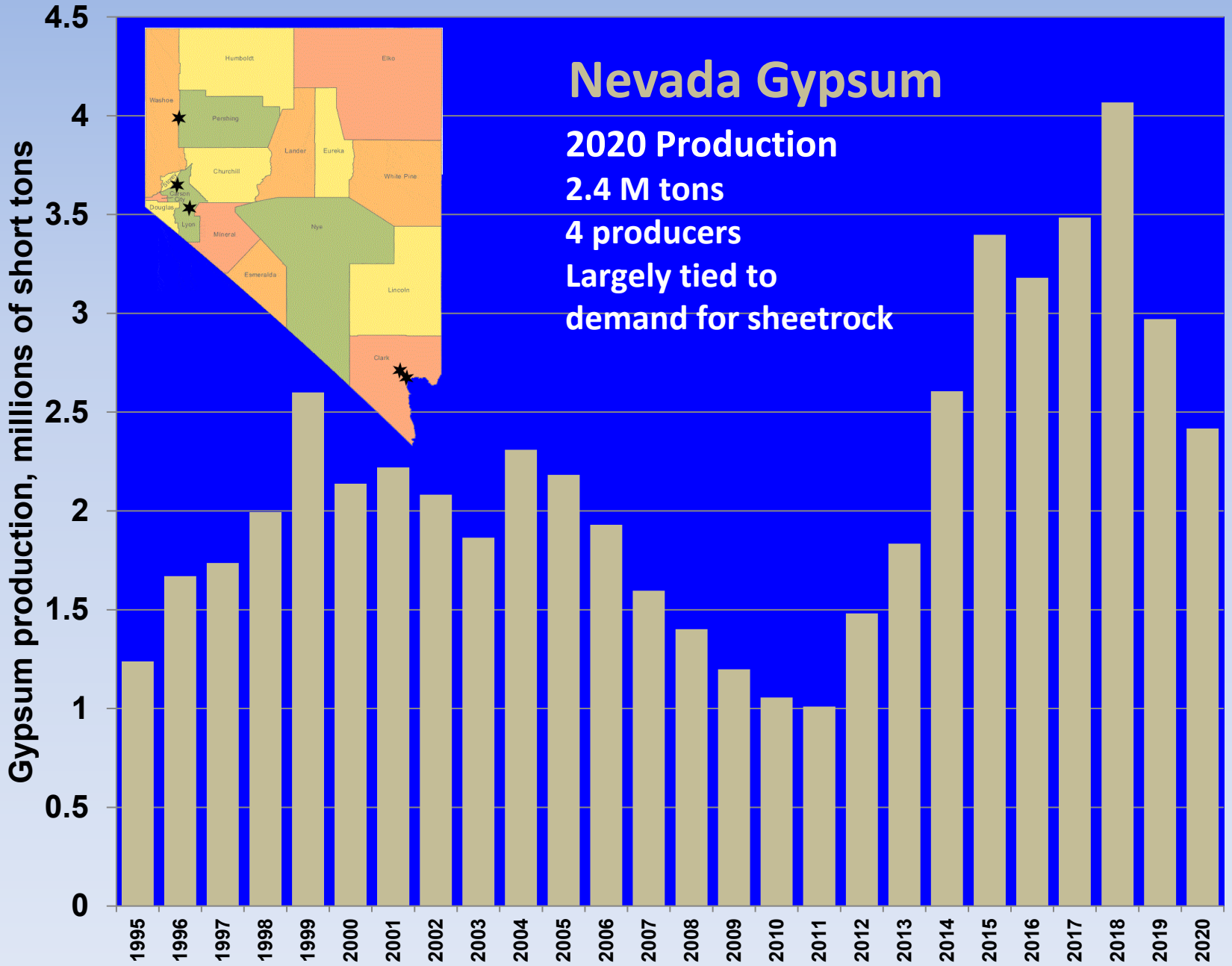
2020
Humboldt
Elko
Washoe
Pershing
Lander
Eureka
Churchill
White Pine
Carson City
Douglas
Lyon
Mineral
Nye
Esmeralda
Lincoln
Clark


Nevada Gypsum
2020 Production
2.4 M tons
4 producers
Largely tied to
demand for sheetrock
Gypsum production, millions of short tons
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
1995
1996
1997
1998
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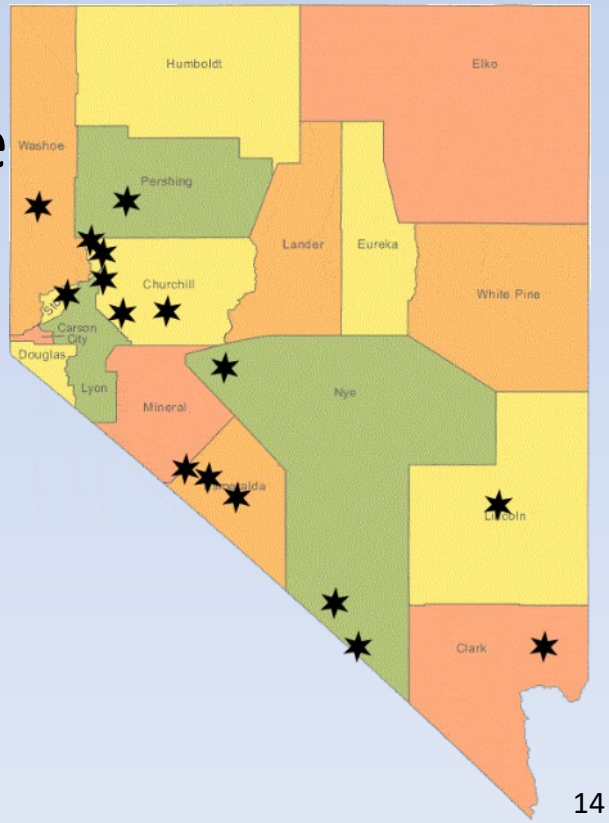
Humboldt
Elko
Washoe
Pershing
Lander
Eureka
Churchill
White Pine
Douglas
Lyon
Mineral
Nye
Esmeralda
Lincoln
Clark

Other Industrial Minerals Produced in 2020

- 6,900,000 lbs of lithium compounds*
- 570,000 tons of silica sand
- 124,000 tons of magnesium compounds*
- 420,000 tons of diatomite
- 426,000 pounds of molybdenite
- 15,000 tons of salt
- 2,700 tons of perlite
- 192,000 tons of specialty clays

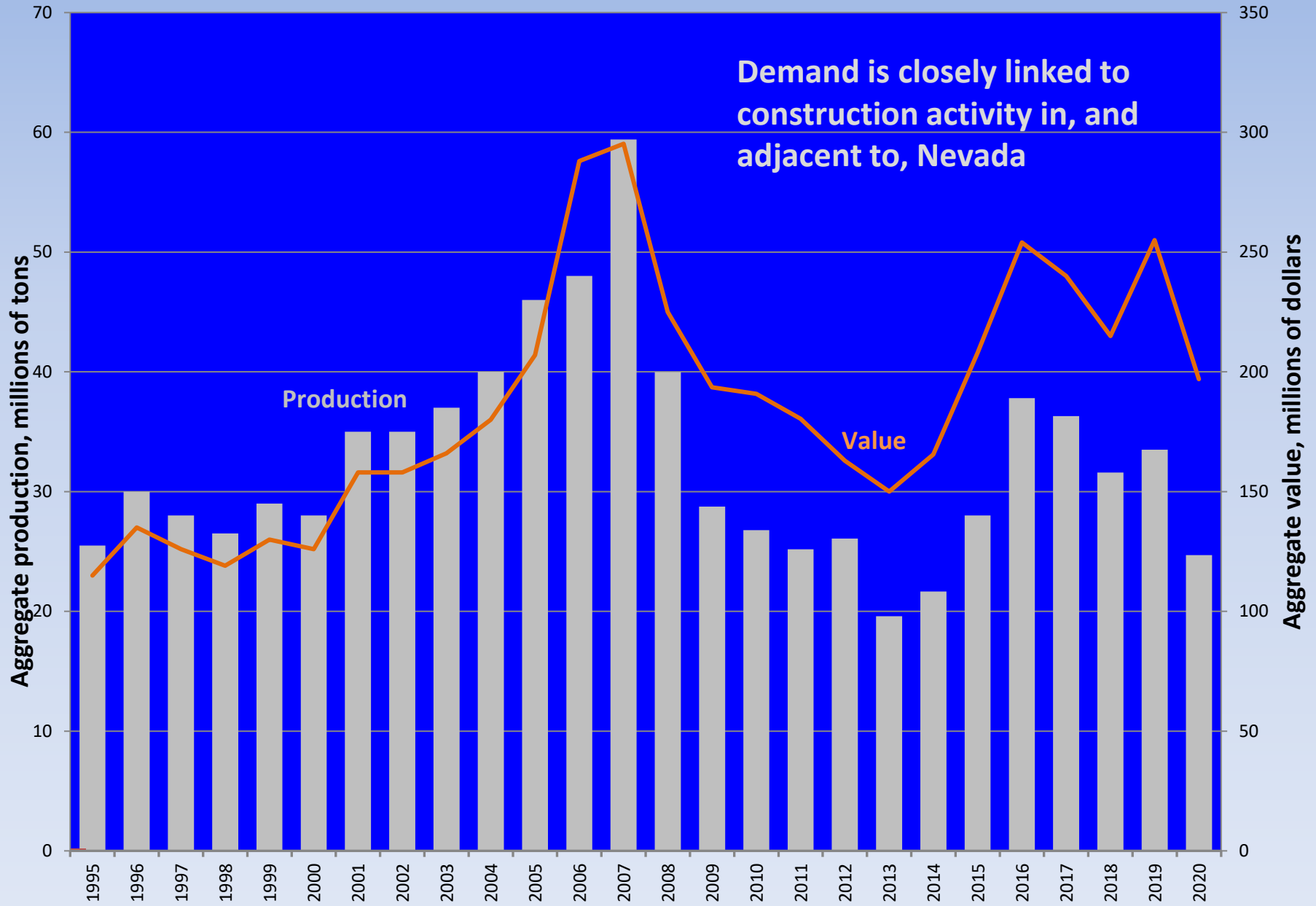
* Only producer in US



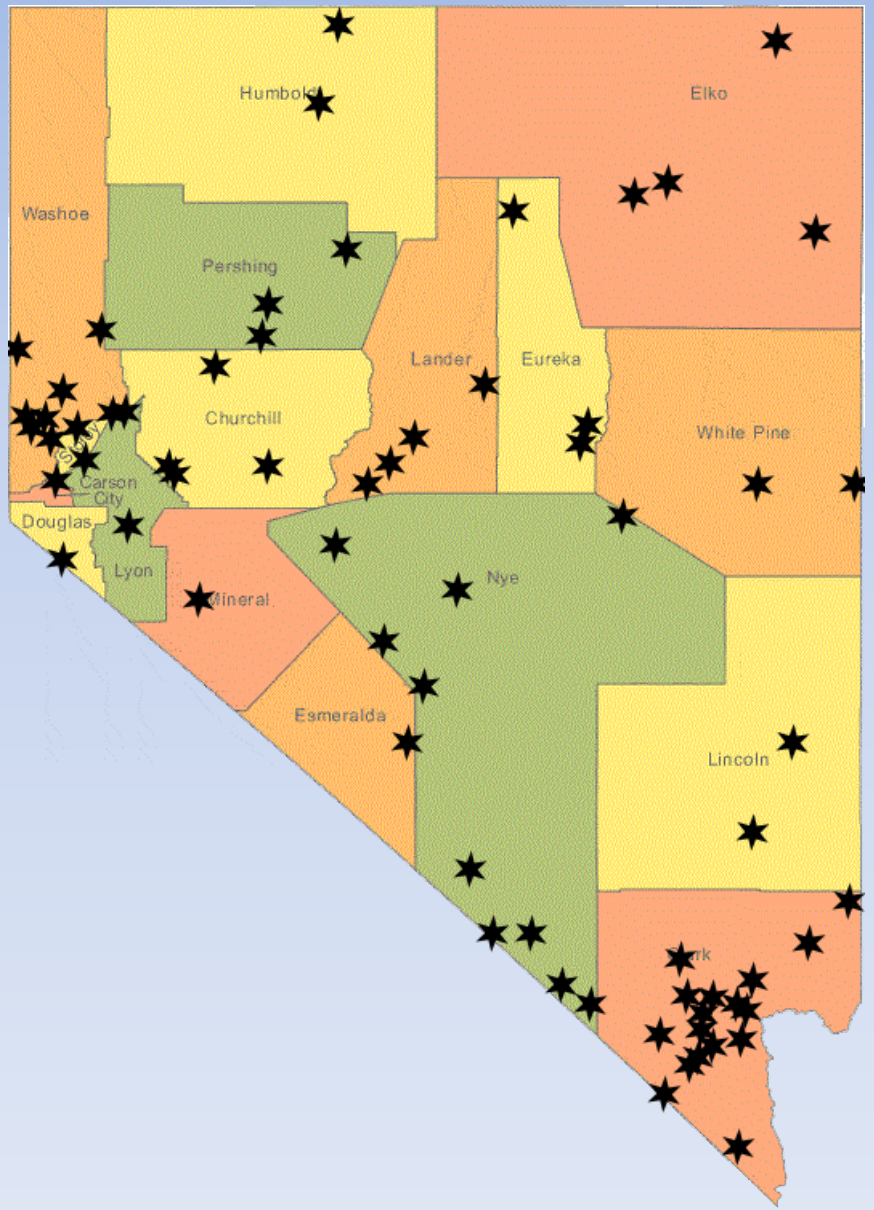
NEVADA DIVISION OF MINERALS

Nevada Aggregate

Nevada Aggregate Production and Value



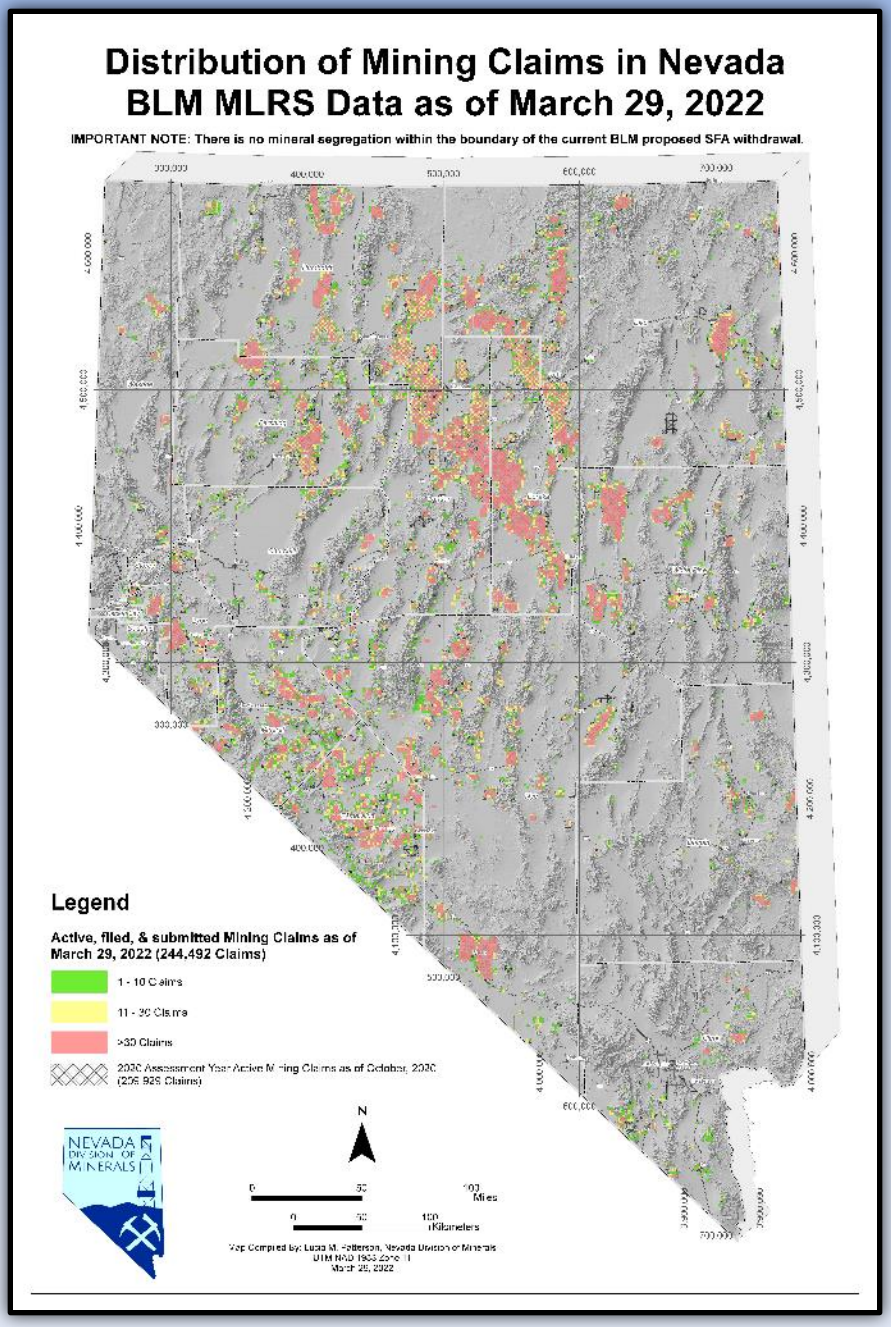
Nevada Aggregates



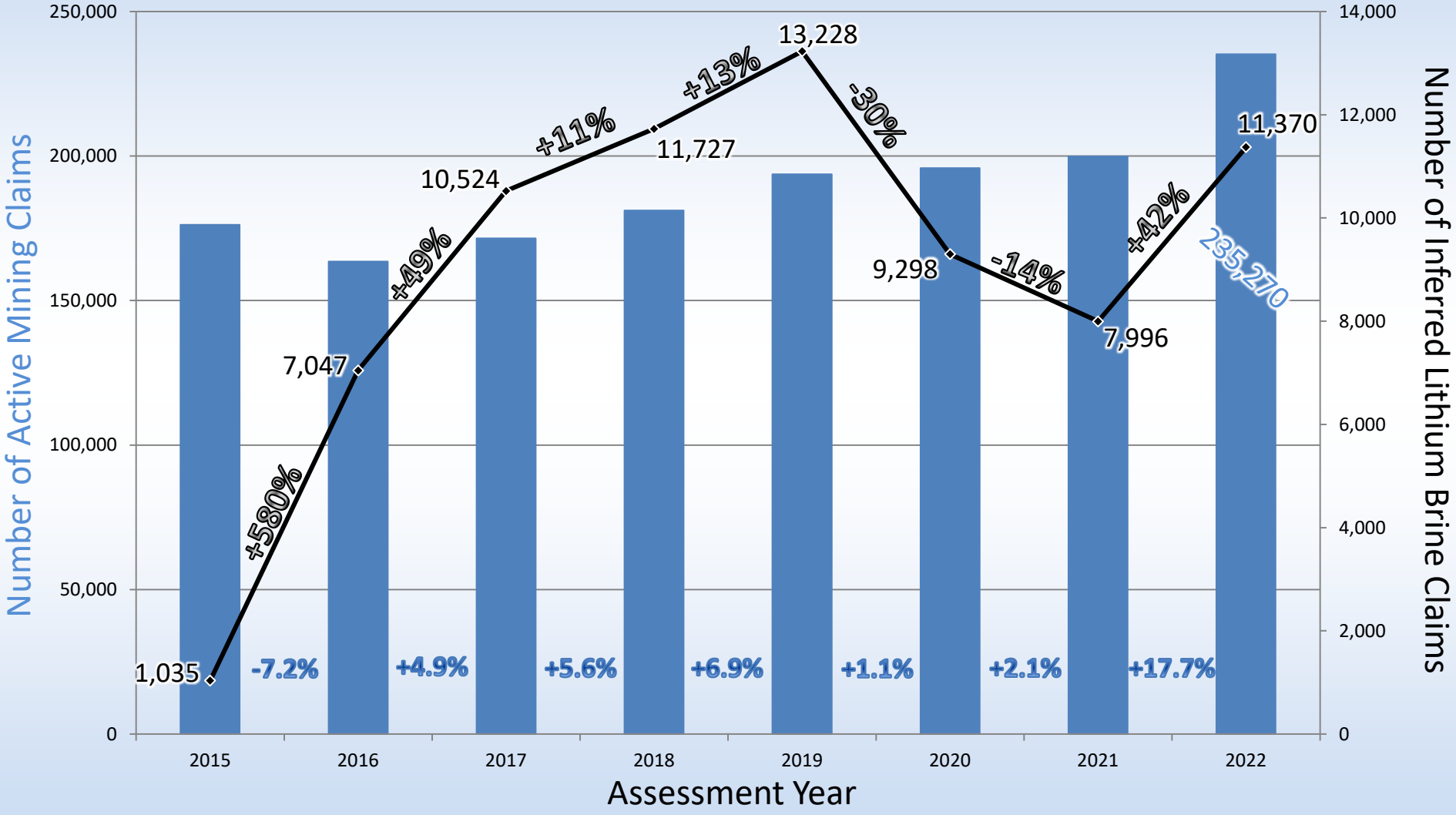
- 4th highest valued commodity in NV
- Includes:
  - Crushed rock
  - Sand and gravel
- Used primarily for construction but also for landscaping material and products
- 100s of former and current borrow pits
  - NDOT and county road maintenance
- BLM Mineral Materials sales of $10M in FY20
- Unlike most commodities, cost is determined largely by distance needed to transport
- Creates NIMBY challenges in urban areas

NEVADA MINING CLAIMS

- 244,492 Active Mining Claims in Nevada as of 3/29/2022
- Increase of 11% from April 2021
- >50% of all US mining claims
- Claims are ~20 acres in size
- Annual maintenance payments of $165/claim to BLM and $12/claim to county recorder
  - ~$39M to BLM (2021 AY)
  - ~$2.8M to Nevada counties
- The trend in claims is an indicator for exploration interest and price of gold
- >$643M spent on exploration in NV in 2019 and 2020
- Nevada named as #1 mining jurisdiction in the world (Fraser Institute, 2021)



Unpatented Mining Claims By Year



NDOM has been gathering active claim data from LR2000/MLRS at the end of October for the last eight years. The purpose of this graph is to show claims data and statistics from the same snapshot in time.

The Demand for Lithium

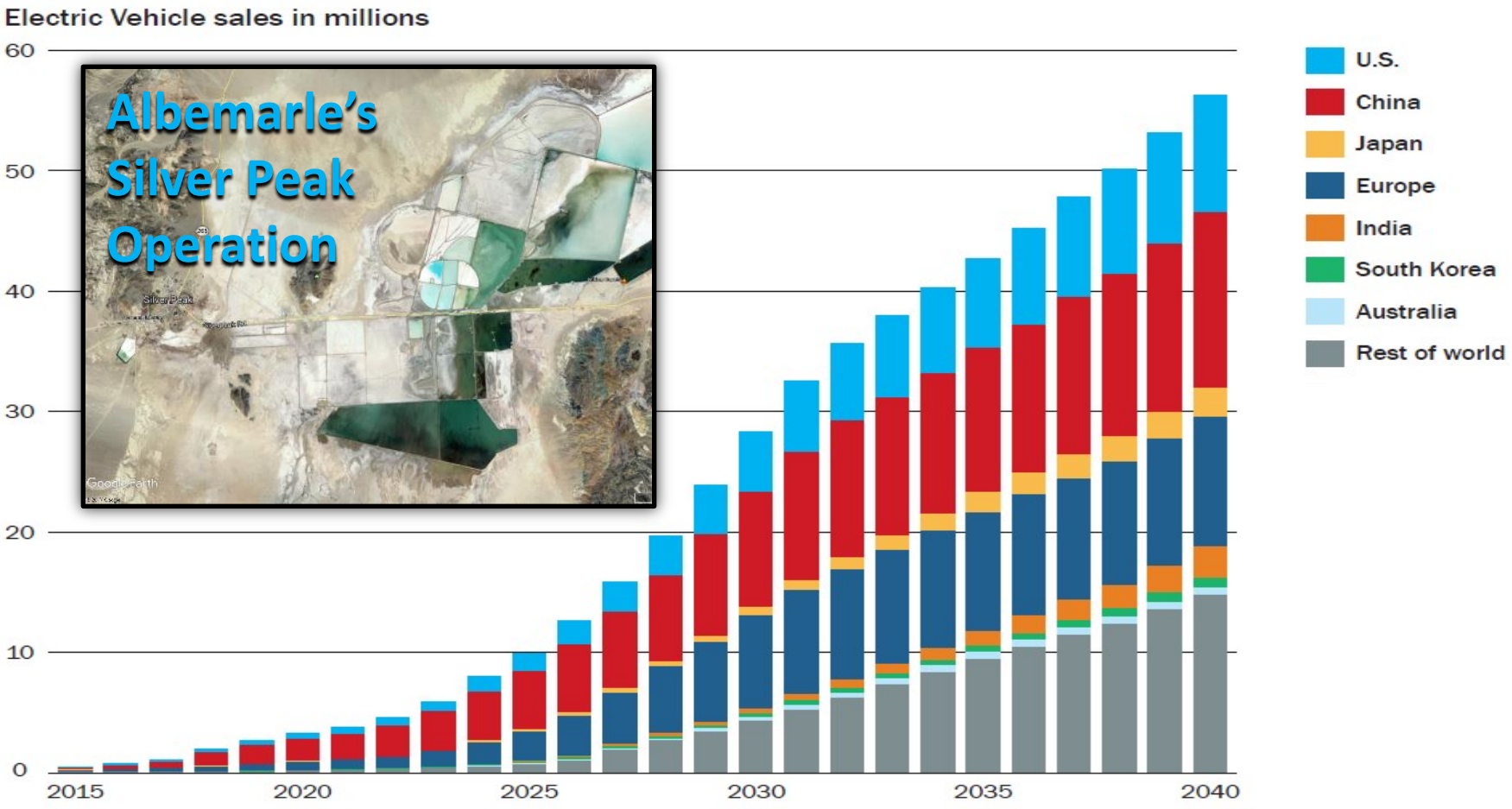


FIGURE 1. Annual Sales of Passenger EVs (Battery Electric Vehicles (BEVs) and Plug-in Hybrid Electric Vehicles (PHEVs)).
Source: BloombergNEF Long-Term Electric Vehicle Outlook 2019.[16]

- The Tesla/Panasonic battery factory alone needs 5X the amount of lithium mined annually in Nevada.

Lithium in Brine vs. Lithium in Clay/Rock

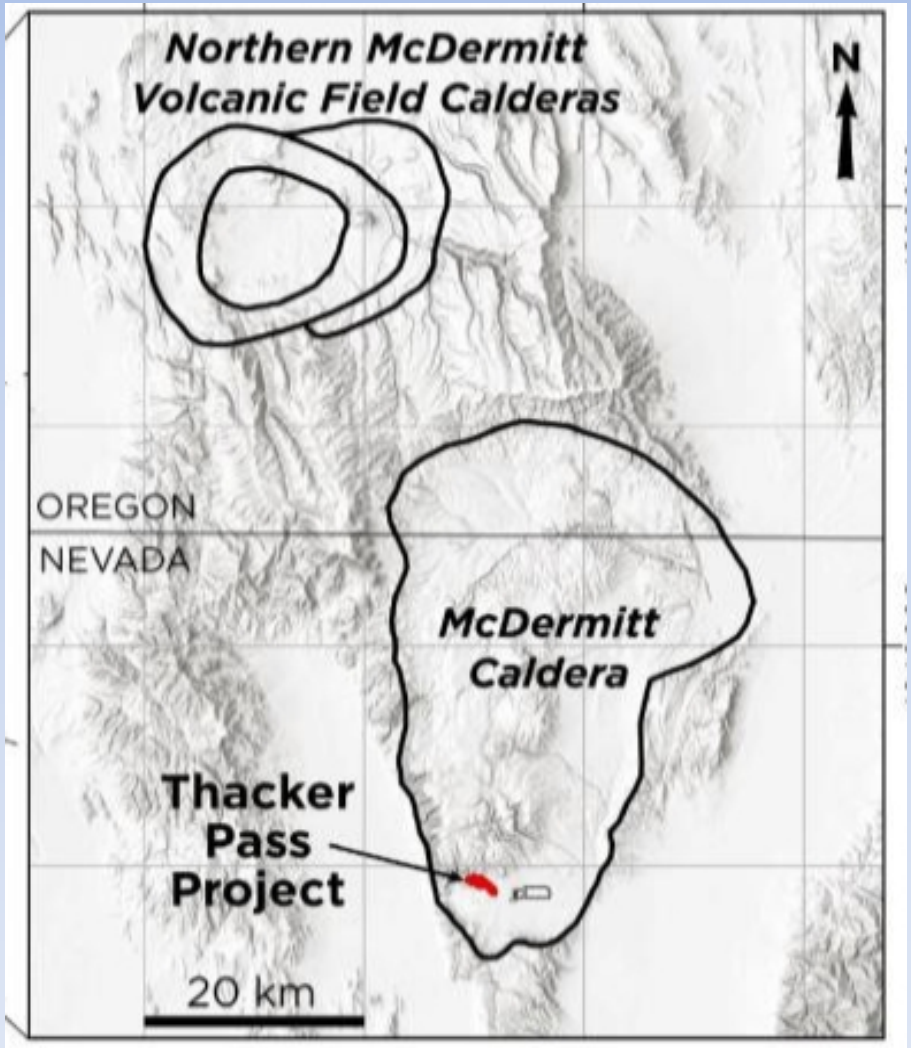
Lithium Brine

- Albemarle's Silver Peak mine is the only active lithium mine in US, operating since 1966.
- Solar evaporation in ponds over 18-24 months increases concentration of lithium chloride prior to processing into lithium carbonate.
- Cheaper processing costs but lower recovery %s.
- Requires placer mining claims and significant water rights
- Newer technologies may not require same timeframe or consumptive water use
- 17 other playa basins in Nevada being explored (>21 projects)

Lithium in Clay/Hard Rock

- No current mines, but 3 projects are in various stages of permitting:
  - Thacker Pass, Humboldt Cty
  - Rhyolite Ridge, Esmeralda Cty
  - TLC Project, Nye Cty
- Resources typically very large with long mine-life
- Processing is more expensive but yields higher recovery %s
- Requires location of lode mining claims
- Much less water consumption but high sulfuric acid consumption
- At least five additional exploration projects in Nevada

Lithium Americas – Thacker Pass Project



- Reserves – 3.1M tonnes LCE at 2,358 ppm Li
- Strip ratio – 1.6:1
- Mine life – 46 years
- Processing time - <24 hours
- Lithium recovery – 83%
- Pilot plant operational in Reno
- BLM issued Record of Decision on 1/15/2021
- ROD appeal expected to be complete by Q3/2022
- NDEP permits issued 2/25/2022, appealed by GBRW, to be heard by SEC end of June

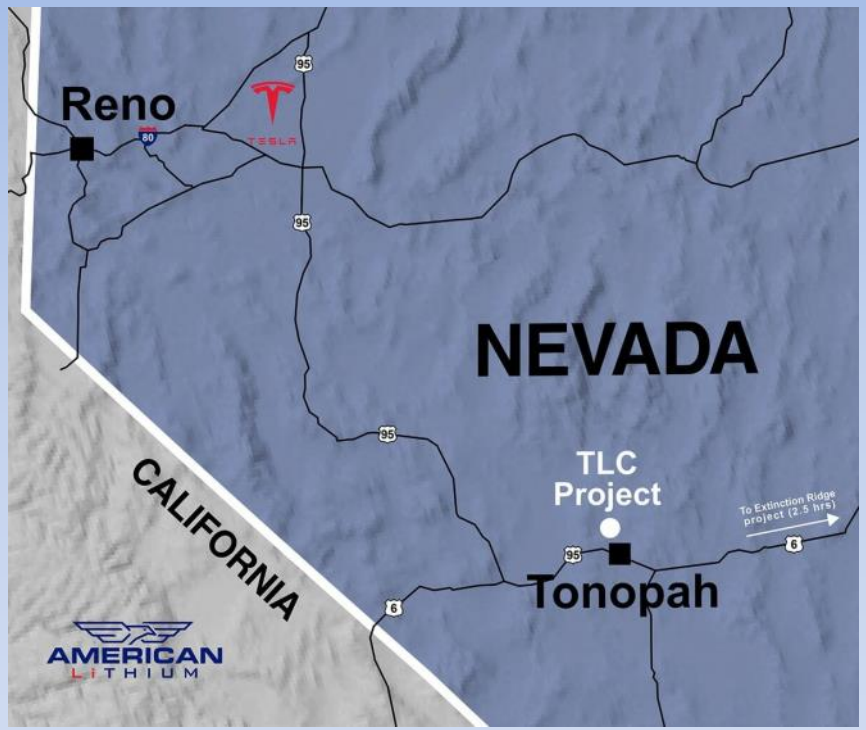
ioneer's Rhyolite Ridge Project

Project overview

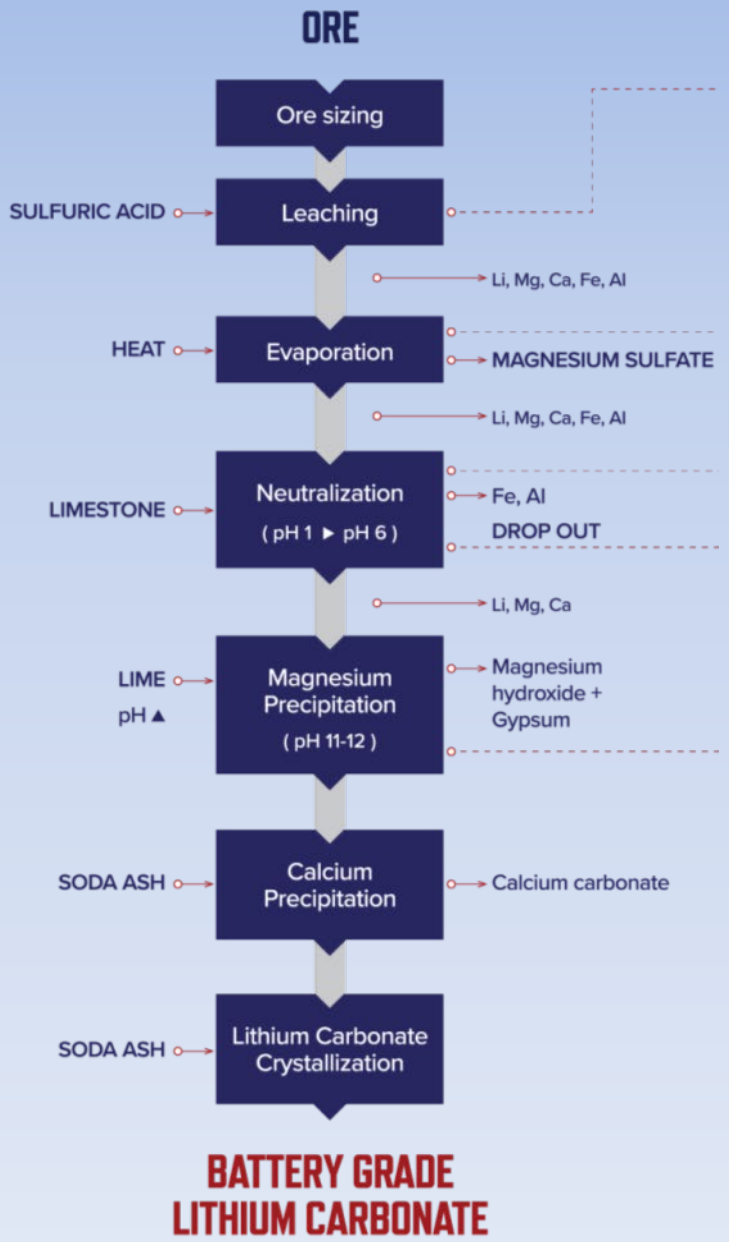
A searlesite resource that is different to other sedimentary lithium deposits - it is suitable for a simple acid leach process

- Total Resource[1] of 4.1 million tonnes lithium carbonate & 10.9 million tonnes boric acid
- Including 121 million tonnes of lithium-boron ore containing:
  - 1.1 million tonnes lithium carbonate
  - 8.6 million tonnes boric acid
- Lithium only clay mineralisation to be stockpiled

American Lithium – TLC Project



- Measured and indicated resource of 5.4 Mt lithium carbonate equivalent
- Lithium ore at the surface
- Preliminary metallurgical tests indicate >90% recovery in <10 minutes using sulfuric acid leach
- Large drilling program permitted and economic analysis is underway



Critical Minerals

A "critical mineral," as defined by the E.O. 13817, is a mineral:

1. identified to be a nonfuel mineral or mineral material essential to the economic and national security of the United States
2. from a supply chain that is vulnerable to disruption
3. that serves an essential function in the manufacturing of a product, the absence of which would have substantial consequences for the U.S. economy or national security.

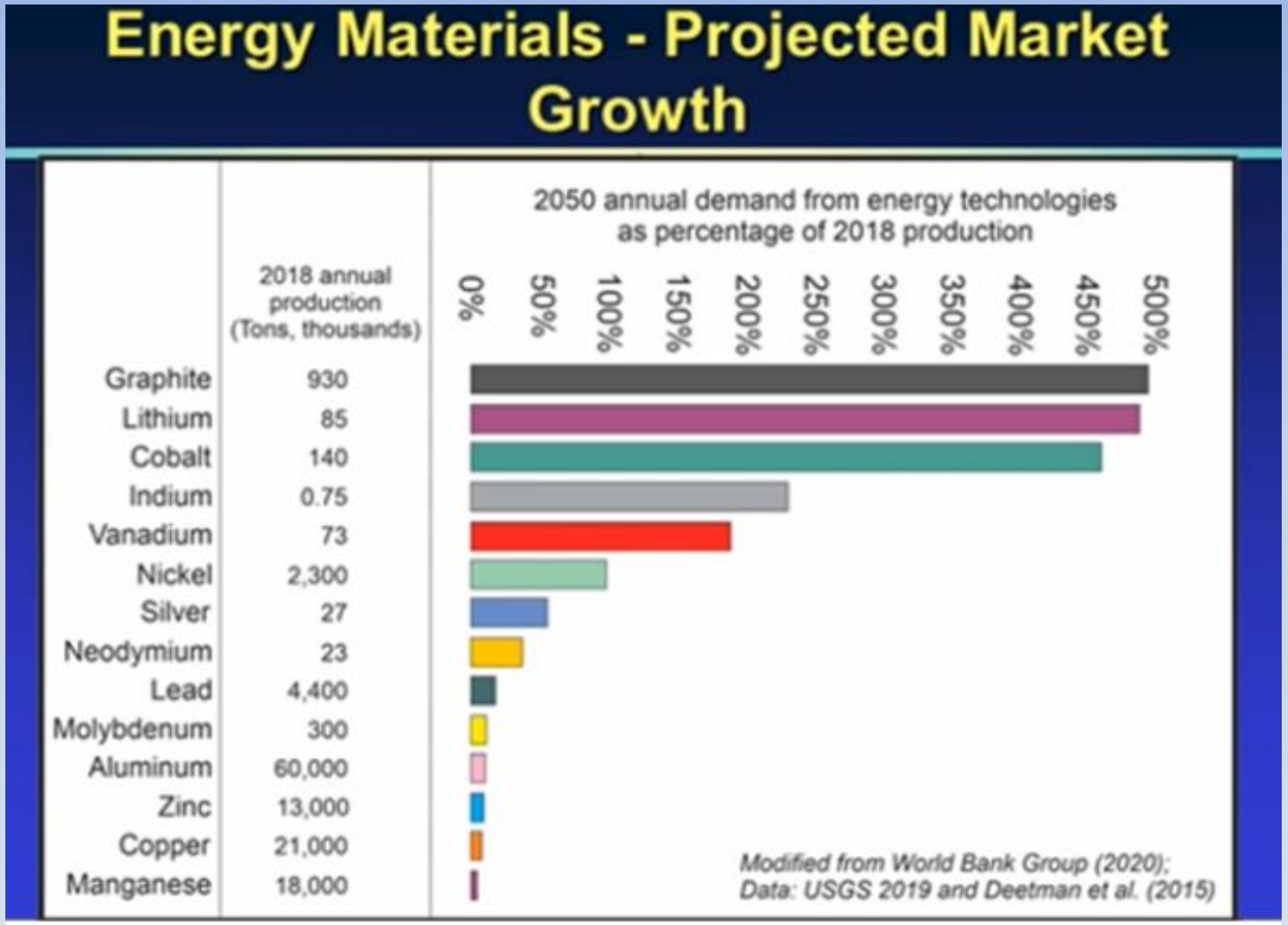
- **In May of 2018, D.O.I. published a final list of 35 critical minerals**
- **The same list was published as final by USGS in Feb. 2022**
- **21 of the 35 occur in Nevada**

Aluminum	**Graphite**	Rubidium
Antimony*	Hafnium	Scandium
Arsenic*	Helium	Strontium
Barite*	Indium	Tantalum
Beryllium*	**Lithium***	**Tellurium**
Bismuth	**Magnesium***	Tin
Cesium	**Manganese***	**Titanium**
Chromium	Niobium	**Tungsten***
Cobalt	**PGM**	**Uranium***
Fluorspar*	**Potash**	**Vanadium**
Gallium	**REE**	Zirconium
Germanium	**Rhenium**	

Bold indicates known occurrences

* indicates past or present production in Nevada

Energy Materials - Projected Market Growth



Nevada is uniquely positioned to lead the US in transitioning away from fossil fuels so long as federal land is available for the environmentally responsible extraction of the commodities needed to electrify the nation.

MINERALS ESSENTIAL TO ADVANCED ENERGY TECHNOLOGY

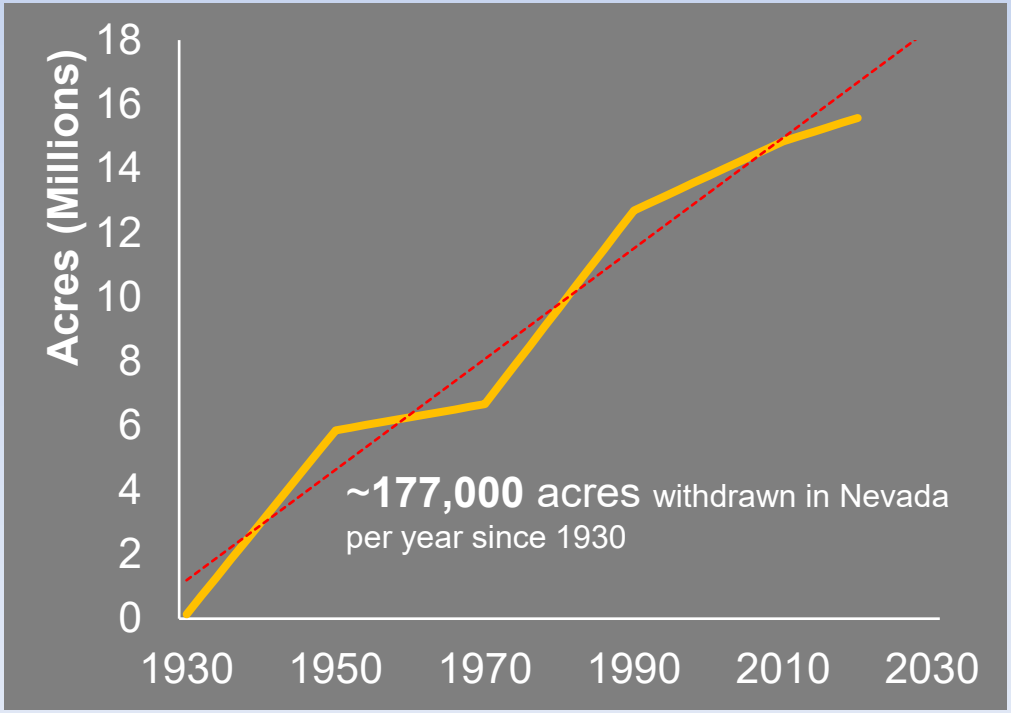
INFRASTRUCTURE
Copper, Iron Ore, Molybdenum

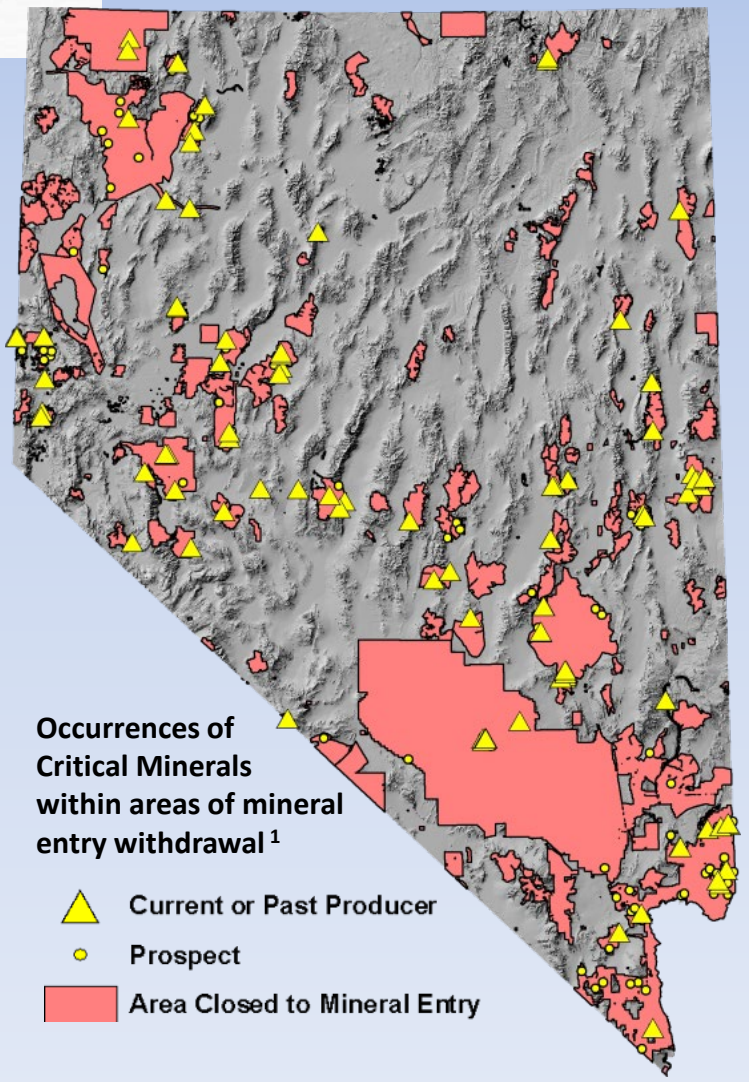
PUBLIC TRANSIT
Aluminum, Titanium, Magnesium

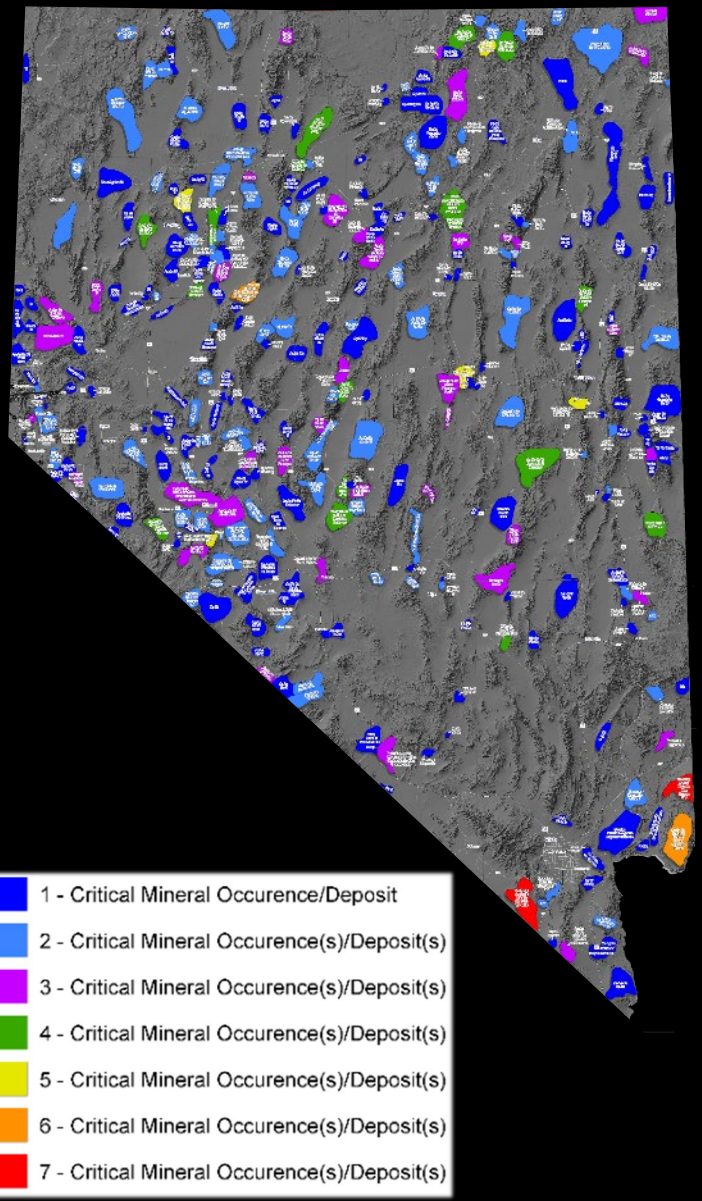
AUTOMOBILES/ ELECTRIC VEHICLES
Copper, Nickel, Lithium, Cobalt

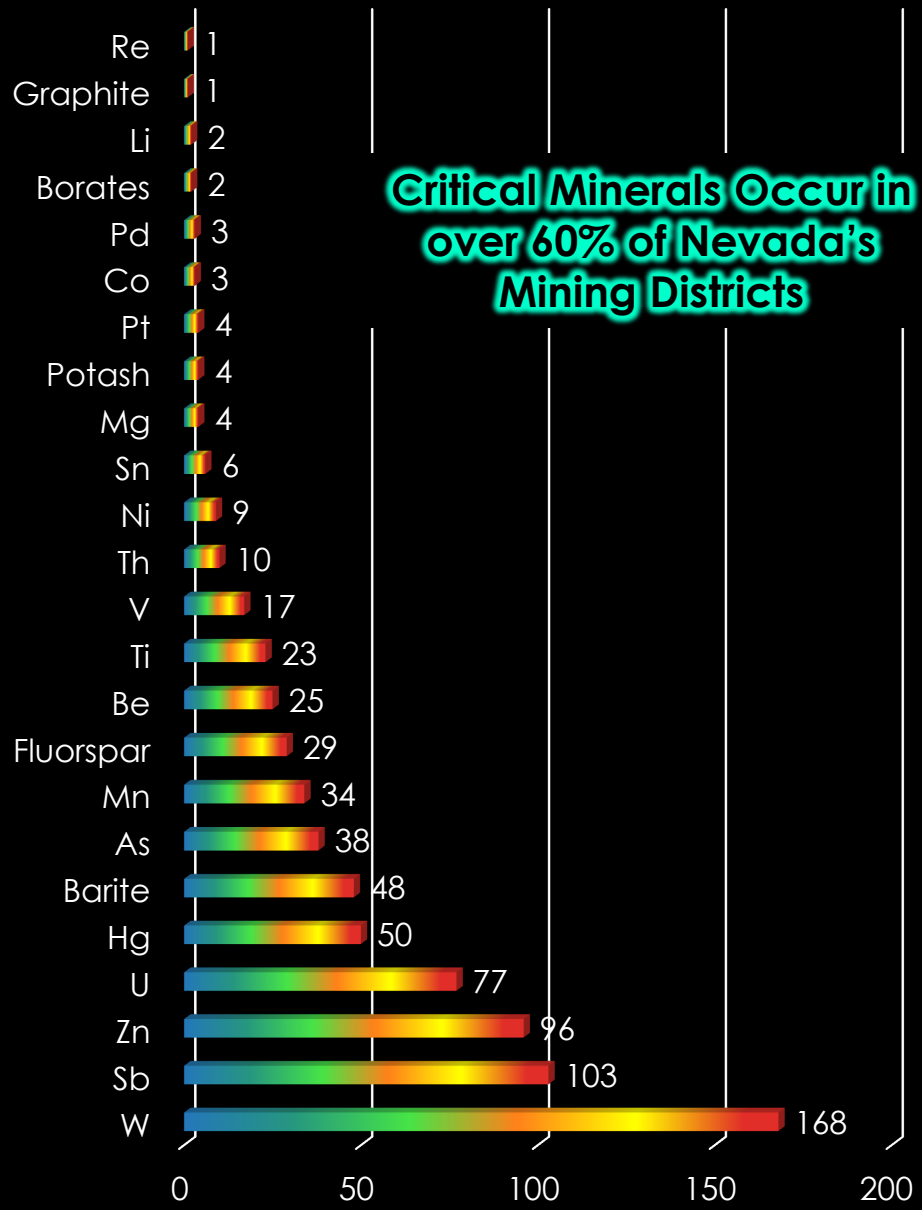
RENEWABLE ENERGY
Gold, Silver, Zinc

- **Renewed exploration in NV for cobalt, copper, graphite, lithium, REE, tungsten, vanadium, and zinc while conservation efforts continue to remove land from development.**









Critical Minerals Occur in over 60% of Nevada's Mining Districts

Antimony

Oxide, sulfide, metal

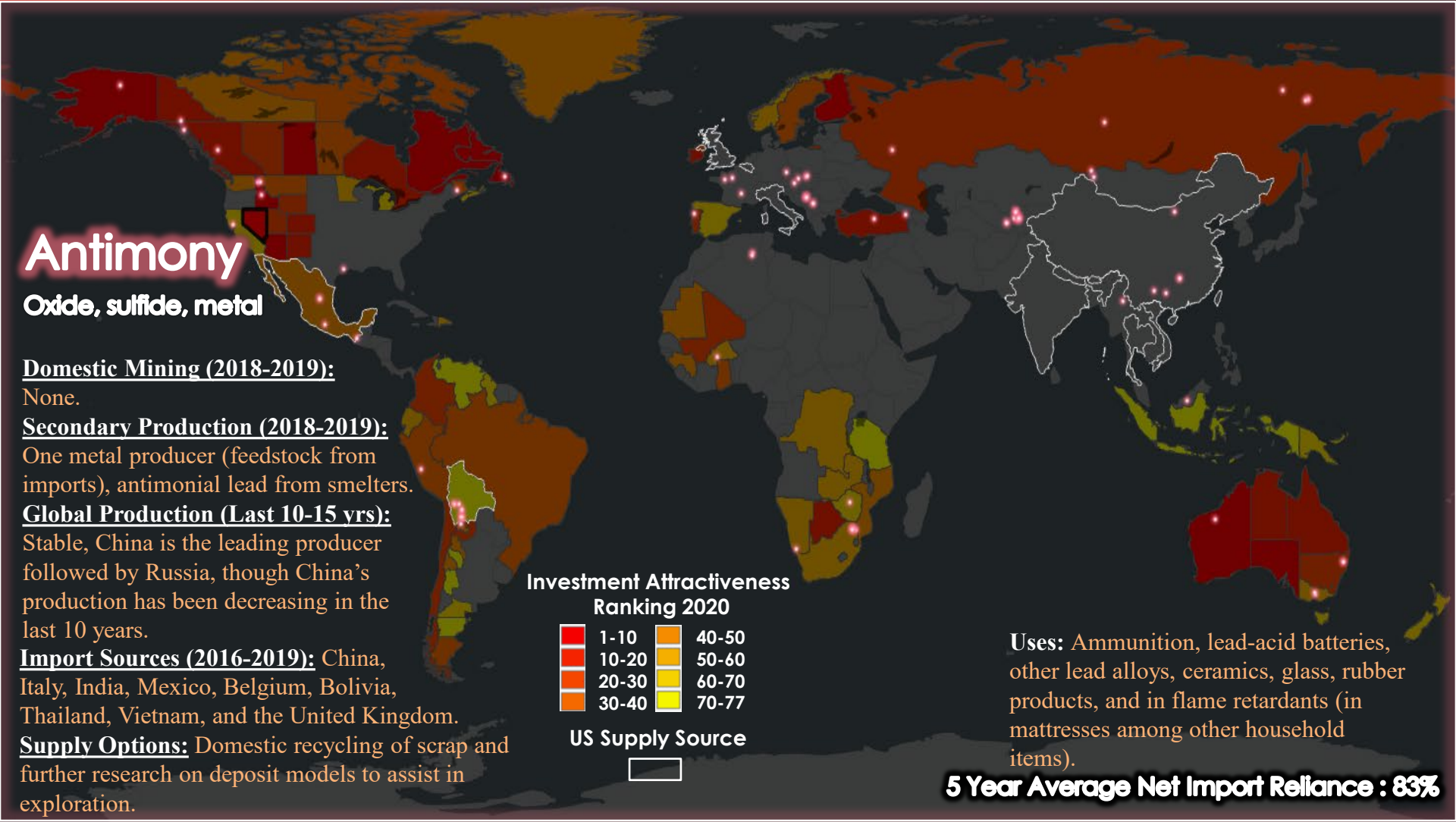
Domestic Mining (2018-2019):
None.

Secondary Production (2018-2019):
One metal producer (feedstock from imports), antimonial lead from smelters.

Global Production (Last 10-15 yrs):
Stable, China is the leading producer followed by Russia, though China's production has been decreasing in the last 10 years.

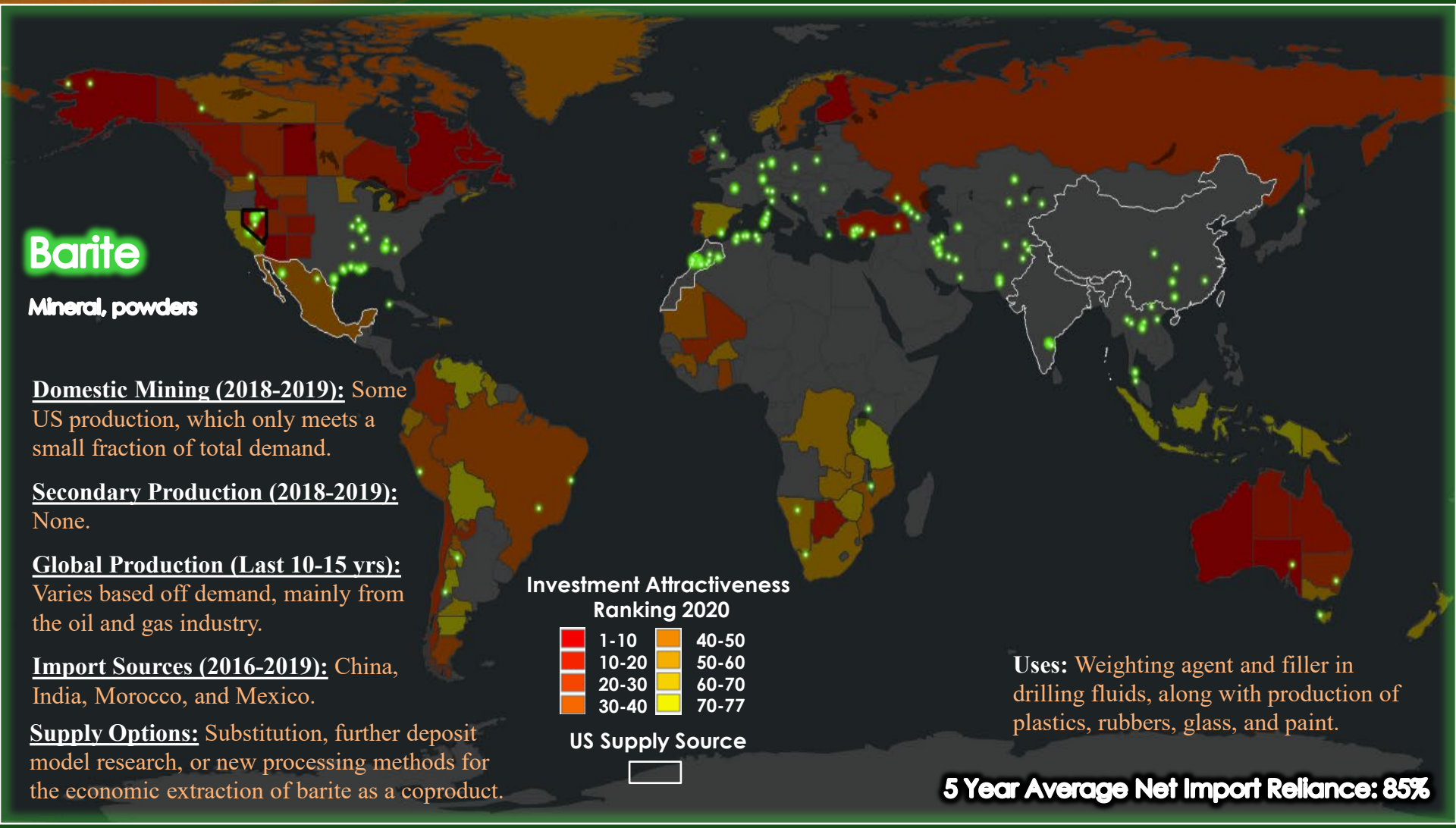
Import Sources (2016-2019): China, Italy, India, Mexico, Belgium, Bolivia, Thailand, Vietnam, and the United Kingdom.

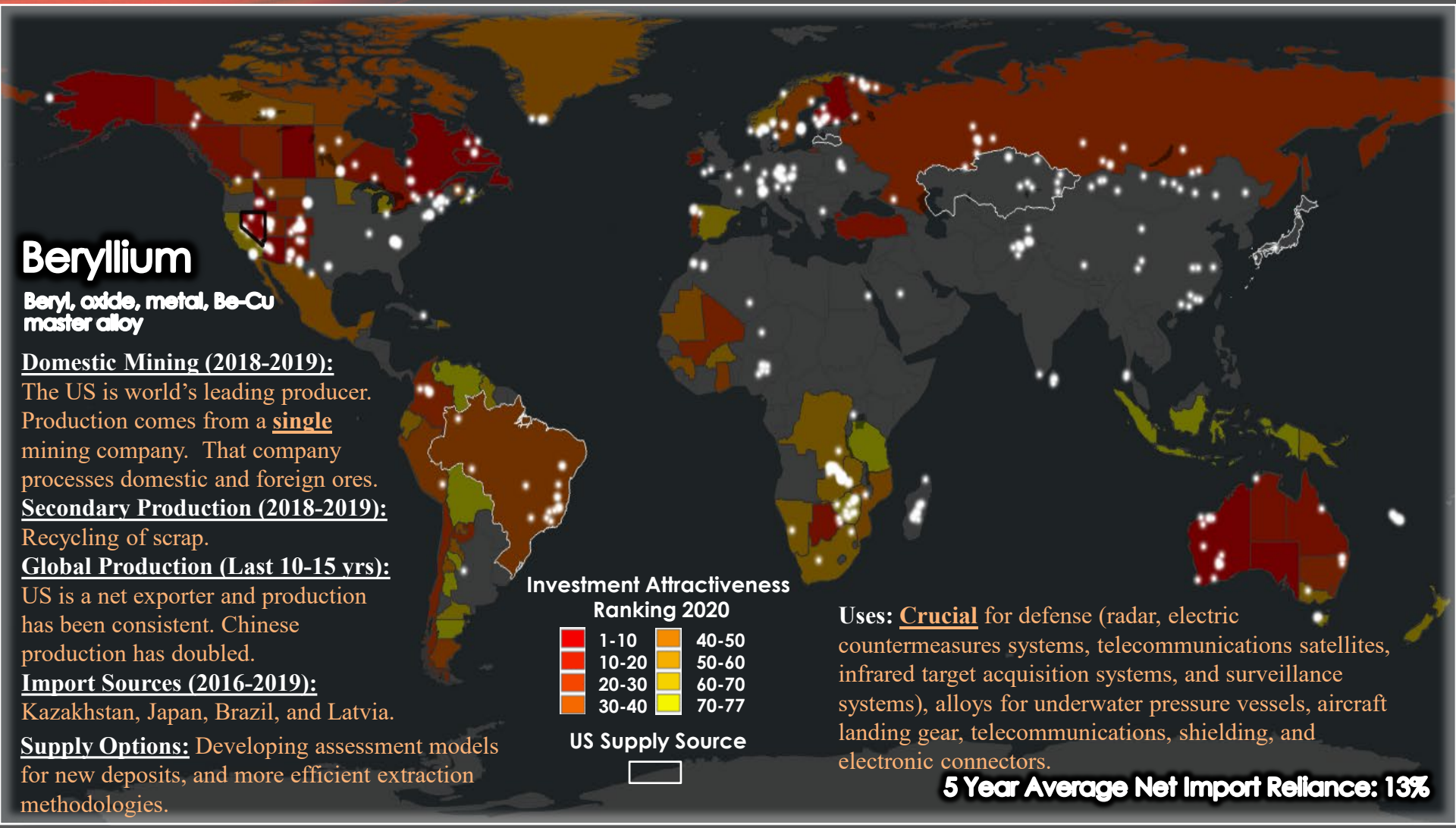
Supply Options: Domestic recycling of scrap and further research on deposit models to assist in exploration.

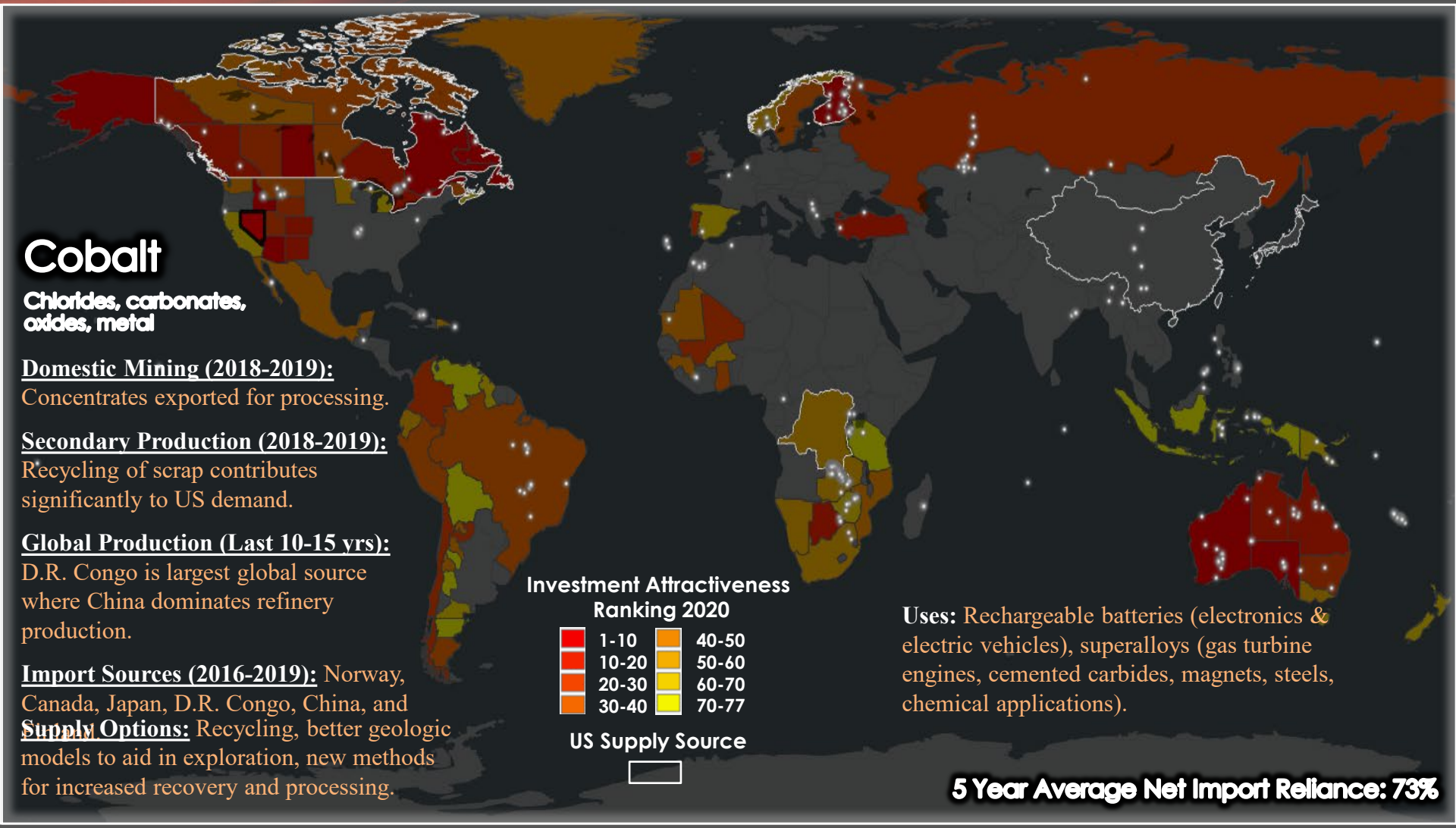


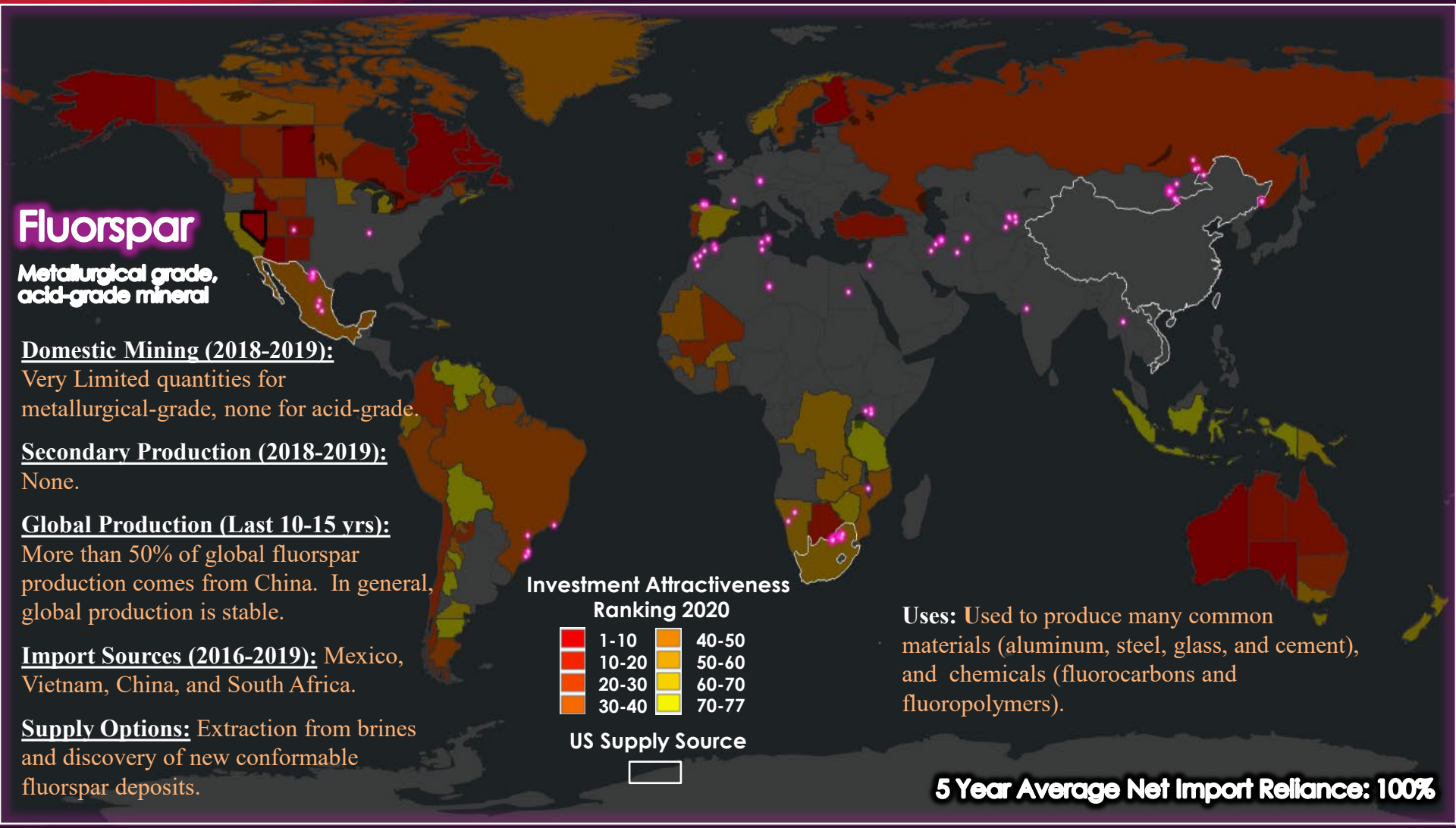
Uses: Ammunition, lead-acid batteries, other lead alloys, ceramics, glass, rubber products, and in flame retardants (in mattresses among other household items).

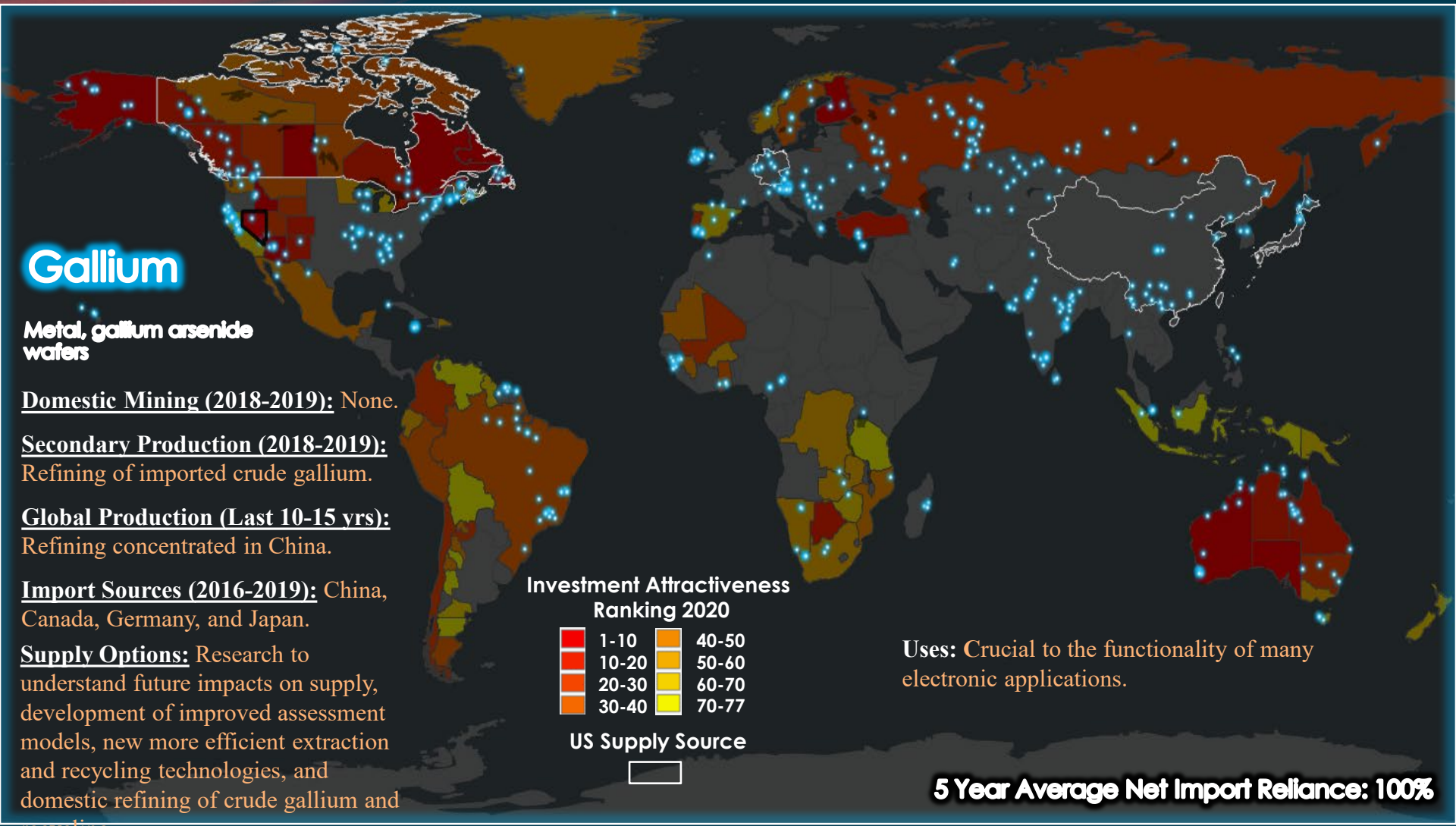
5 Year Average Net Import Reliance : 83%

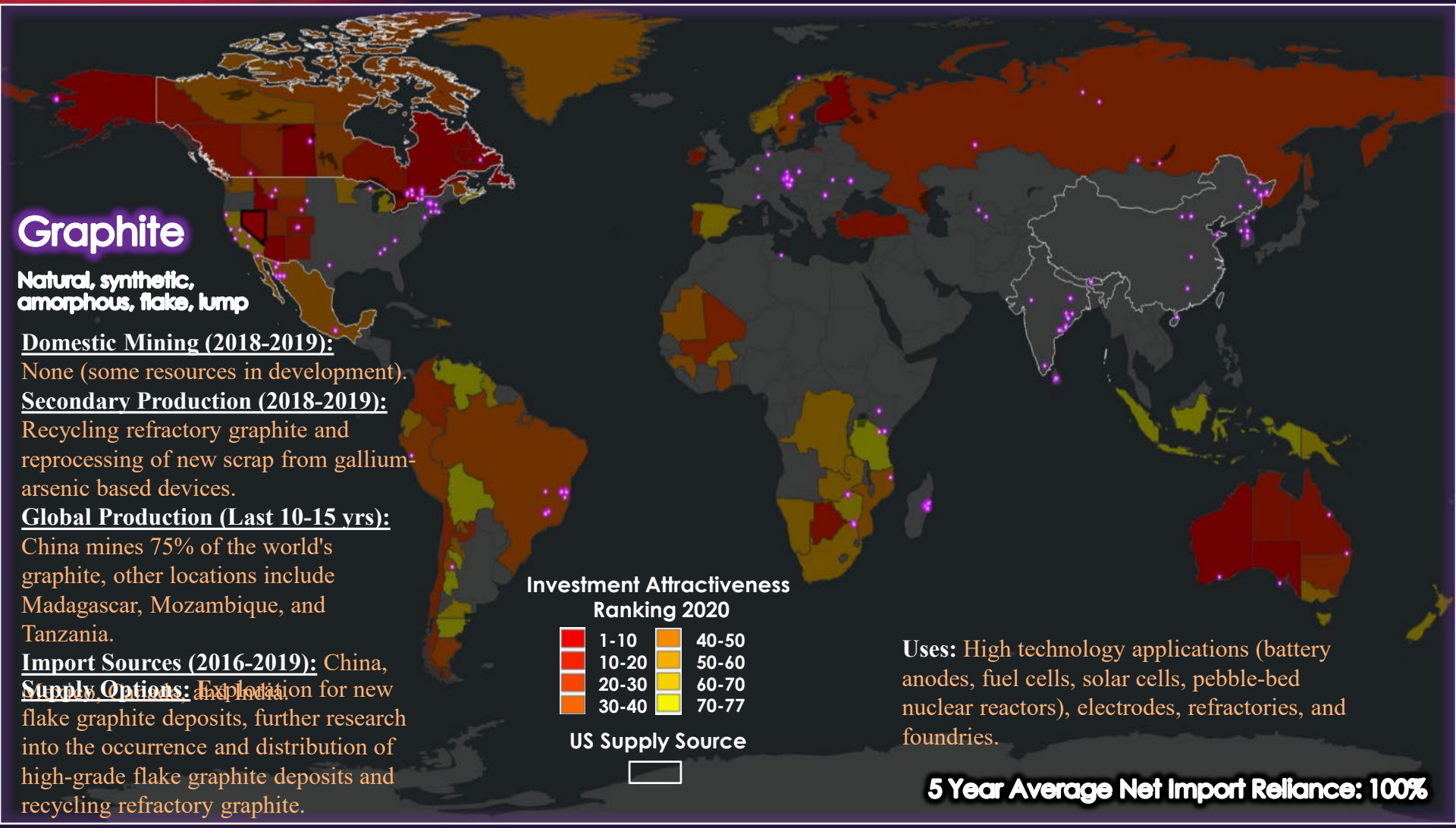

Barite
Mineral, powders
Domestic Mining (2018-2019): Some US production, which only meets a small fraction of total demand.
Secondary Production (2018-2019): None.
Global Production (Last 10-15 yrs): Varies based off demand, mainly from the oil and gas industry.
Import Sources (2016-2019): China, India, Morocco, and Mexico.
Supply Options: Substitution, further deposit model research, or new processing methods for the economic extraction of barite as a coproduct.
Investment Attractiveness Ranking 2020
1-10
10-20
20-30
30-40
40-50
50-60
60-70
70-77
US Supply Source
Uses: Weighting agent and filler in drilling fluids, along with production of plastics, rubbers, glass, and paint.
5 Year Average Net Import Reliance: 85%

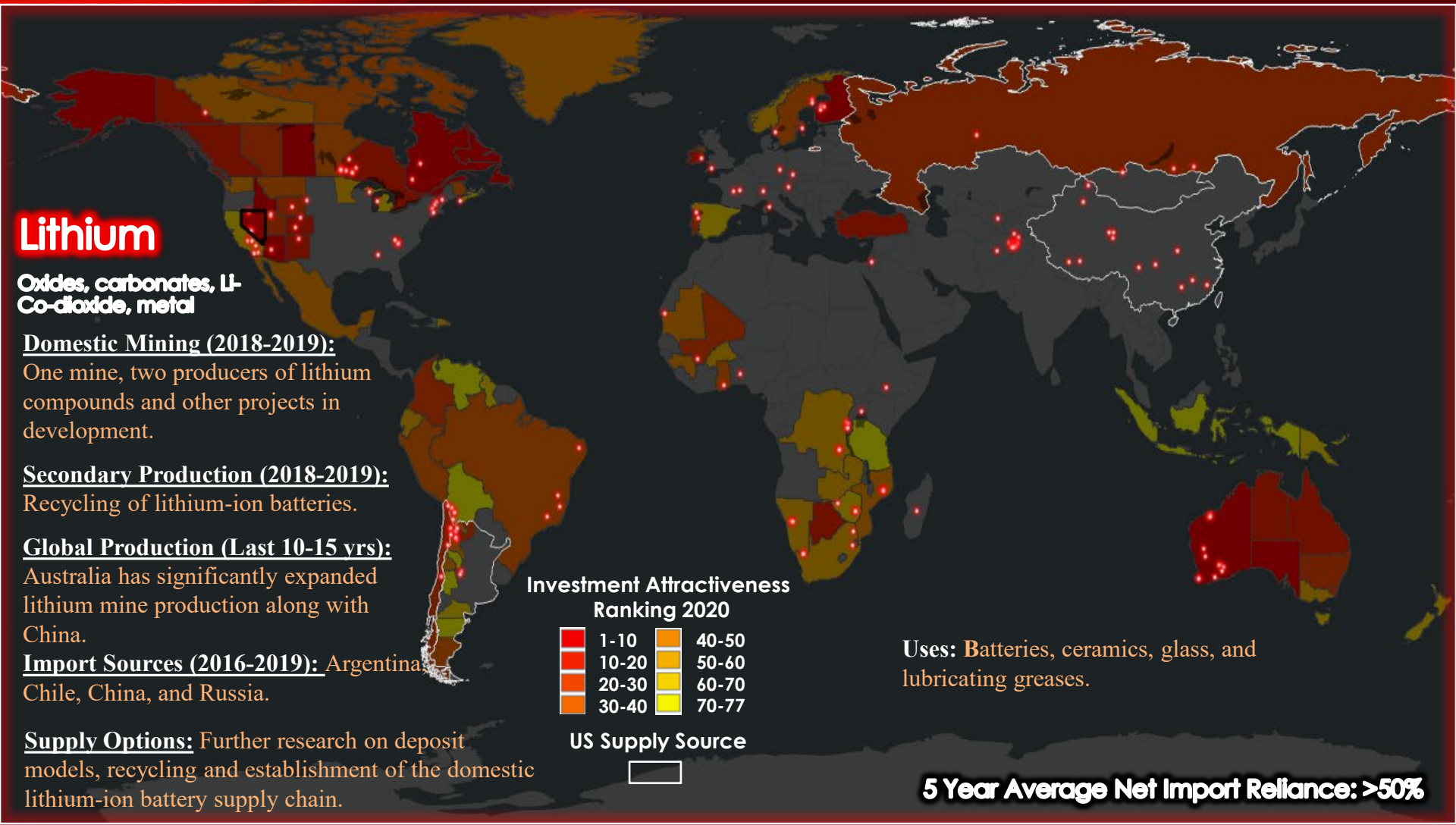

Beryllium
Beryl, oxide, metal, Be-Cu master alloy
Domestic Mining (2018-2019):
The US is world's leading producer. Production comes from a single mining company. That company processes domestic and foreign ores.
Secondary Production (2018-2019):
Recycling of scrap.
Global Production (Last 10-15 yrs):
US is a net exporter and production has been consistent. Chinese production has doubled.
Import Sources (2016-2019):
Kazakhstan, Japan, Brazil, and Latvia.
Supply Options: Developing assessment models for new deposits, and more efficient extraction methodologies.
Investment Attractiveness Ranking 2020
1-10
10-20
20-30
30-40
40-50
50-60
60-70
70-77
US Supply Source
Uses: Crucial for defense (radar, electric countermeasures systems, telecommunications satellites, infrared target acquisition systems, and surveillance systems), alloys for underwater pressure vessels, aircraft landing gear, telecommunications, shielding, and electronic connectors.
5 Year Average Net Import Reliance: 13%

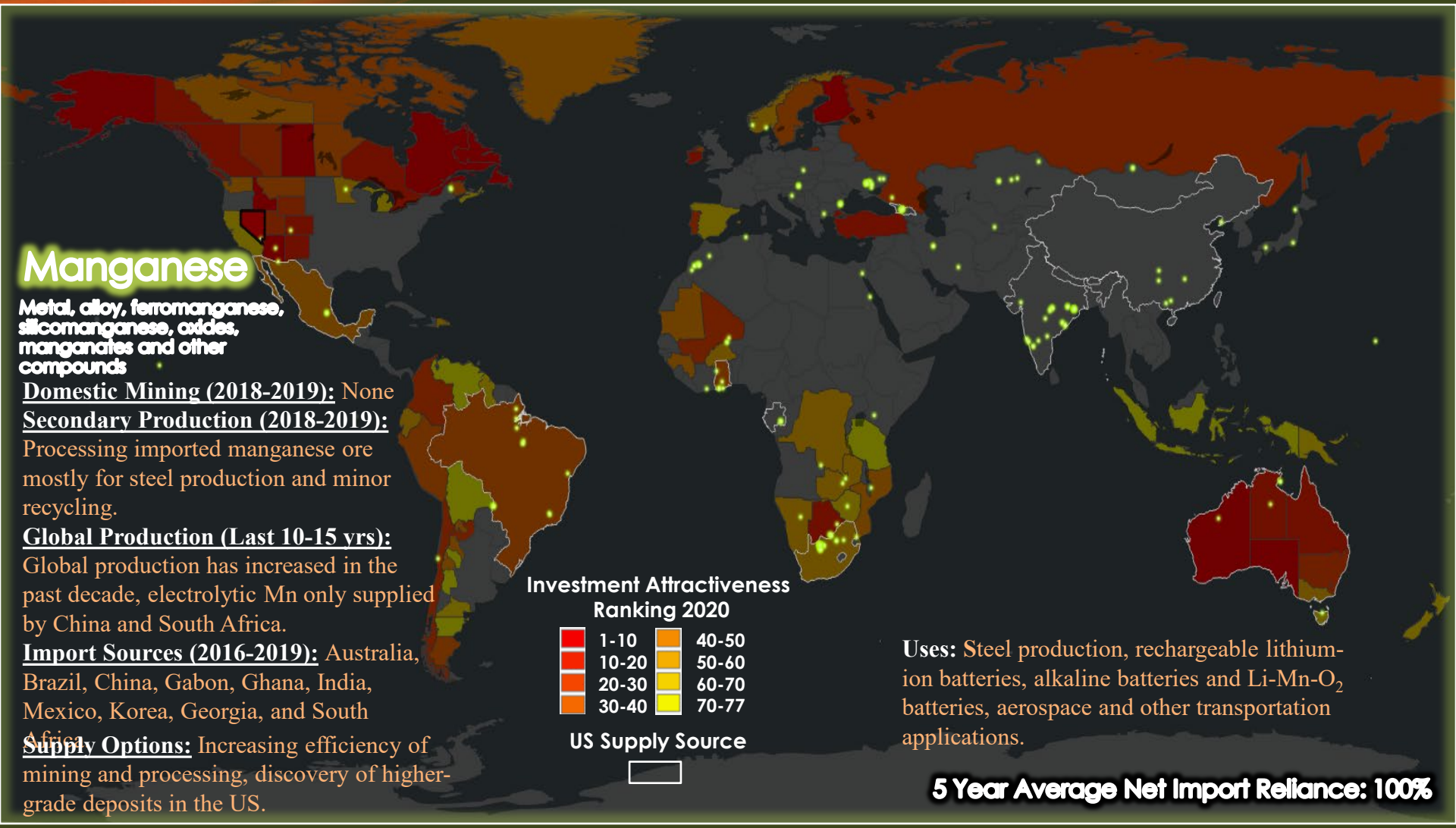

Cobalt
Chlorides, carbonates, oxides, metal
Domestic Mining (2018-2019):
Concentrates exported for processing.
Secondary Production (2018-2019):
Recycling of scrap contributes significantly to US demand.
Global Production (Last 10-15 yrs):
D.R. Congo is largest global source where China dominates refinery production.
Import Sources (2016-2019): Norway, Canada, Japan, D.R. Congo, China, and Russia.
Supply Options: Recycling, better geologic models to aid in exploration, new methods for increased recovery and processing.
Investment Attractiveness Ranking 2020
1-10
10-20
20-30
30-40
40-50
50-60
60-70
70-77
US Supply Source
Uses: Rechargeable batteries (electronics & electric vehicles), superalloys (gas turbine engines, cemented carbides, magnets, steels, chemical applications).
5 Year Average Net Import Reliance: 73%


Fluorspar
Metallurgical grade, acid-grade mineral
Domestic Mining (2018-2019):
Very Limited quantities for metallurgical-grade, none for acid-grade.
Secondary Production (2018-2019):
None.
Global Production (Last 10-15 yrs):
More than 50% of global fluorspar production comes from China. In general, global production is stable.
Import Sources (2016-2019): Mexico, Vietnam, China, and South Africa.
Supply Options: Extraction from brines and discovery of new conformable fluorspar deposits.
Investment Attractiveness Ranking 2020
1-10
10-20
20-30
30-40
40-50
50-60
60-70
70-77
US Supply Source
Uses: Used to produce many common materials (aluminum, steel, glass, and cement), and chemicals (fluorocarbons and fluoropolymers).
5 Year Average Net Import Reliance: 100%


Gallium
Metal, gallium arsenide wafers
Domestic Mining (2018-2019): None.
Secondary Production (2018-2019): Refining of imported crude gallium.
Global Production (Last 10-15 yrs): Refining concentrated in China.
Import Sources (2016-2019): China, Canada, Germany, and Japan.
Supply Options: Research to understand future impacts on supply, development of improved assessment models, new more efficient extraction and recycling technologies, and domestic refining of crude gallium and recycling.
Investment Attractiveness Ranking 2020
1-10
10-20
20-30
30-40
40-50
50-60
60-70
70-77
US Supply Source
Uses: Crucial to the functionality of many electronic applications.
5 Year Average Net Import Reliance: 100%


Graphite
Natural, synthetic, amorphous, flake, lump
Domestic Mining (2018-2019):
None (some resources in development).
Secondary Production (2018-2019):
Recycling refractory graphite and reprocessing of new scrap from gallium-arsenic based devices.
Global Production (Last 10-15 yrs):
China mines 75% of the world's graphite, other locations include Madagascar, Mozambique, and Tanzania.
Import Sources (2016-2019): China, Mexico, Canada, and India.
Supply Options: Exploration for new flake graphite deposits, further research into the occurrence and distribution of high-grade flake graphite deposits and recycling refractory graphite.
Investment Attractiveness Ranking 2020
1-10
10-20
20-30
30-40
40-50
50-60
60-70
70-77
US Supply Source
Uses: High technology applications (battery anodes, fuel cells, solar cells, pebble-bed nuclear reactors), electrodes, refractories, and foundries.
5 Year Average Net Import Reliance: 100%


Lithium
Oxides, carbonates, Li-Co-dioxide, metal
Domestic Mining (2018-2019):
One mine, two producers of lithium compounds and other projects in development.
Secondary Production (2018-2019):
Recycling of lithium-ion batteries.
Global Production (Last 10-15 yrs):
Australia has significantly expanded lithium mine production along with China.
Import Sources (2016-2019): Argentina, Chile, China, and Russia.
Supply Options: Further research on deposit models, recycling and establishment of the domestic lithium-ion battery supply chain.
Investment Attractiveness Ranking 2020
1-10
10-20
20-30
30-40
40-50
50-60
60-70
70-77
US Supply Source
Uses: Batteries, ceramics, glass, and lubricating greases.
5 Year Average Net Import Reliance: >50%


Manganese
Metal, alloy, ferromanganese, silicomanganese, oxides, manganates and other compounds
Domestic Mining (2018-2019): None
Secondary Production (2018-2019): Processing imported manganese ore mostly for steel production and minor recycling.
Global Production (Last 10-15 yrs): Global production has increased in the past decade, electrolytic Mn only supplied by China and South Africa.
Import Sources (2016-2019): Australia, Brazil, China, Gabon, Ghana, India, Mexico, Korea, Georgia, and South Africa.
Supply Options: Increasing efficiency of mining and processing, discovery of higher-grade deposits in the US.
Investment Attractiveness Ranking 2020
1-10
10-20
20-30
30-40
40-50
50-60
60-70
70-77
US Supply Source
Uses: Steel production, rechargeable lithium-ion batteries, alkaline batteries and Li-Mn-O_2 batteries, aerospace and other transportation applications.
5 Year Average Net Import Reliance: 100%

REE

SEG+, heavy REE mix, oxide metal

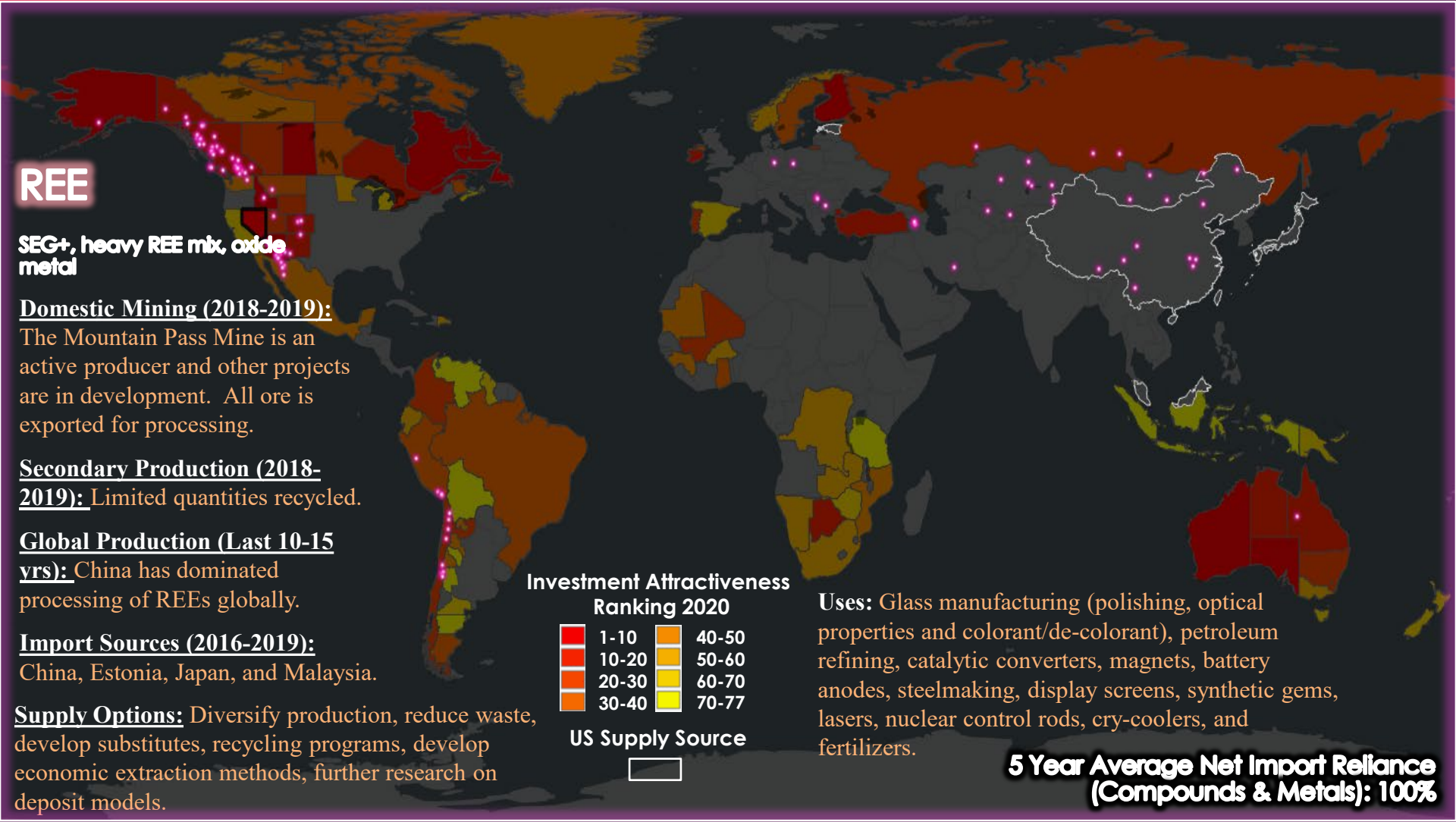
Domestic Mining (2018-2019): The Mountain Pass Mine is an active producer and other projects are in development. All ore is exported for processing.

Secondary Production (2018-2019): Limited quantities recycled.

Global Production (Last 10-15 yrs): China has dominated processing of REEs globally.

Import Sources (2016-2019): China, Estonia, Japan, and Malaysia.

Supply Options: Diversify production, reduce waste, develop substitutes, recycling programs, develop economic extraction methods, further research on deposit models.



Uses: Glass manufacturing (polishing, optical properties and colorant/de-colorant), petroleum refining, catalytic converters, magnets, battery anodes, steelmaking, display screens, synthetic gems, lasers, nuclear control rods, cry-coolers, and fertilizers.

5 Year Average Net Import Reliance (Compounds & Metals): 100%

Tellurium

Metal

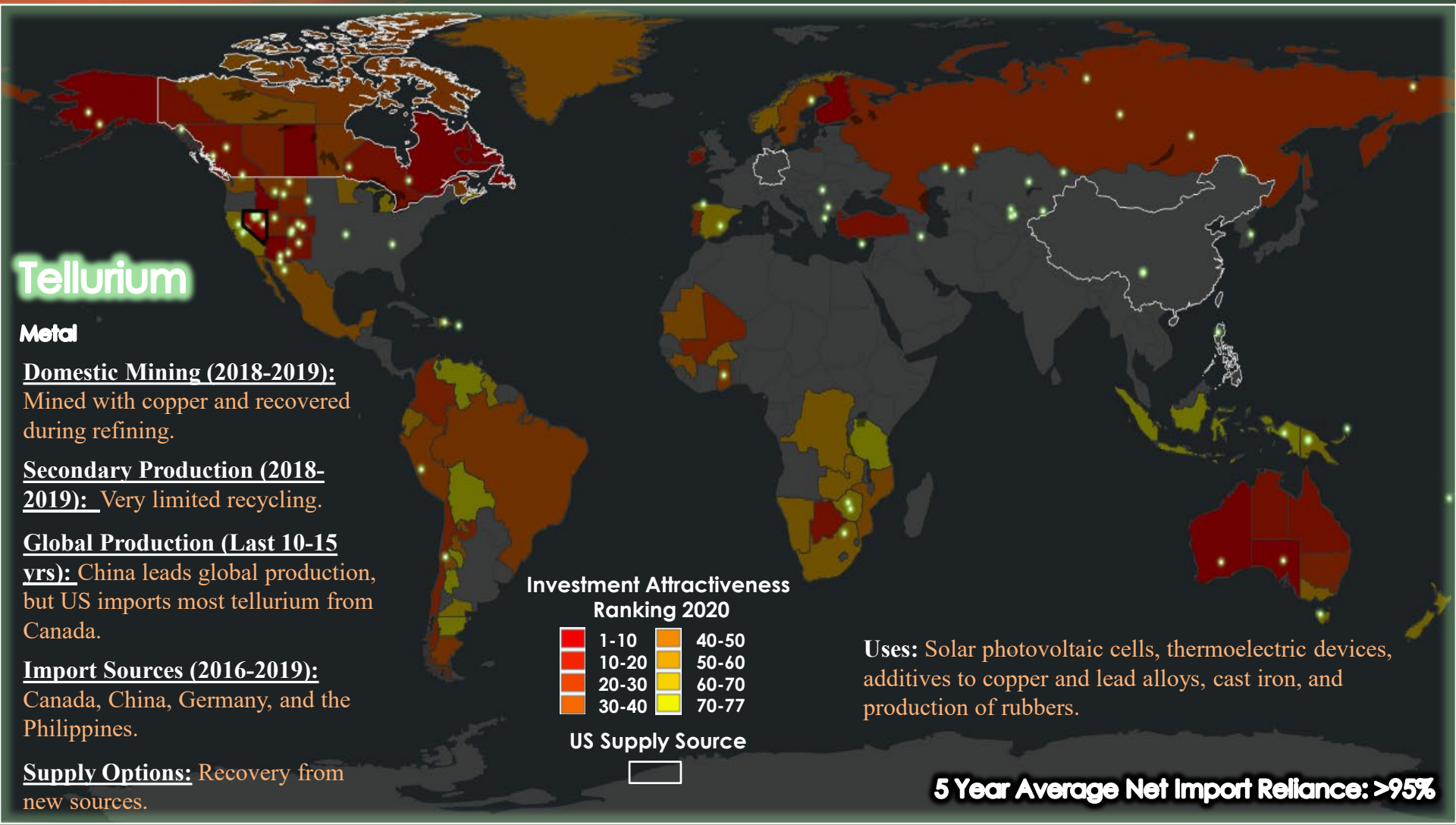
Domestic Mining (2018-2019): Mined with copper and recovered during refining.

Secondary Production (2018-2019): Very limited recycling.

Global Production (Last 10-15 yrs): China leads global production, but US imports most tellurium from Canada.

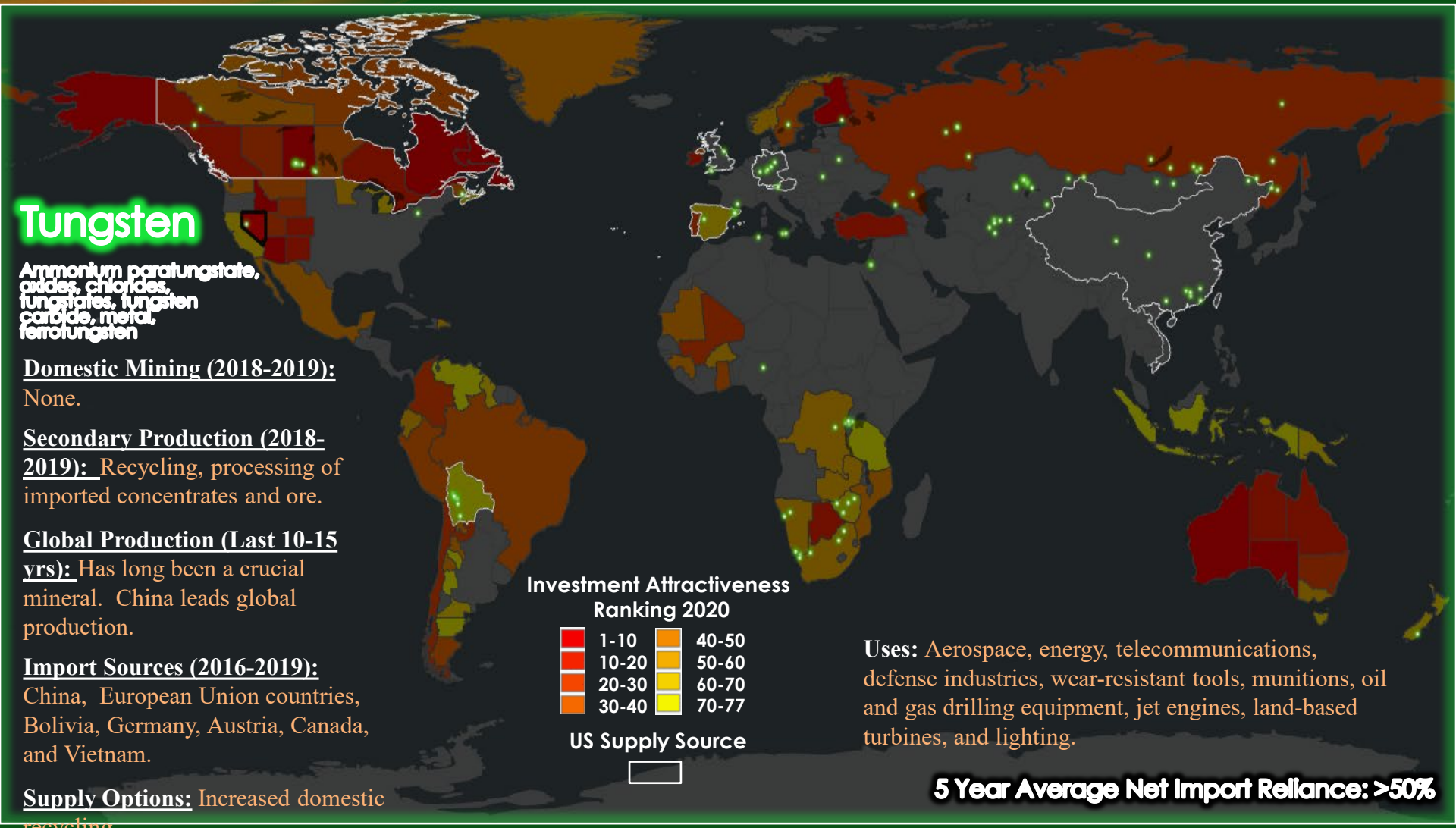
Import Sources (2016-2019): Canada, China, Germany, and the Philippines.

Supply Options: Recovery from new sources.



Uses: Solar photovoltaic cells, thermoelectric devices, additives to copper and lead alloys, cast iron, and production of rubbers.

5 Year Average Net Import Reliance: >95%



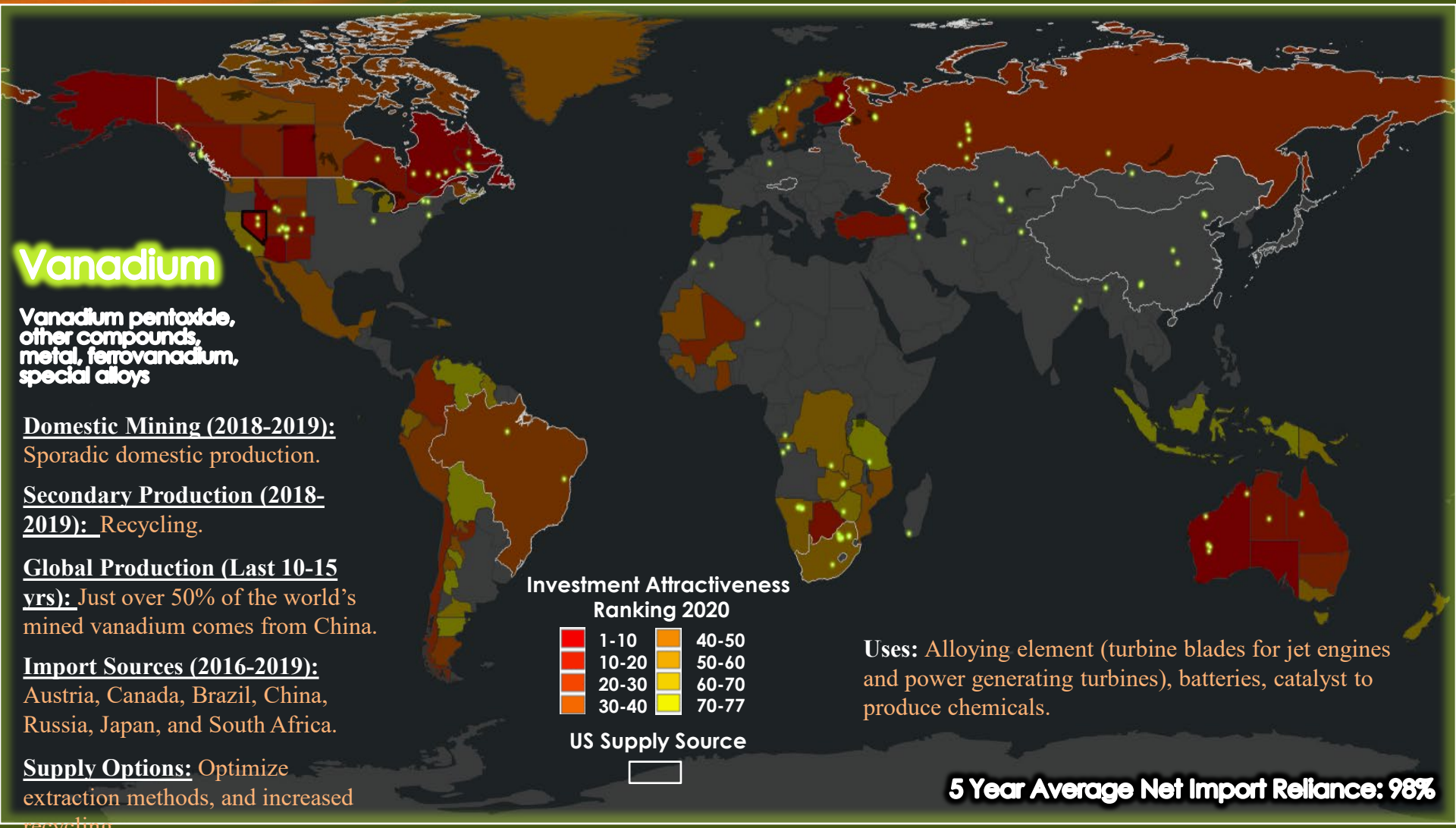
Domestic Mining (2018-2019): None.

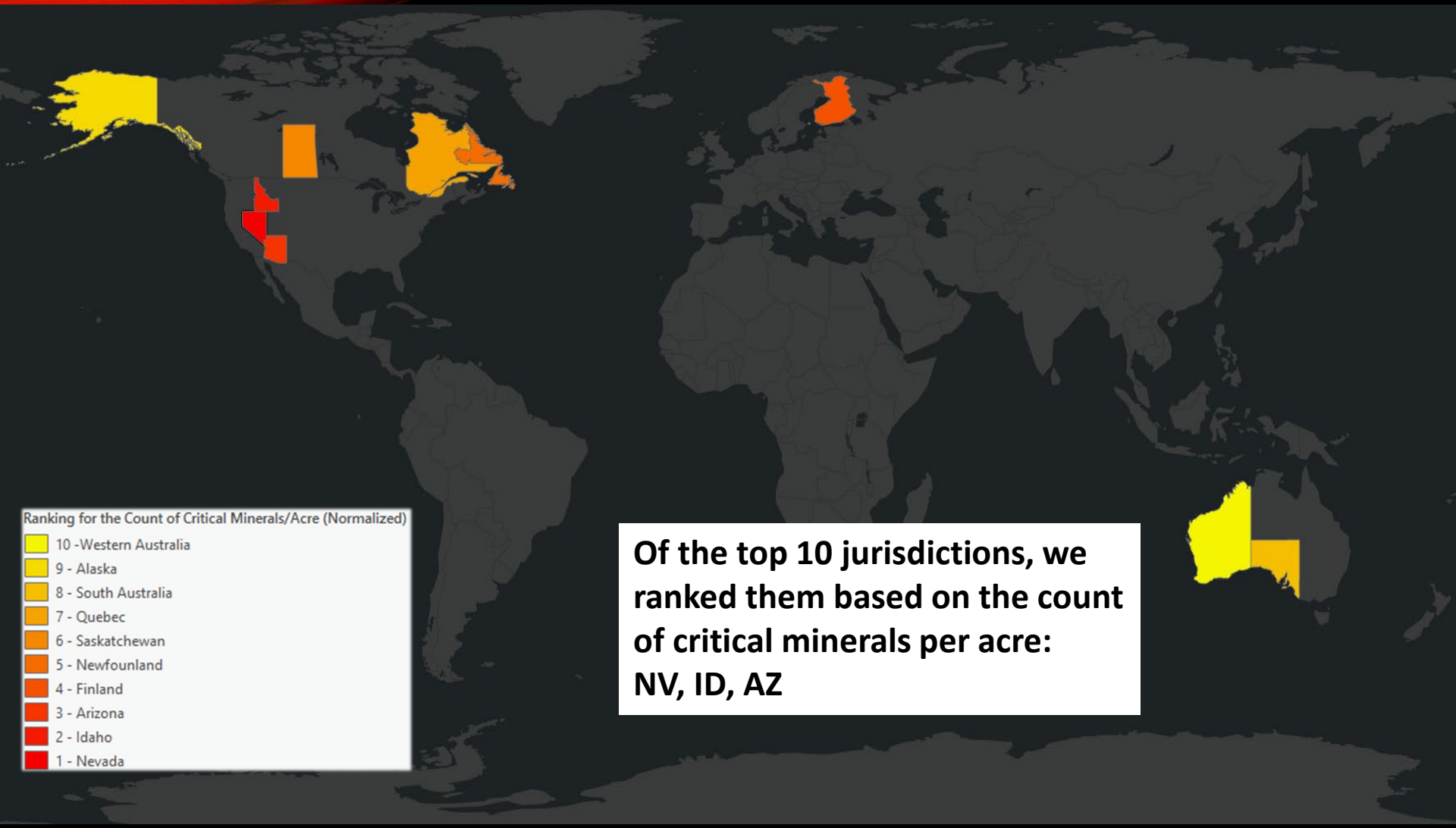
Secondary Production (2018-2019): Recycling, processing of imported concentrates and ore.

Global Production (Last 10-15 yrs): Has long been a crucial mineral. China leads global production.

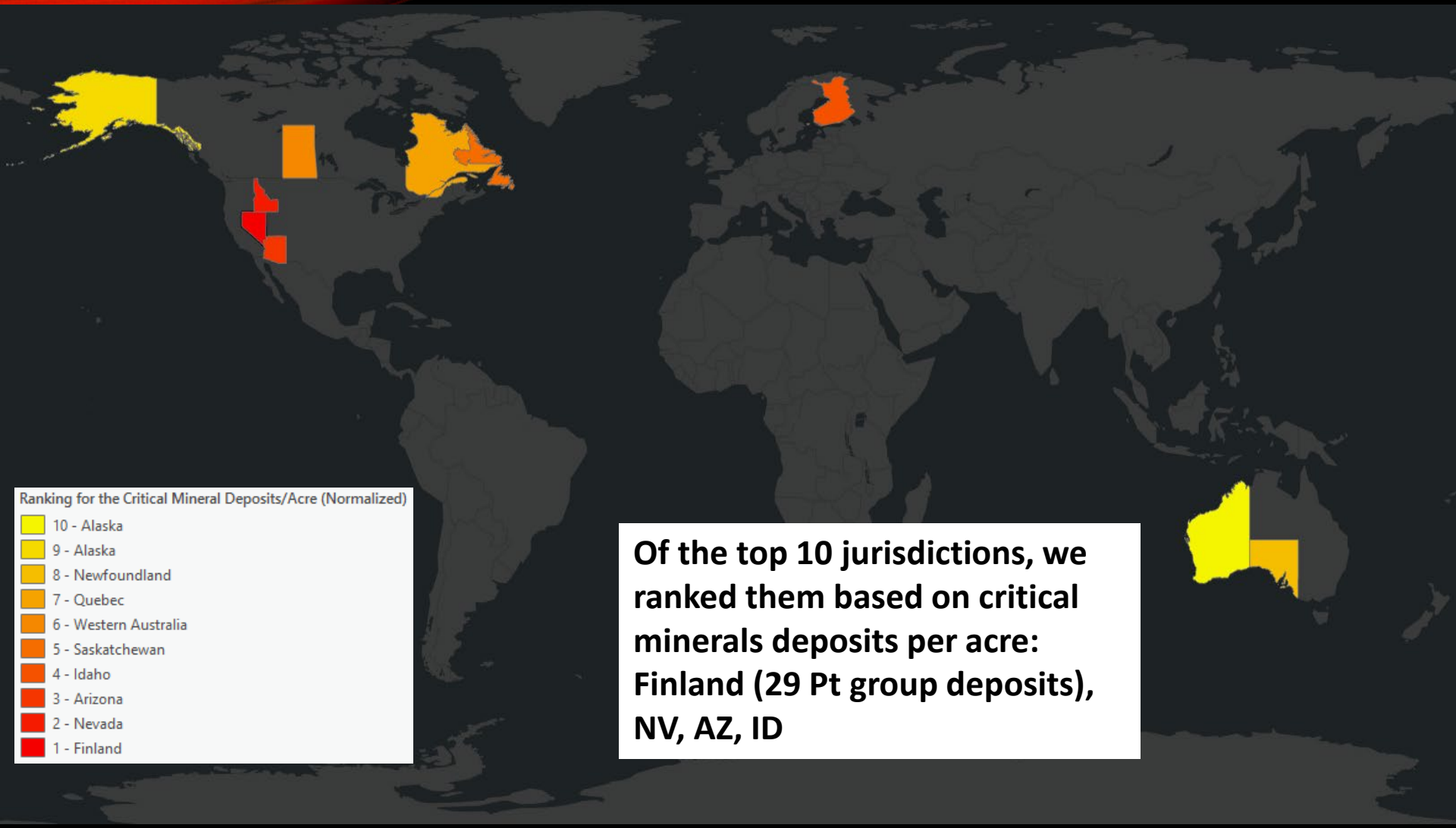
Import Sources (2016-2019): China, European Union countries, Bolivia, Germany, Austria, Canada, and Vietnam.

Supply Options: Increased domestic recycling.


Vanadium
Vanadium pentoxide, other compounds, metal, ferrovanadium, special alloys
Domestic Mining (2018-2019): Sporadic domestic production.
Secondary Production (2018-2019): Recycling.
Global Production (Last 10-15 yrs): Just over 50% of the world's mined vanadium comes from China.
Import Sources (2016-2019): Austria, Canada, Brazil, China, Russia, Japan, and South Africa.
Supply Options: Optimize extraction methods, and increased recycling.
Investment Attractiveness Ranking 2020
1-10
10-20
20-30
30-40
40-50
50-60
60-70
70-77
US Supply Source
Uses: Alloying element (turbine blades for jet engines and power generating turbines), batteries, catalyst to produce chemicals.
5 Year Average Net Import Reliance: 98%



Of the top 10 jurisdictions, we ranked them based on the count of critical minerals per acre: NV, ID, AZ



Of the top 10 jurisdictions, we ranked them based on critical minerals deposits per acre: Finland (29 Pt group deposits), NV, AZ, ID

EXPLORATION FOR CRITICAL MINERALS

As of September 27, 2021, there have been no fewer than:

323 BLM Notices

for Critical Minerals

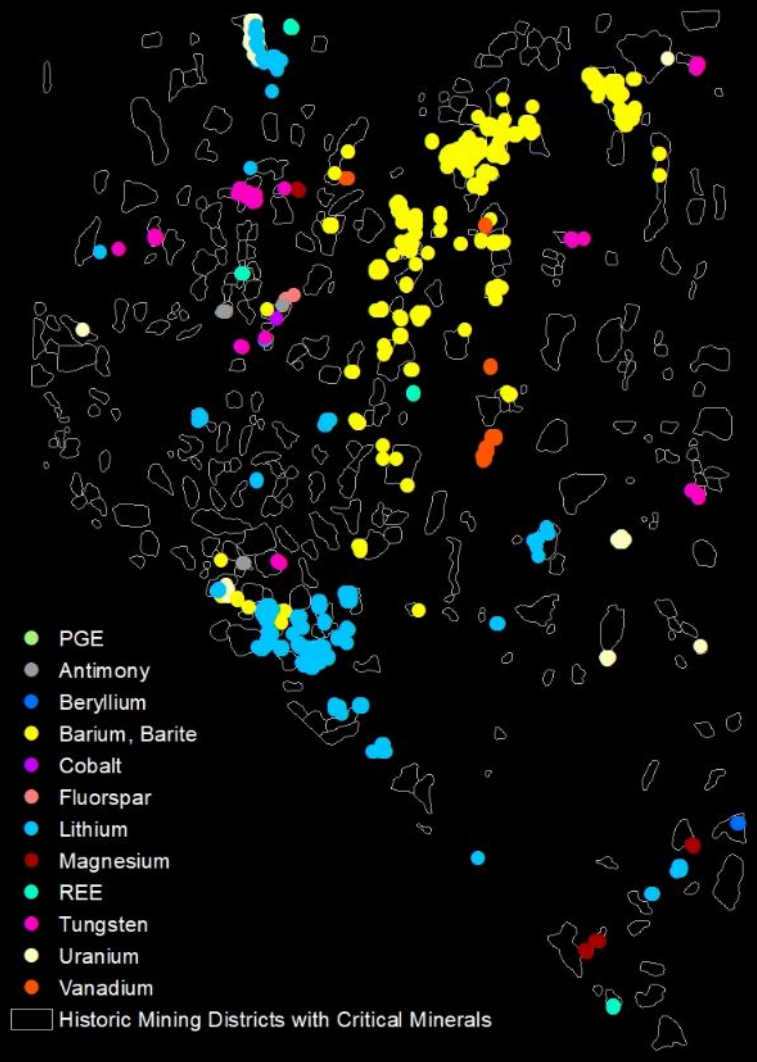
in NV since 1981with

27 currently Authorized/Pending

&

41 Plans of Exploration or Operation with

23 currently Authorized/Pending



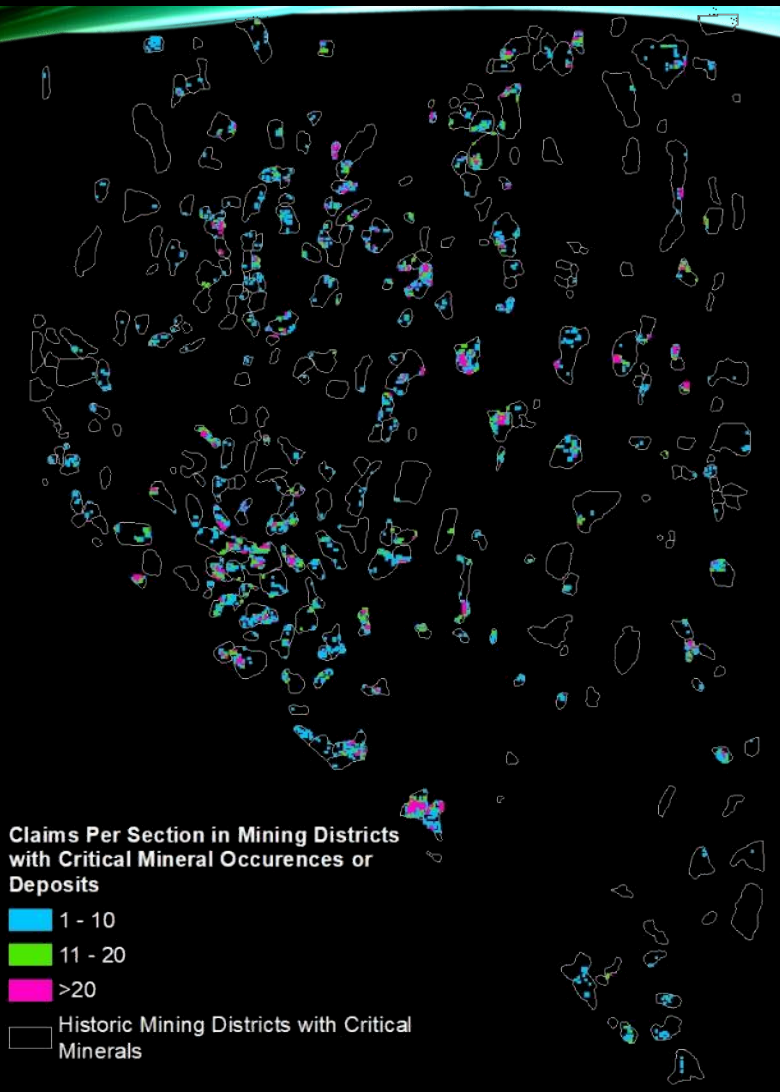
Explorers

1067323 NEVADA CORP
1074654 NEVADA CORP
ACREX MINERALS US INC
ALBEMARLE US INC
ARIZONA LITHIUM CO LTD
BAKER HUGHES DRILLING FLUIDS
BAKER HUGHES INTEQ
BAMCO EXPL INC
BATTERY MINERAL RESOURCES NEVADA INC
BIG CASINO CORP
BONAVENTURE NEVADA INC.
BROWNSTONE VENTURES (US) INC
CENTERSTONE RESOURCES LLC
COPPER ONE USA INC
DAJIN RESOURCES US CORP
DRESSER MAGCOBAR MINERALS
FIRST LIBERTY POWER CORP
GALWAY RESOURCES US INC
GREEN ENERGY RESOURCES INC
GRR OPERATING LLC
HALLIBURTON ENERGY SERVICES
HERRON DAVID
INTOR RESOURCES CORPORATION
IONEER USA CORPORATION
LITHIUM ORE CORP
LITHIUM NEVADA CORPORATION
M-I LLC
NATIONAL OILWELL VARCO
NUTRITIONAL ADDITIVES CORP
PCI
PURE ENERGY MINERALS LTD
RUBICON EXPLORER CORPORATION
STINA RESOURCES LTD
WOODS BRUCE
ZENOLITH USA, LLC

CLAIMS IN MINING DISTRICTS WITH CRITICAL MINERALS

For what it's worth:

23,377 mining claims have been staked in mining districts with critical mineral occurrences/deposits since December of 2017.



New Open Data Services

- **Claims Location Array Interactive Map Service (C.L.A.I.M.S.)**
  - **A platform for exploring and downloading mining claims, BLM Plan and Notice GIS data**
  - **Includes both historic and current data for:**

  AZ, CA, CO, ID, MT, NV, NM, OR, UT, WA and WY
  - **https://claims-nvdataminer.hub.arcgis.com/**

- **Claim Residency Interactive Map Experience (C.R.I.M.E.)**
  - **For viewing of mining claim density and annual federal fees paid through time per section**
  - **View sum and average of fees per section**
  - **Includes same 11 western states, notice and plan data, and USGS MRDS and USMIN datasets**
  - **https://data-ndom.opendata.arcgis.com/**

TRENDS & PREDICTIONS

- **Metals mining is increasingly underground, >30% now**
- **Copper is #2 in gross value and increasing**
  - **Limitation is lack of downstream smelting and refining**
  - **Electric vehicles vs. gas require 5-8X more copper**
- **Industrial mineral production in NV likely to increase as it is easier to put into operation than in other western states**
- **Increase in # of projects being permitted largely due to increased gold price but also in relation to increased demand for commodities needed for renewable energy and batteries (Co, Li, Ni, V, Zn)**
- **If one or more Li clay project begins mining, NV will produce >10% of world production, would then expect vertical integration with a cathode plant built in NV.**
- **Successful DLE technology will dramatically increase lithium brine mining.**
- **Escalation in investor interest on the value of environmental, social and corporate governance (ESG)**

For More Info:

- Agency Homepage: minerals.nv.gov
- "Mining" program page
  - Production summaries and stats
  - Numerous free publications and maps
- "Current Information"
  - Links to our Distance Learning Educational Videos
  - Recent Presentations
- "Important Links - Open Data Site"
  - Interactive web mapping application to display and download information related to the minerals industry.
  - Location of mining claims, current and historical exploration activity and mineral production.
  - Public lands issues
  - New "Mining in Nevada" page