

Juneau, Alaska

March 27, 2019

Alaska Minerals Commission

**2019 Alaska Mineral Commission
report and Social, Economic and
Future demand perspectives on the
mining industry.**

- The 11-member Alaska Minerals Commission (AMC) serves in an advisory capacity to the Governor and the Alaska State Legislature. Five members are appointed by the Governor (one of whom must reside in a rural community), three members are appointed by the President of the Senate, and three members are appointed by the Speaker of the House of Representatives. The State of Alaska Division of Economic Development supports the AMC by facilitating their annual meetings and assisting with the annual report.
- The Commission's role is to recommend strategies to mitigate constraints on mineral development in Alaska. Created by the Legislature in 1986, the AMC's authorization was extended through 2024 by the Legislature in 2013 via House Bill 99. For over 30 years, the AMC has worked with the State and Legislature to successfully implement key recommendations that support a strong and sustainable Alaska minerals industry. This report builds upon past work with the intent to identify state and federal issues that can block responsible development.

Alaska Minerals Commission Priorities

Top Priority:

Defend and promote the minerals and mining industry in Alaska

State Priorities:

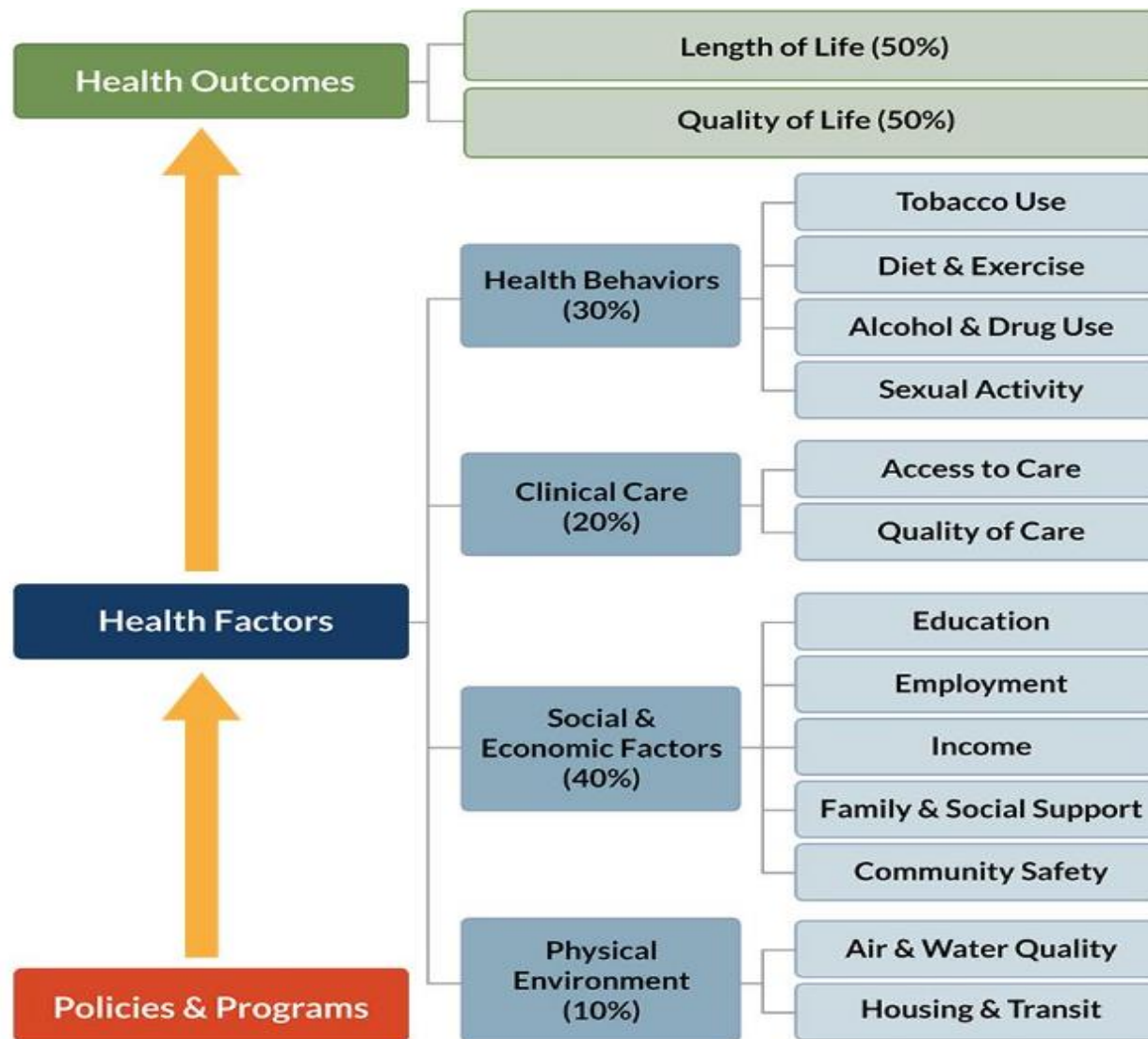
- 1: Support the Division of Geological & Geophysical Surveys (DGGs)
- 2: Establish and maintain a stable state fiscal policy
- 3: Address key state regulations governing water use
- 4: Support for a proposed mining statute change
- 5: Reallocate portions of the state mining license tax to communities, while precluding targeted local severance taxes
- 6: Encourage the governor's administration to continue challenging ballot initiatives that seek to regulate natural resource development

Alaska Minerals Commission Priorities

Federal Priorities:

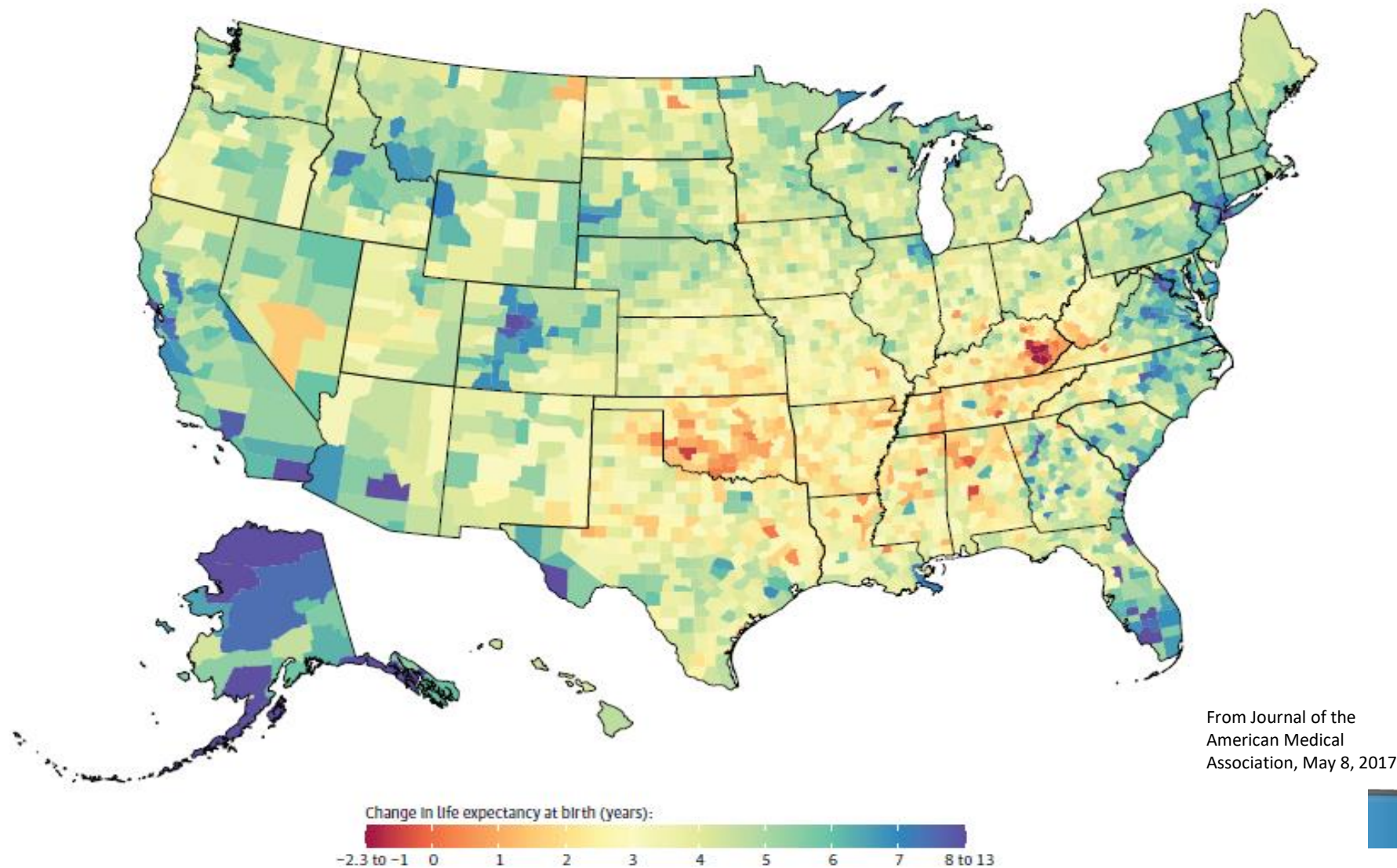
- 1: Ensure the state defends Alaska's navigable waters and access corridors
- 2: Continue lifting onerous public land orders (PLOs)
- 3: BLM Resource Management Plans (RMPs) must not violate the "no-more clauses" in the Alaska National Interest Lands Conservation Act (ANILCA)
- 4: Support progress towards defining Waters of the US in accordance with the intent of the Clean Water Act

Social & Economic Factors Impact on Health



County Health Rankings model © 2016 UWPHI

Figure 2. Change in Life Expectancy at Birth by County, 1980 to 2014



From Journal of the
American Medical
Association, May 8, 2017

Compared with the national average, counties in central Colorado, Alaska, and along both coasts experienced larger increases in life expectancy between 1980

and 2014, while some southern counties in states stretching from Oklahoma to West Virginia saw little, if any, improvement over this same period.

Alaska Resource Education



“The activities were awesome and so much fun. The kids enjoyed both activities and practically all of them said they wanted to be a geologist when they grow up now. 😊” – Noatak



Calvin (left) says, "Mining exploration gives me the opportunity to travel and when I return home, tell stories to my family."



"I started as a Driller Helper in 1998. Today I supervise many drill rigs for an Alaskan company. I don't know where I'd be without mining." John (Benny) Borowski



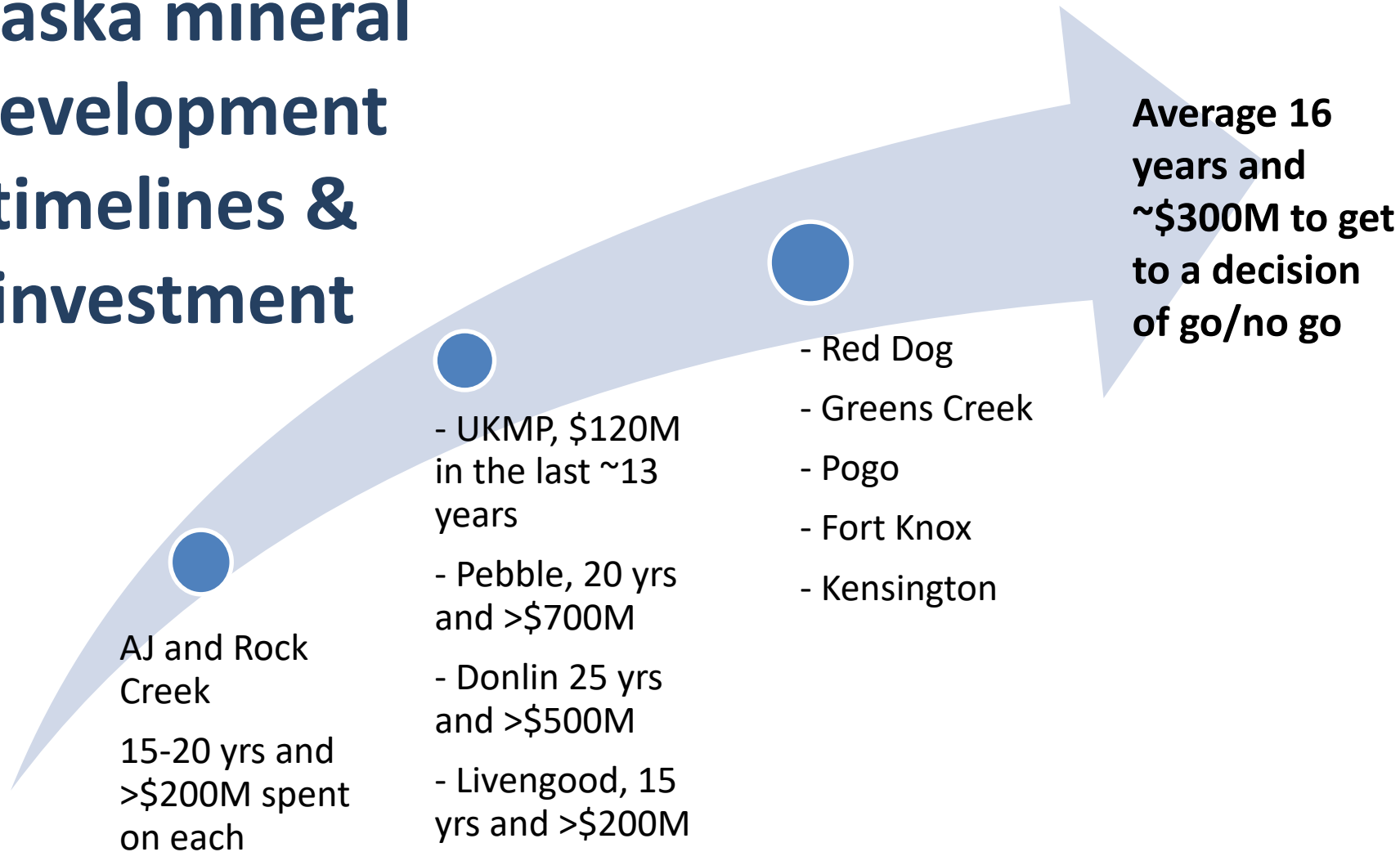
Mining Activity in Alaska

- ★ Producing Mine
 - ▲ Project in Permitting
 - ★ Advanced Exploration Projects
 - Community with Mining Industry Employees
- Palmer
- Kensington
- Greens Creek

Economic Stats:

- In 2017 ~4,000 direct jobs averaging \$107,820/yr & 9,000 direct and indirect
- Mining companies purchased \$580 million in goods and services from Alaskan vendors
- Through FY18 \$1.2B has been distributed to all Alaska Native Corporations through 7i from Red Dog
- In 2017 \$276.5M was distributed to Native Corporations
- Mining is significant at the local level (e.g. Juneau, Fairbanks, Kotzebue)
- **Where does Alaska fit in the world of mining** (Fraser Institute Global Rankings Survey Feb 28, 2019)
 - Alaska = 5/83 overall
 - on mineral potential = 3/83
 - on policy perception = 26/83

Alaska mineral development timelines & investment

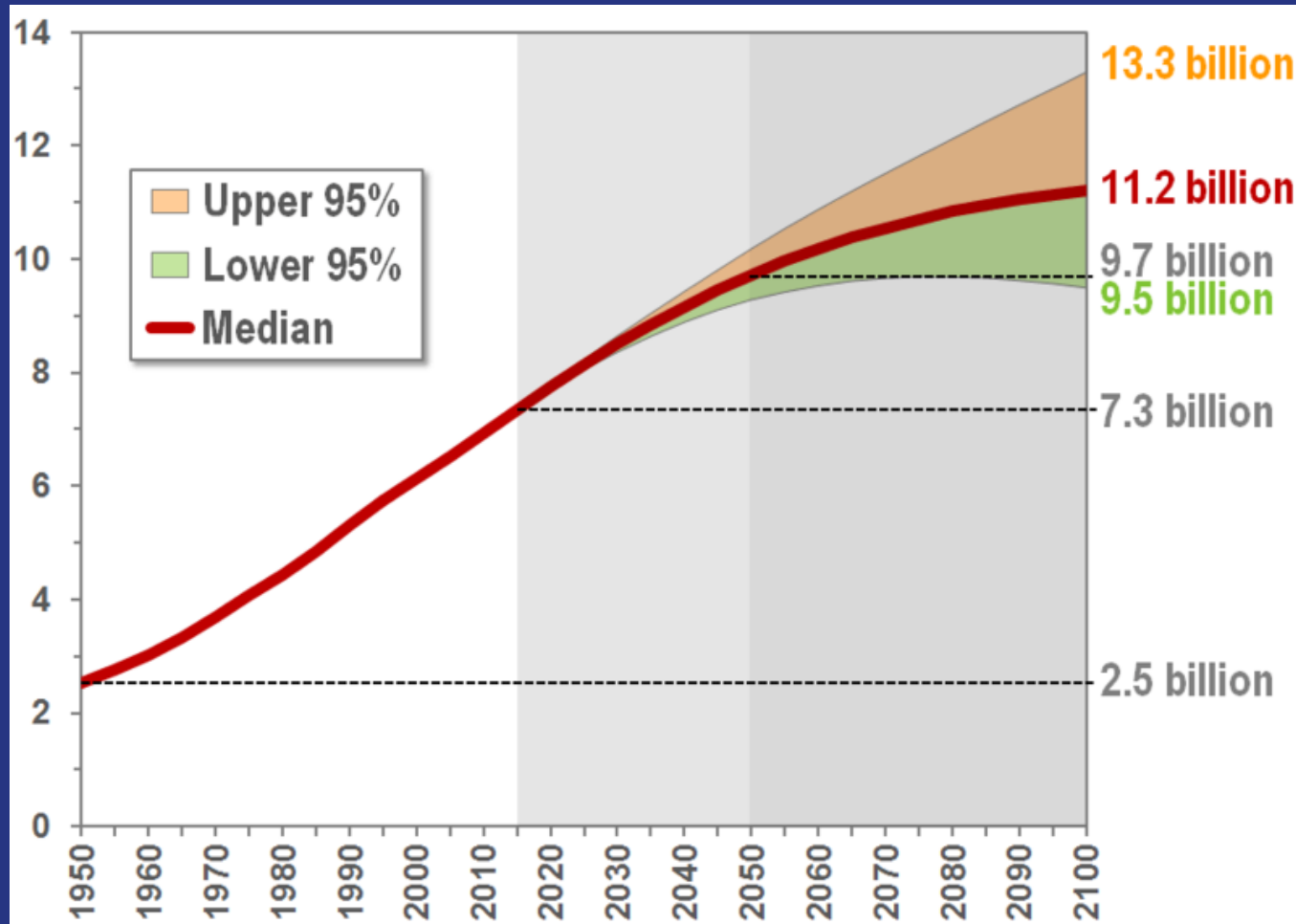


Typical project stages

	Exploration		Prefeasibility		Feasibility		Permitting/ Design		Construction
Resource	Inferred	Positive Order of Magnitude Study	Indicated	Positive Prefeasibility Study	Measured	Positive Feasibility Study	Measured	Decision to Mine	
Reserves	Assumed		Probable		Proven/Prob.		Proven		
Mine	Sketch		Preliminary		Firm		Final		
Processing	Assumed		Options		Selected		Optimized		
Market	Assumed		Options		Letter of Intent		Agreement		
Environment Impact	Concept		Approximate		Near Complete		Completed		
EIS	Conceptual		Scoped		Approved				
Closure Plan	Concept		Preliminary		Advanced		Final		
Permits	Assumed		Identified		Applied for		Granted		
Community	Fatal Flaws		Issues		Negotiations		Agreement		
Project Schedule	Assumed		Approximate		Firm		Final		
Cost Estimate	±30%		15-25%		±15%		±5%		
Economics	Est. ±30%		Probable ±15%		Firm ±15%		Finalized		
Finance	Assumed		Options		Negotiations		In place		
Time	A few years		1-2 years		A few years		???		
Cost of Stage	\$5-10M		\$10-30M		\$30 – 100M		\$5-10M		2-3 years \$100's M



World Population Growth Projections:



Source: Heilig, Gerhard K. (2016), United Nations, Department of Economic and Social Affairs, Population Division, *World Population Prospects: The 2015 Revision, Volume I*.

Minerals FOR CLIMATE ACTION



The world is rapidly transitioning to **low-carbon technologies** to combat climate change.

However, these technologies require large amounts of minerals. To meet this demand, more mining and mineral recycling will be needed.

Why will a low-carbon future be **more** mineral intensive?



The Clean Energy Transition

Increasingly, the world is relying on **low-carbon technologies**, such as:



WIND



SOLAR



BATTERIES



Climate Smart Mining

These building blocks will help mining companies and downstream users of minerals contribute to the Sustainable Development Goals.



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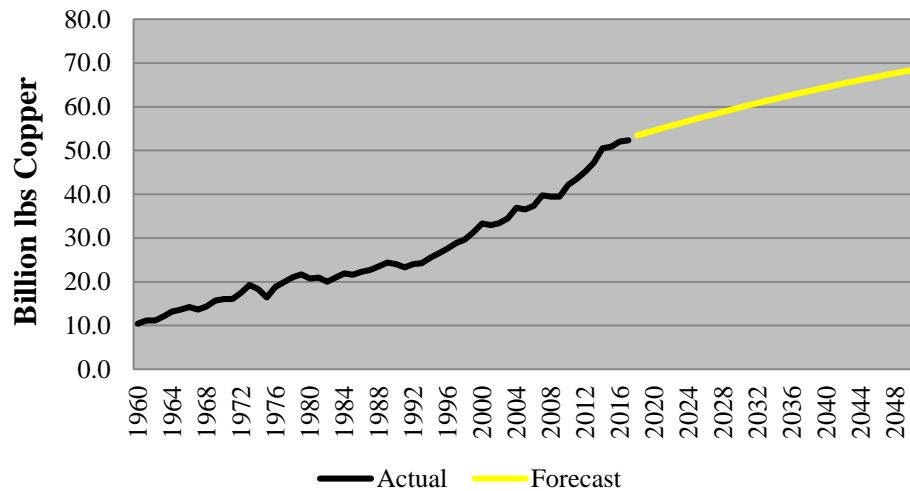


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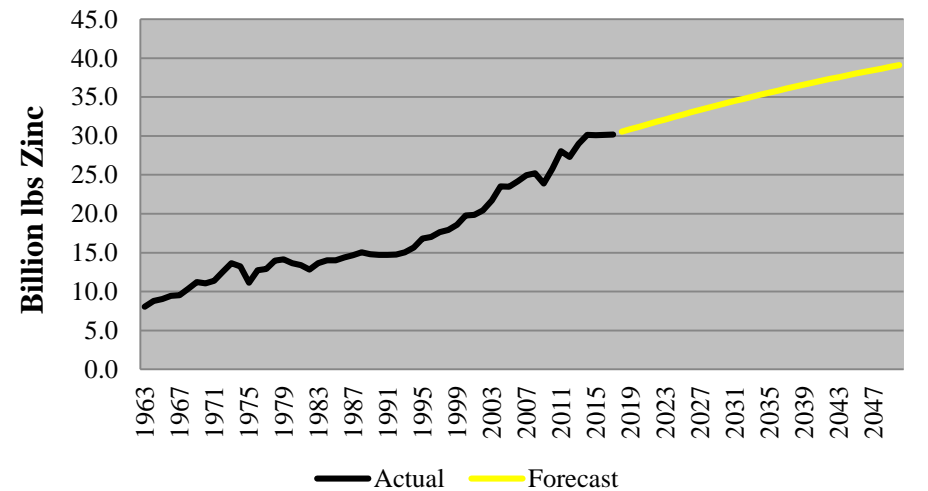
Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Copper & Zinc – Future Demand

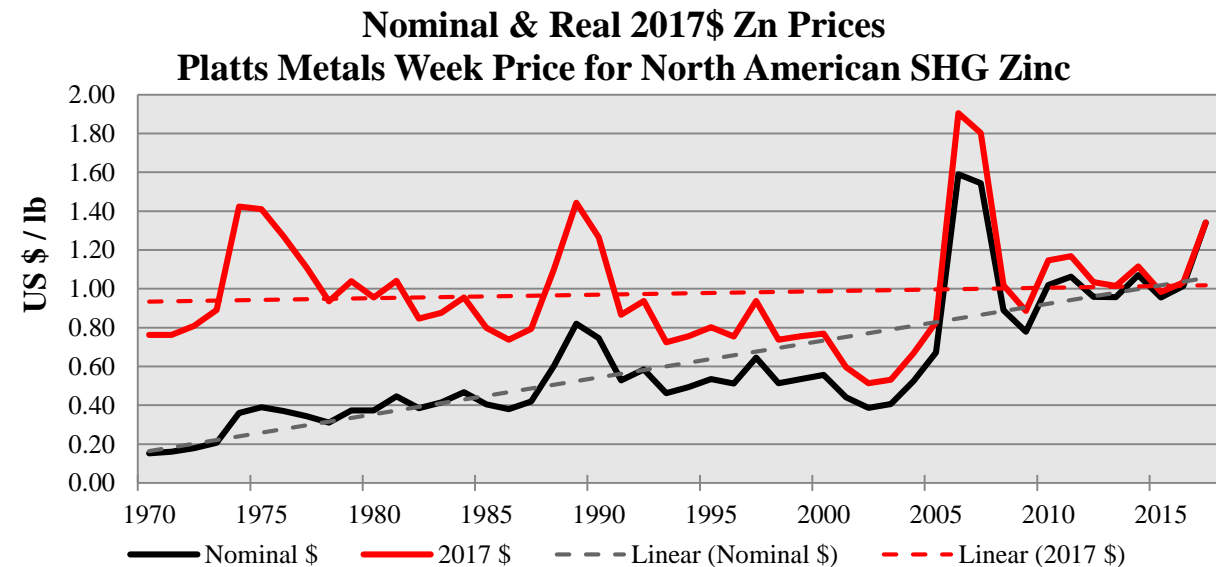
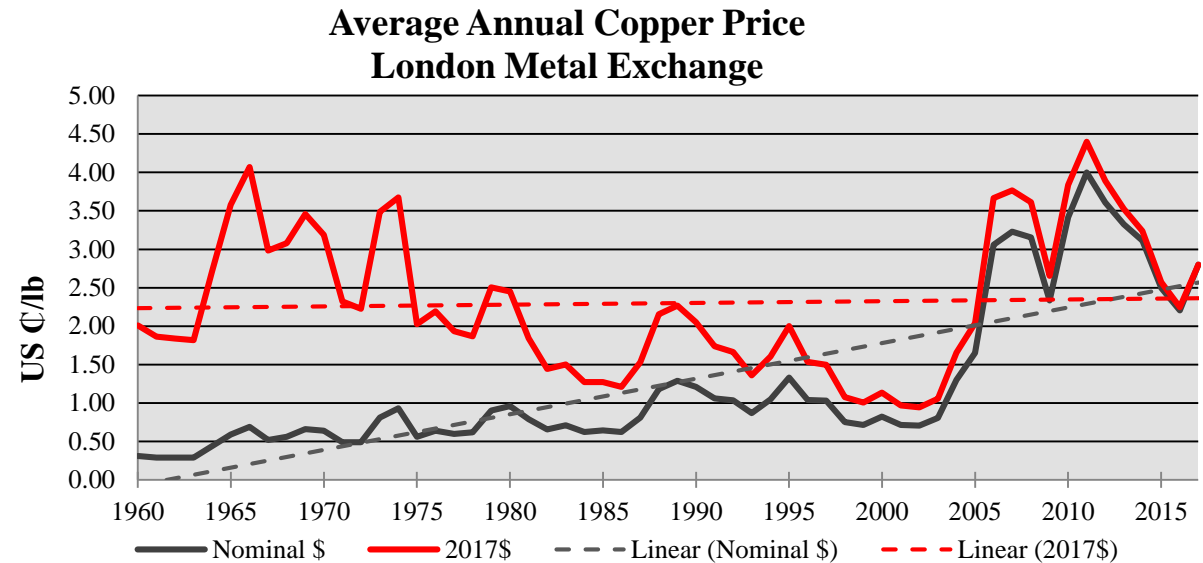
Forecast World Copper Demand
(assuming 7.0 lbs fixed per capita consumption rate)



Forecast World Zinc Demand
(assuming 4 lbs fixed per capita consumption rate)



Nominal & Real 2017\$ Prices:





In Summary:

- Alaska Minerals Commission priorities
- Mining is important for health and well being
- Projects take a long time and are capital intensive
- Global growth and renewables will require more metals
- Alaska has the potential...the future is up to us