THE STATE of ALASKA
GOVERNOR MIKE DUNLEAVY

Department of Natural Resources
OFFICE OF PROJECT MANAGEMENT AND PERMITTING

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Submitted via email to mineland@hq.doe.gov

Re: State of Alaska (Alaska) response to U.S. Department of Energy's (DOE) request for information (DE-FOA-0002811) regarding carrying out clean energy projects (Projects) on current and former mine land

To Whom It May Concern,

Alaska is a leader and example of responsible, dependable, and sustainable development of minerals, oil and gas, and other natural resources. Alaska projects have decades-long records of meeting and exceeding the rigorous environmental regulatory regimes in place in Alaska while operating in extreme climatic and geographic conditions. We maintain that development in Alaska meets some of the highest standards in the world, directly results in public benefits, and has done so consistently throughout modern history.

Alaska's geographic diversity, need for regional energy sources, and historic mining activity align with the conditions established in the Infrastructure Investment and Jobs Act (IIJA) and described in the RFI, and we ask that DOE closely examine the circumstances in Alaska to ensure potential projects can in our state can be considered.

It is imperative that DOE consider Alaska-specific details that affect our state, local, and rural economies, and our continued need for energy networks that service remote communities in extreme environments. Without acknowledgement in these evaluations, some of Alaska's communities that do not even have affordable or reliable conventional power supplies stand to lose considerably with shifting political and environmental policies.

Carrying out these Projects in Alaska could also support Equity, Environmental, and Energy Justice (EEEJ) priorities, and bring employment opportunities to some of the most economically underprivileged areas in the U.S. Partnerships with existing development in Alaska already advances EEEJ goals.

To provide as much information as possible to DOE, and to ensure that input from a variety of stakeholders were included, the Alaska Department of Natural Resources (DNR) gathered responsive information from the following industry operators and local entities. The feedback in the attachment is compiled from these discussions and is being provided for the general awareness of DOE to assist the shaping of these programs to best serve the public consistent with the terms of the programs. It should not be construed as any official position or request of these entities individually but is derived and distilled by DNR to summarize these topics for DOE as they pertain to Alaska. The Denali Chamber of Commerce also shared the attached letter on the topic with DNR, which is being included in its entirety.

This response includes contributions from the following entities. If DOE would like to directly assess their input on these topics, contacts are also included below:

Company / institution name	Company / institution contact	Contact information
DNR	Ashlee Adoko, Associate Director, Office of Project Management and Permitting (OPMP)	Ashlee.Adoko@alaska.gov, (907) 269-8732
Kinross Gold Corporation (Fort Knox Mine)	Bartly Kleven, Environmental Manager	Bartly.Kleven@Kinross.com, (907) 490-2207
Northern Star Resources Limited (Pogo Mine)	Wendie MacNaughton, External Affairs Manager	WMacNaughton@nsrltd.com, (907) 458-4003
Coeur Alaska (Kensington Mine)	Rochelle Lindley, Community and Government Affairs Manager	RLindley@coeur.com, (907) 957-1151
Denali Chamber of Commerce	Vanessa Jusczak, Executive Director	Info@denalichamber.com, (907) 683-4636

Alaska looks forward to its qualifications being acknowledged in future Funding Opportunity Announcements (FOA) or other solicitations related to the IIJA, Section 40342.

Alaska's geographic diversity is unmatched. Many of its existing mines are remote and not connected to an electrical grid, presenting unique challenges, and necessitating energy generation on site. In some cases, these mines are the primary economic activity for surrounding communities.

The IIJA calls for carrying out Projects in geographically diverse regions.[1] Alaska is the largest[2] and least densely populated state in the U.S.,[3] and limited infrastructure and high development prices lead to some of the highest energy costs in the nation.[4] These challenges are some of the largest impediments to both future investment in energy supplies for communities and health and quality of life.

Lowering Alaska's high energy costs, including by carrying out these Projects in Alaska, could positively impact Alaska's operating mines, and support future investment and commensurate benefits to state, local, and rural communities. Revenue from mining is expected to be an increasingly important part of Alaska's economy, funding critical services such as schools and health clinics.

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[1] IIJA, Section 40342(c)(1).

[2] Energy Information Administration (EIA), *Alaska State Profile and Energy Estimates, Profile Analysis,* https://www.eia.gov/state/?sid=AK (accessed August 6, 2022) (*EIA Alaska Profile Analysis*), citing Fly Alaska, Alaska Air Travel, *Interesting Geographical Alaska Facts,* https://www.flyalaska.com/alaskafacts.html#:~:text=Alaska%20has%20six%20times%20as,landings%20on%20a%20peak%20day (accessed August 6, 2022).

[3] World Population Review, U.S. States by Density 2022, https://worldpopulationreview.com/state-rankings/state-densities.

[4] Save on Energy, *Compare electricity rates by state,* https://www.saveonenergy.com/electricity-rates/ (accessed August 6, 2022). Alaskans are not linked to large, interconnected grids through transmission and distribution lines, and even Alaska's largest electrical grid, the Railbelt, serves only a portion of the state's population and is isolated from the electrical grids in Canada and the continental U.S. (*EIA Alaska Profile Analysis*, citing Brehmer, Elwood, Alaska Journal of Commerce, *Long-sought Railbelt utility reform becomes law*, https://www.alaskajournal.com/2020-05-12/long-sought-railbelt-utility-reform-becomes-law (May 12, 2020).)

Projects in Alaska could benefit indigenous communities and EEEJ priorities, depending on vicinity to villages and Alaska Native Corporation (ANC) land. Alaska has unique land ownership by ANCs created by the U.S. Congress in the Alaska Native Claims Settlement Act, accounting for over 44 million acres or nearly 11% of Alaska's total land area.[5] ANCs provide business services, jobs to Alaska Native people, and dividends to Alaska Native shareholders.

Some areas in Alaska may be able to meet the high co-investment and cost-share requirements in the RFI.[6] However, other areas, such as abandoned mine land near underserved communities, could significantly benefit from DOE support for Projects but not be able to meet these requirements, contrary to the EEEJ priorities outlined by DOE. Consideration of how to navigate these requirements in light of the unique needs of remote Alaskan communities should be an important consideration.

Other aspects of Alaska's geographic diversity include its location at an international geographical crossroads, connecting the U.S. to both the Arctic regions and the Pacific Rim, and its major industrial hubs located along a coastline that is longer than all 49 states' coastlines combined. Carrying out these Projects in Alaska would satisfy IIJA requirements regarding location in geographically diverse regions.

Carrying out these Projects in Alaska could extend long-term employment opportunities and potentially expand them to areas that continue to be some of the most economically underprivileged in the U.S. It is critical, however, that DOE consider Alaska-specific particulars, as some of Alaska's communities stand to lose significantly if their unique circumstances are not recognized.

The IIJA calls for prioritizing Projects that are carried out where the greatest number of jobs, including domestic, direct, and indirect, can be created from successful demonstration, during implementation, in economically underprivileged areas, and with special respect to dislocated workers previously employed in manufacturing, coal power plants, or coal mining.[7]

Since Statehood, Alaska's economy has depended on responsible mining, oil, gas, and other natural resource development, as these industries have provided family-supporting, high-skilled jobs, and the training necessary to excel, including for rural Alaskans with limited opportunities for other employment.

Alaska's mines bring significant revenues to state and local governments, and capital investment. In 2021, the total direct and indirect jobs attributable to mining were 10,800, the payroll was $985 million, the royalties and other fees paid to Alaska were $83 million, and to local governments were $44 million.[8]

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[5] *EIA Alaska Profile Analysis,* citing Native American Science Curriculum, *Alaska Native Land Claims & Tribal Sovereignty Issues,* http://www.nativeamericanscience.org/alaska/alaska-native-land-claims (accessed August 8, 2022).
[6] Energy Policy Act of 2005, Section 988.
[7] IIJA, Section 40342(c)(3)(A), (C), and (D).
[8] McKinley Research Group, *The Economic Benefits of Alaska's Mining Industry,* https://www.mcdowellgroup.net/wp-content/uploads/2022/06/2022002-ama-cap-ei-update-final.pdf (May 2022). Alaska's oil and gas industry remains its single most important economic engine (McDowell Group, *The Role of the Oil and Gas Industry in Alaska's Economy,* https://www.aoga.org/wp-content/uploads/2021/01/Reports-2020.1.23-Economic-Impact-Report-McDowell-Group-CORRECTED-2020.12.3.pdf, (January 2020)) and essential to Alaska's and the U.S.'s post-pandemic recovery, as it brings cleaner energy, strengthened national security, and amplified energy affordability.

In Interior Alaska, coal is currently the lowest-cost source of energy, serving as the backbone for energy generation. Alaska's coal is ultra-low sulfur and some of the cleanest burning in the world. Most of the coal-fired plants are co-generation facilities and provide heat and electricity to surrounding areas. Two of the plants represent some of the most modern examples of coal-fired generation in the U.S.

But as shifting political and environmental policies may affect the future of coal, power plants, and other jobs, some of Alaska's communities stand to be in greatest need for assistance. However, they may never realize assistance, depending on IIJA terminology interpretation, Project timing, duration, and other characteristics as compared to possible job loss. Particularly, Alaska does not host many large areas of historical mining activity relative to its size, and many of its major mining areas continue to be in operation today.

Many mines provide employment with transferrable skills, including maintenance and operational, and already offer on-the-job training. Alaska could host these Projects where its professional and economic legacy could be built upon and the greatest number of jobs created, while minimizing the effects of climate change on indigenous ways of life, in satisfaction of the IIJA.

Alaska's goal of transitioning to a low carbon future while creating new jobs and revenue and minimizing the effects of climate change would support these Projects providing the greatest net impact in avoiding GHG emissions.

The IIJA calls for prioritizing Projects that will provide the greatest net impact in avoiding GHG emissions.[9]

In 2020, renewable energy accounted for about 31% of Alaska's utility-scale electricity generation; hydropower was about nine-tenths of that; wind and biomass were smaller portions.[10] Alaska is exploring tidal and ocean technologies for supplying renewable energy to coastal communities.[11] Wind and solar generation projects are found in many of the state's remote communities.[12] Many volcanic fields offer geothermal energy potential.[13] Coal seams and other aspects present opportunities for Carbon Capture, Utilization, and Storage (CCUS).

Coupled with Alaska's support for minimizing the effects of climate change, these Projects in Alaska are set to succeed in providing the greatest net impact in avoiding GHG emissions.

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[9] IIJA, Section 40342(c)(3)(B).

[10] *EIA Alaska Profile Analysis,* citing Alaska Energy Authority, *Renewable Energy Atlas of Alaska, Ocean and River Hydrokinetic,* https://www.akenergyauthority.org//Portals/0/Publications%20and%20Resources/2019%20Renewable%20Energy%20Atlas%20of%20Alaska%20(Low-Res%20Version).pdf?ver=2021-06-07-091312-147&ver=2021-06-07-091312-147 (June 2019).

[11] *EIA Alaska Profile Analysis,* citing U.S. Environmental Protection Agency, *Remote Areas of Alaska: Affordable and Reliable Options for Meeting Energy Needs and Reducing Emissions,* https://www.epa.gov/sites/default/files/2020-09/documents/2020_argrpa_report_to_congresssept2020.pdf (September 2020).

[12] *EIA Alaska Profile Analysis,* citing Alaska Energy Authority, *Renewable Energy Atlas of Alaska, Wind,* https://www.akenergyauthority.org//Portals/0/Publications%20and%20Resources/2019%20Renewable%20Energy%20Atlas%20of%20Alaska%20(Low-Res%20Version).pdf?ver=2021-06-07-091312-147&ver=2021-06-07-091312-147 (June 2019).

[13] *EIA Alaska Profile Analysis* citing ADNR, Division of Geological and Geophysical Surveys, Geothermal Sites of Alaska Web Application, https://geoportal.dggs.dnr.alaska.gov/portal/apps/webappviewer/index.html?id=28ed3938684448bb8d8fabad2c505e4d (accessed August 6, 2022).

Carrying out these Projects in Alaska could support growing national economy and security needs for renewable energy networks and numerous uses powered by critical minerals, including the essential rare earths.

Mining is the foundation of the U.S.'s infrastructure sector. It supports surface transportation, electricity transmission, energy production, and more. The state is home to vast mineral reserves, holding extensive deposits essential for America's technology-focused economy, the transition to renewable energy usage, and national security.

Though the U.S. depends on imports for more than half of its needs for 48 minerals and metals, which include 18 minerals and metals for which it is fully import reliant,[14] Alaska mining projects have the potential to reduce America's dependence on other countries for a majority of these minerals.

Alaska's solid environmental ethic, robust permitting process, and strict environmental and health standards, united with its vast mineral and metal resources highlights its unique position to support the nation's need for increased production. Carrying out these Projects in Alaska could support this cause and Alaska's leadership is committed supporting DOE in such efforts.

In consortium, the DOE, the state, and Alaska's industries could efficiently establish a secure, reliable U.S. supply chain and satisfy our nation's strategic need for renewable energy, electronics, and national security, and Alaska looks forward to charting this path with these entities. These prospects could be further supported by these Projects in Alaska.

It bears noting that carrying out these Projects in Alaska brings essential regulatory considerations regarding current mine operations, reclamation, and other land use requirements, as well as necessary cooperation with existing mine operators and mineral lease and claim holders. Consultation with all agencies and stakeholders is essential.

Alaska's regulatory rigor mandates that these Projects in Alaska come at the recognition of the surface and subsurface owners, as well as statutes, regulations, and land management plans, involving state, local, and federal agencies. In addition, developing these Projects on existing mines must be at the behest of or in cooperation with the existing mine operators, and on reclaimed mine sites, in cooperation with mineral lease and claim holders.

Alaska and other states and regulatory agencies have long histories of safely managing natural resource development and will have regulatory roles moving forward. Alaska encourages consultations with these entities and with resident stakeholders to ensure resources of concern are identified and protected.

DOE should promote effective coordination for review and authorization of these Projects across regulatory agencies and industry to improve safety, environmental stewardship, economic competitiveness, and public confidence.

Coordination is especially imperative where activities, such as are involved in these Projects, are regulated by multiple agencies. Effective coordination builds on the cornerstones of transparency,

[14] According to the U.S. Geological Survey.

accountability, and predictability, and commensurately improves safety, environmental stewardship, economic competitiveness, and public confidence.

Alaska uniquely appreciates, and can attest to, the value of a coordinating body and effective coordination, because of the DNR Office of Project Management and Permitting (OPMP), which provides coordination across regulatory agencies and industry.

Of central importance to the U.S.'s national economy and security and to Alaska's economy to benefit from Alaska's and the U.S.'s resources is coordination among agencies with jurisdiction over permitting and operations.

In conclusion, given the huge up-front capital requirements associated with these Projects, DOE's support for one or more in Alaska would help establish technical and economic viability of these Projects in one of the U.S.'s key energy states. Alaska meets the criteria established in the IIJA and looks forward to its qualifications being acknowledged in future FOA or other solicitations related to the IIJA, Section 40342.

Sincerely,

Ashlee Adoko
Associate Director, OPMP

Cc: Kyle Moselle, Executive Director, OPMP
John Crowther, Deputy Commissioner, DNR
Miles Baker, Alaska Governor's Office
John Espindola, Alaska Governor's Office
Bartly Kleven, Fort Knox Mine
Wendie MacNaughton, Northern Star Resources
Rochelle Lindley, Coer Alaska
Vanessa Jusczak, Denali Chamber of Commerce

Enc: Categories and Questions
Denali Chamber of Commerce letter

CLEAN ENERGY DEMONSTRATION PROGRAM ON CURRENT AND FORMER MINE LAND REQUEST FOR INFORMATION (DE-FOA-0002777)

Category 1: Mine Land Development

1A: Development Barriers and Needs

1) What are the major barriers (regulatory, technical, environmental, or socioeconomic) to clean energy development on current and former mine land? What strategies have overcome these barriers in successful clean energy development on mine land?

- Regulatory – there are many different approval streams that are not always aligned, and some are still being defined, such as for clearing for solar arrays. Perhaps there can be consideration for a "one window" approach. Permitting time frames for gaining approvals for new projects can be restrictive. The Kensington Mine, for example, faces regulatory barriers, in attempting to obtain authorizations for construction within a national forest. Additionally, the Roadless Rule poses barriers to development in the Tongass National Forest.
- Technical and Environmental – geotechnical, water management, grid connection capacity, commitments for reclamation, and need to leave land for potential mine growth due to exploration are items to address. The Kensington Mine, for example, is in a region that is not conducive to wind or solar energy generation. Advanced nuclear and micro nuclear does have some promise for the Kensington Mine, but this technology is in early stages and the capital costs are high. There are also socio and public relations impacts with nuclear energy that could create challenges in an already sensitive environment.
- Socio-economic – some mining companies face objection from local entities simply because they are in vicinity of the mines. That, in addition to the environmental issues these mines already face, will need to be addressed. On the commercial side, if the mine generates more than it can use – the market rules for injecting extra power back into the grid and its price is not clear in most jurisdictions. For the energy project to be economic, the asset life may need to be longer than the mine life – how this value is to be monetized will need to be clarified.
- Some mines, such as the Pogo Mine, are in mountainous regions many miles from towns (the Pogo Mine, for example, is 80 miles from the nearest town) and existing power grids. Locating near existing power grids could bring challenges such as suitable land availability on site and the potential need to acquire additional land off site for complimentary purposes.

2) What planning or operational choices could an active mine operator make to improve a mine site's potential to host clean energy before, during, or after mine operation? What planning or operational decisions would reduce a mine site's potential to host clean energy, and should be avoided?

- A mine's primary focus is to optimize the economic value of the mine and enable potential growth through exploration. It is very difficult for a mine to pay a premium cost to build an optionality for a future energy project. During mine design phase, the power line could be oversized for a possible clean energy project to export power into the grid. Questions surrounding whether the utility will pay for this will need to be answered. If there is the possibility of installing a Battery Energy Storage System (BESS) for a future intermittent renewable project, then questions surrounding who will pay for it and whether there could be a tax benefit (such as consideration for an accelerated depreciation or a tax credit) will need to be answered.
- Some mines' (such as the Pogo Mine's) decisions will revolve around access and flat, cleared land, and then ensuring a long-term connection to the power grid, including after the mine closes. Undertaking this in the planning phase would simplify the process.
- Some mines' (such as the Kensington Mine) decisions will revolve around building infrastructure with an ability to adapt to changes in power sources. For example, at the Kensington Mine, a powerhouse with four diesel generators was constructed with the capability to accept line power in hopes that that would eventually be a reality.

3) How should reclamation activities be adapted when reclaiming a site for a clean energy development post-mining land use?

- The reclamation plan must have priority for technical environmental issues. However, some of the items in the reclamation plan may not be as critical (for example, visual aesthetics or returning the full property to original condition). If a mine installs a "Clean Energy Project," perhaps the need for some of these "non-critical" reclamation activities could be waived – this could help in the funding for the Clean Energy Project.
- Site roads and access must be maintained and available long-term, including after the mine closes.
- Existing infrastructure may need to be left on site to facilitate the development of clean energy rather than removed at the end of the mine life.

4) What tools and data exist (perhaps at a state, Tribal or local level) that could facilitate development of clean energy projects on mine land?

- This is very site- and state-specific. There are many organizations engaged (for example DOE, state governments, utilities, universities, national labs, and more) – a "one window" approach would help.

- Perhaps states could set up a Clean Energy Permitting Team like Alaska's Large Mine Permitting Team (LMPT) to help coordinate these projects.
- Some baseline data may exist for specific areas.

5) What unique barriers exist for clean energy development on Tribal mine land?

- There is a need for people resources for idea generation, concept development, and project management. The DOE Indian Energy Policy and Programs is offering some support, but the funding is limited. Also, there is a need to integrate the Clean Energy Project with the infrastructure development and subsistence needs of the Tribes.
- Tribal land often supports subsistence use.
- Alaska has limited traditional tribal lands. Instead, on Alaska Native Corporation (ANC) land, an operator would need to work with the ANC.
- Some may not fully understand and appreciate the needs of First Nations and their goals for their communities.

6) What types of technical assistance would be valuable from the DOE, national laboratories, and/or from other federal agencies in proposal development or project execution? What kinds of technical assistance do communities need to engage in and benefit from the development of clean energy on mine land?

- Confirm viability of the technology, estimates of energy production, case studies from other sites, and develop lists of potential technology suppliers.
- Mapping Alaska's wind, geothermal, and solar potential, and best locations.
- Environmental data is key. For example, the number of sunny days, wind patterns, and other information would be helpful.
- Mapping Alaska's subsistence uses would assist.
- Education and assurance that power is reliable and always available, as well as how ownership would transfer if a mine closed, would be beneficial.
- Additional grants and expertise regarding site suitability would help.
- Evaluation tools to determine the best Clean Energy option for the site, especially in a remote environment subject to solar and wind energy feasibility and implementation challenges, such as those common to Southeast Alaska and within the context of limited mine lives, would be of benefit.

7) What kinds of coordination between DOE and other federal agencies (e.g. the Department of Interior) would be helpful to facilitate clean energy deployment on abandoned mine lands that are reclaimed using BIL funds?

- A "one window" approach is needed – based on Alaska's LMPT model, and generally, closer collaboration to realize synergies between agencies that may lead to a reduction in duplication in work and hopefully decrease the time it takes to permit new projects on federal lands.
- Expedited National Environmental Policy Act (NEPA) review is needed.
- Bringing funding early to determine the potential for a Clean Energy Project would be helpful.

1B: Potential Environmental Impacts

1) What are the most significant environmental remediation challenges to preparing a mine site for clean energy development? How do these barriers differ based on region, type of mine, and whether the mine is active or not?

- Site topography, geotechnical, hydrogeology, water management, community commitments, obligations register are some of the major ones. It is very site-specific.
- Access roads and land clearing requirements. Determining long-term ownership, care, and maintenance for any facility or infrastructure.
- In Alaska, most mines are remote, and the operation has constructed the infrastructure. Following closure, upkeep and maintenance of this infrastructure needs to be undertaken. In some instances, the length of power line that connect the mine to the grid is significant and needs to be maintained. The location of some these sites drives up the cost and is far from potential users. In some areas and larger mining districts, an operation could leave energy infrastructure in place and sell the power to other development projects.
- In some cases, there will need to be agreement from federal agencies that the mine site can be converted to clean energy development rather than reverting to pre-existing conditions.

2) What potential water contamination risks are posed by the development and operation of clean energy projects on mine land? How can these risks be mitigated? Can clean energy development and operation mitigate water contamination risks or remediation costs?

- Mines would prefer to have "non-impacted" land for siting of clean energy projects. Mitigation is very site specific. Water management is a critical item and any project which may impact it needs to be carefully assessed. Technologies with a smaller footprint may be favored. Also need to consider land requirements for construction of the clean energy project. It may be useful for DOE to do a hypothetical analysis, for each generation type, for a reference plant size (say 25 MW) and define its total footprint.

- Large mines in Alaska already manage water contamination risks. Ongoing monitoring, care, and maintenance will also be required.
- Clean energy projects always need to be maintained and depending on the type of development will impact how large the potential water contamination risk could be. As with any development or mine, the planning and design phase is key to this and ensuring that any spills and contained and managed – detailed risk reviews are required.

3) How can DOE best ensure that demonstration projects contribute to the greatest net impact in avoiding or reducing greenhouse gas emissions, as required in BIL?

- The purpose of the demonstration projects should not be to maximize the greenhouse gas (GHG) benefit of the project (i.e., the demonstration should not be limited to large projects) but to address market barriers which lead to the implementation of other projects which then leads to greater GHG reductions. Time to implementation of the demonstration project should be another consideration. Based on low footprint, SMRs would be a preferred technology.
- Recovery of Critical Minerals should be another priority as it aligns well with the core business of mining companies. Critical Minerals mined as a "by product" should be recovered. This hits two points: conservation of resource and energy efficiency.
- Ensure that any projects remove or offset carbon emission power generation. Even consider how much energy is used to manufacture and operate the facility.

Category 2: Mine Land Operations

This category focuses on questions specifically for mine landowners and operators.

1) How do mineral rights, including rights of way, permits, or patents associated with a mine, impact the potential to develop surface-level or subsurface clean energy projects (e.g., subsurface energy storage or geothermal)? How do specific technological characteristics make a difference in that determination?

- Surface and subsurface owners, as well as statutes, regulations, and land management plans, involving state, local, and federal agencies must be recognized.
- Developing these Clean Energy Projects on existing mines must be at the behest of or in cooperation with the existing mine operators, and on reclaimed mine sites, in cooperation with mineral lease and claim holders.
- The project location needs to be carefully located not to sterilize and mineral resource – condemnation drilling may be required, and an operator may need to work with the landowner to close an area to additional mineral entry.

- The footprint of the project will have an impact and if disturbed or waste stockpiles can be reused.

2) For active mine sites, what are the tradeoffs between owning and operating power generation facilities or contracting power through independent power providers or electrical utilities?

- Mine owners are focused on mine life and operating costs. Some projects have long term pay requirements; plus, mine owners do not consider other markets (local residents / other businesses). An independent power producer can look at the whole business of power generation and look for other markets not just the active mine.
- Being online power and connected to a renewably sourced / clean local grid is the best situation. Most mines' main business is mining and not power generation. For a site like the Kensington Mine, being off grid means they must generate their own power. Their operations require about 10Mw of electricity, and they do this with 4 diesel-powered generators.

3) What percentage of total active mine operational energy demands are thermal (autoclaves, leach operations, space heating and cooling) versus electrical (power demand for pump and treat, solvent extraction/electrowinning, milling, or other plant facilities)? How do these percentages vary by type of mine?

- For the Pogo Mine, most energy demands are electrical / power to run the processing facility followed by fuels for equipment and heating.
- Generally, most of the energy demand on mine sites is for the processing facilities or to power large electric equipment (for example, draglines, electric shovels, etc.) and diesel fuel for running mobile equipment. Heat of camps is a small share of the overall energy cost. The Pogo Mine is an underground mine, and so they need to heat the air that enters the mine during winter, open cut operations use higher percentage fuels for haulage, etc.

4) What kind of information or data is needed to identify development opportunities for the owners and operators of current and former mine sites in clean energy?

- A mine area that is in reclamation has an approved plan, often with deadlines associated that the mine must meet. Mineral rights owned both others may impact the financial cost/benefit profile for clean energy projects. Water rights also play into this.
- Every operation is slightly different, and so the needs must be understood. Also, consider converting liquid fuel-based equipment to battery and how fixed plants

(mills) are operated. Currently, fixed plants (mills) are operated 24 hours per day and 7 days per week. With clean energy, this assumption may need to change to take advantage of when power is available.

Category 3: Job Creation Potential and Challenges

1) What kind of information or data is needed or already exists to identify and categorize job opportunities for local workers, including displaced energy workers?
2) What are the transferable skills and training gaps for displaced energy and mine workers to successfully contribute to mine land clean energy demonstration projects, and how does this vary between technologies? What training pathways are needed, or already exist, to address these needs?
3) What are the biggest potential risks to workers of mine land demonstration projects and what are the best strategies for mitigating those risks and ensuring long-term worker well-being? How does this vary between technologies?
4) How can DOE best support the creation of stable, good-paying career-track employment for local workers on mine land demonstrations and beyond DOE-funded projects, particularly for local residents and marginalized groups?
5) How can the Mine Land program ensure worker representatives and labor unions are engaged and included in the planning, decision-making, and implementation of demonstration projects?
6) What community benefit, labor, and workforce concerns or priorities are most relevant for the Mine Land program? How have/can these concerns or priorities been/be addressed?

(Below is a consolidated response to many of the questions above.)

- Jobs should not be defined as unique to "Mine Land Clean Energy Projects." The skill sets will apply to Clean Energy projects wherever they are located. In general, more training is needed in advanced electrical systems. Need to work with local education institutions (colleges, training centers, etc.) to re-train mine workers prior to closure of a mine. For the demonstration project, should be clear on the objectives, and not complicate it with site specific labor issues – fast implementation of the demonstration project should be a priority.
- Many of the skillsets from mining or "displaced" energy facilities are transferable to Clean Energy:
    - Trades: electrical, piping, millwright, instrumentation, programming, maintenance, planning, operation
    - Corporate and general: IT, HR, finance, accounting
- Local demographics and further opportunity. If cost of power can be reduced through clean energy programs, this will have a big impact on operating mines,

lower cut off grades, increase life of the operation, and promote further growth and jobs.
- Some mines already offer on-the-job training.
- The clean energy project is there to promote commerce and bring people to the region. Communication on the benefits of clean and cheap power are key to drive this sustainability. Communication and engagement is key.

Category 4: Technology-Specific Concerns

These questions are focused on identifying opportunities and challenges of developing the eligible clean energy technologies on mine land. Answers may address one or more of these technologies, but please indicate which technology or technologies your response covers.

4A: Siting and Land Considerations

1) What site characteristics are necessary for successful development of the clean energy technologies on mine land? Please indicate which technology or technologies your response is addressing.
2) How does the topography and/or subsurface condition of mine land, such as slopes, ground stability, or geologic formations, influence the potential for clean energy technology(ies)? How does this differ for current versus former mine land?
3) How could the geo-mechanical stability of a mine land change over time? What surface changes would result from injection/withdrawal processes or temperature-related changes (i.e., in carbon dioxide or water injection)?

(Below is a consolidated response to many of the questions above.)

- Sites should be readily available for visits by others and operators should be willing to share full data from the project. Technologies which currently have barriers but have high replication potential should be preferred. SMR should be priority as it likely has low footprint. Recovery of Critical minerals should also be a priority.
- Geo-mechanical stability is very site specific, and there are also hydrogeological considerations. Some technologies may have risks and would need detailed site assessments. As these are new subjects, who has the technical expertise to review designs.
- Geography is key – suitable available land, stable land masses (waste rock dumps, etc.), earthquake impacts, site access roads.
- Proximity to an existing grid and accessibility for monitoring and maintenance is key.
- The Usibelli Coal Mine is located on the uplifted southern margin of the Tanana basin and southeast of the Nenana basin. Two coal-fired power plants operated

by Golden Valley Electric Association are located near the mine site. Both plants burn coal from the Usibelli Coal Mine. The proximity of the mine, power plants, and two suitable coal-bearing sedimentary basins creates interesting possibilities for a CO2 sequestration project. Thick sandstones and coal seams are likely present in both basins at depths greater than 2,600 feet that are potentially attractive reservoirs for geological sequestration of CO2 generated by the power plants. The subsurface geology immediately below the coal mine and power plants is not suitable for CO2 sequestration as the thickness of the sedimentary section is too thin and depth to metamorphic basement too shallow, so CO2 would have to be transported via pipeline to an injection well, or wells, in one or both sedimentary basins.

4B: Regulatory and Economic

1) What environmental reviews and permitting regulatory requirements will need to be met for clean energy technologies to be demonstrated on mine land? Are there any ambiguities or challenges in existing regulations? Which agencies are responsible for oversight and compliance in your state? Please indicate which technology or technologies your response is addressing.
2) What public outreach and engagement is effective in communicating the benefits and burdens associated with development of clean energy technologies on mine land?
3) What economic benefits do you anticipate from construction and long-term operation of clean energy technologies on mine land, and who would receive these benefits? What resources do you expect to be needed from the community to enable the long-term operation of the demonstration (emergency response, etc.)?
4) BIL requires a reasonable expectation for the clean energy technology to be commercially viable after construction. To what extent will the Mine Land program be capable of demonstrating a path to economic viability after the BIL funded phases and how could a project be structured to ensure access to private capital after the conclusion of federal funding? What non-federal entities are interested in funding mine land projects?
5) Based on Section 988 of the Energy Policy Act of 2005, the cost share requirement for demonstration and commercial application projects is 50 percent cash and/or in-kind and must come from non-Federal resources (i.e., the total project cost includes both a 50 percent DOE share and a 50 percent recipient cost share). For example, a $25 million award will require $12.5 million in matching non-Federal cost share to the $12.5 million Federal share. Is it feasible for projects to meet this 50 percent cost share requirement on an invoice-by-invoice basis? (Please consult 2 CFR 200.306 as amended by 2 CFR 910.130 for additional information on cost sharing requirements.)

(Below is a consolidated response to many of the questions above.)

- There are many regulatory and permitting agencies (federal, state, sometimes municipal, sometimes the public utility commission) – a "one window" approach to fast track would be needed. Community meetings – a "one window" approach would be needed. DOE should attend the community meetings in support of the project and avoid what some mining companies face objection from local entities simply because they are in vicinity of the mines.
- For SMR, there could there be a general approval of the technology and then a site-specific approval.
- There are jobs during project development, construction, and operations phases – but these are not unique to projects on mine lands.
- BIL should focus on the permitting and initial capex, operations and maintenance should be funded from ongoing operations.
- To accelerate technology deployment, consider a "Feed-in-Tariff" structure for the power generated – it has been successfully used in several countries.
- Matching 50/50 on an invoice-by-invoice basis will be challenging. Consider having cash calls on a quarterly basis to avoid invoice matching.
- The clean energy project needs to focus on the operating mine and the local community to provide reliable cheap power for residents and commerce opportunity.
- Depending on the project, transparency on environmental and health and safety aspects need to be clear – impacts on water, for example, as discussed earlier, will need to be considered.
- The project needs to ensure that there is clear financial focus and ensure that any power generation can be fed back into the grid and used by the local generator / regulator. Carbon offset projects are in a different category as benefits a lager industrial base rather than a local base.

4C: Hybrid Demonstration Projects

Hybrid projects include any project with a combination of two or more of the clean energy technologies co-deployed on mine land.

1) Are there combinations of clean energy technologies that are enabled by developing on a mine land?
2) What are the potential challenges of operating a hybrid clean energy technology project on mine land?

- Batteries would be a good candidate for hybrid as would help with intermittent generation technologies and grid power quality management. What financial incentives can be provided for this – may need discussions with public utility commissions.

- There will be a need for safe disposal of batteries going forward. Mines are usually very well studied and have existing infrastructure (hydraulic curtains, monitoring wells) and some could be used to safely dispose of batteries that will be generated going forward.

Category 5: Mine Land Program Implementation

This category focuses on questions related to other provisions, requirements, and implementation strategy for the Clean Energy Demonstration Program on Current and Former Mine Land.

1) Which clean energy technologies should DOE focus on or prioritize in implementing the Mine Land program?
2) Considering the current state-of-the-art in clean energy development on mine land, what does the Mine Land program need to demonstrate with its projects to achieve the goal of enabling follow-on deployment on mine land?
3) What criteria should DOE, in consultation with the Secretary of the Interior, the Administrator of the Environmental Protection Agency, and the Secretary of Labor, use to evaluate and select mine land projects and project finalists?
4) What criteria should DOE use to evaluate progress of ongoing projects (e.g., technical merit, workplan, market transformation plan, team and resources, financial, regional economic benefits, quality jobs, environmental justice, diversity, equity, inclusion, accessibility)?
5) How can DOE best use community consultation, consent-based siting, and Community Benefits Agreements or good neighbor agreements in the environmental and permitting review process?
6) What potential challenges or opportunities might exist to meet the new Buy American requirements in the BIL?

(Below is a consolidated response to many of the questions above.)

- SMR and Recovery of Critical minerals should be the highest priority for this program. SMR has high capex and needs a demonstration project and has huge replication potential. Recovery of Critical Minerals is related to the core business of mining companies. The demonstration project should show that it technically works, help develop a sustainable upstream supply chain, simplify regulatory processes, and provide a data point on costs.
- Selection criteria: replication potential; addresses specific barriers and quicker to implement.
- Community consultation should be a “one window” integrated effort – not separate initiatives by different agencies.

- Buy American provision – may be challenges in the short term as many components such as solar panels and batteries are not yet manufactured domestically.
- Consider the technologies that work best for each location – not to limit potential clean energy sources. The Kensington Mine, for example, is in Southeast Alaska and is a prime region for continued growth in clean "lake tap" hydroelectric projects.
- Solar, geothermal, pumped hydro, and wind.
- The demonstration project needs to ensure it can continue after the demonstration period has passed and ensure there is ongoing financial / environmental benefit. Consider whether the project can be scaled up later.
- DOE should consider active mine projects, geography, water bodies, location of towns and cities, opportunity outside of the project to provide further leverage (lower power costs).

Category 6: Equity, Environmental and Energy Justice (EEEJ) Priorities

1) What information do communities, Tribal or State governments, or other stakeholders need to effectively engage with DOE on the Mine Land program?
2) What organizations, universities, or communities should DOE consider partnering with to develop the Mine Land program?
3) How can the Mine Land program ensure community-based stakeholders/organizations are engaged and included in the planning, decision-making, and implementation processes, in both program development and individual demonstrations?
4) What equity, energy and environmental justice concerns or priorities are most relevant for the Mine Land program? How have/can these concerns or priorities been/be addressed?
5) How are adverse impacts currently measured or monitored, and which materials/processes/components result in the largest environmental impact? What opportunities exist to minimize impacts?
6) What factors should be considered when identifying and selecting the location of the technology/project/activity (e.g., economic considerations, policy considerations, environmental and energy justice considerations, geology, workforce availability and skills, current industrial and other relevant infrastructure and storage available/repurposed/reused, industry partners, minority-serving institutions (MSIs), minority-owned businesses, regional specific resources, security of supply, climate risk, etc.)?
7) How could the Mine Lands provision further energy democracy (ex. community ownership models, community governance models, community benefits agreements etc.)?

- Focus first on demonstration of the technology.

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To Whom It May Concern,

I am the Executive Director for the Denali Chamber of Commerce in Healy Alaska, home to Usibelli Coal Mine, the only operating coal mine in the State of Alaska. When asked for my input on "clean energy projects on current and former mine land, that would bring economic opportunities and jobs in mine land communities, and support equal access, as well as bring clean energy" it becomes clear to me that those involved in policy have very little understanding of realistic applications for my area.
Or the existing impact of the mine on the local, regional and state economy, infrastructure, philanthropy and development.

Certainly, without the local coal mine and subsequent mine mouth powerplants, it is conceivable that our community would not exist at all – as our town was originally founded based on the discovery of coal reserves from early 1900 geological surveys.
For the last 105 years coal mining and Denali National Park & Preserve have coexisted just 15 miles apart (less as the raven flies) and for the last 55 years, mine mouth powerplants have provided electricity regionally as well – without any detrimental effects to the local community or national park.

I will do my best to accurately describe current and future challenges as they might occur, as well as the Alaskan specific intricacies that those living in other geographic and non-rural areas have likely not considered. But it is worth stating that we are a coal mine/power plant community who believes coal can be done right, when correct factors and technologies are applied to the right coal product.

Below are bulletins from the DOE funding prioritization explanations, and I will share information regarding each one. But prior to that, it is important to note that this program is being looked at for "economically distressed areas".
We are NOT currently an "economically distressed area". The jobs that exist at the coal mine and the power plants provide living wage that support families, along with retirement benefits and health insurance.

Economically distressed areas are defined as:
Low per capita income (The area has a per capita income of 80 percent or less of the national average)
The Denali Borough currently has the highest per capita income within the State of Alaska. Tourism is the second largest economic driver in the area, though many of these jobs are seasonal and part time. This demonstrates that even with a significant portion of low paying jobs, the mining and power generation raise average wage levels significantly. Elimination of coal/power plant jobs would clearly change that fact.
Unemployment rate above national average (The area has an unemployment rate that is, for the most recent 24-month period for which data are available, at least 1 percent greater than the national average unemployment rate)
Because of the seasonality of the non-mining/power generation jobs, unemployment fluctuates between 5% in the summer (which is on pace with the rest of the State of Alaska) and 18% in the winter. This is due to seasonal tourism/construction work and an often-transient population.

Unemployment or economic adjustment problems (The area is an area that the Secretary determines has experienced or is about to experience a special need arising from actual or threatened severe unemployment or economic adjustment problems resulting from severe short-term or long-term changes in economic conditions)

This is a criteria we could potentially meet. But it depends on how far out DOE is willing to speculate. Based on estimated from the 2020 census, 6.3% of the population lived below the poverty line – although it is noted in the census that (胜Estimates are not comparable to other geographic levels due to methodology differences that may exist between different data sources.) However, the data collected from the ACS Census 5-year estimate is significantly higher (up to 16%). Collecting data is difficult here due to the large number of people who live outside of service areas, off of unmarked or labeled roads, and who move here for privacy.

These poverty line numbers exist despite the highest per capita income in the State of Alaska. This is directly tired to the fact that the high paying mining and power plant jobs, offset the rest of the jobs within the Denali Borough, that are not paying a living wage. There is no doubt, that closure of the coal mine, a reduction in its workforce, or closure of the local mine mouth plants will significantly bump this number in the wrong direction.

Additional factors that would contribute to unemployment/economic problems for the community at large, in the event of a significant reduction in coal/power generation jobs would include:

Plummeting property values

Closure of businesses due to reduced carrying capacity

Reduction in school faculty and support positions due to relocating families

So, while we currently do not meet all the criteria set forth by DOE based on per capita income and other factors, it is probable given the current political and environmental policies, we will be in the relative future. In order to be assisted by programs such as this, it is important to look into the future and act BEFORE the designation of "economically distressed area" takes effect.

In regards to potential projects, it is important to understand the factors that contribute to large scale successful projects in the State of Alaska.

Be carried out in a location where the greatest number of jobs can be created from successful demonstration of the clean energy project

This clearly will be determined based on the type of project. However, if ANY project isn't complete before other jobs are lost, and people relocate, then it isn't very helpful. Our community is 110 miles from the nearest urban center. The neighboring towns have populations of less than 100 people. They have no industry on the scale needed to absorb or replace jobs from a closure of power plants or coal mines.

If a replacement clean energy project begins before other jobs are lost, there are other challenges. Infrastructure is a key concern. We currently face housing shortages for the existing population – both in overall availability and quality. Many people within our Borough live in housing units that have no water and/or power. Workers brought in for large scale projects would have nowhere to live. A man camp would need to be established. Land is also scarce here – even more, and with readily accessible power and water sources. Planning for a project such as this would need to account for all of these areas.

A project on current or former mine lands has two additional challenges. The first being that the lands in question are not privately owned. Usibelli Coal Mine leases their land, much of it from Mental Health

Trusts and is limited to the actions they may take on it, without altering their lease agreements. Secondly, and most ironically – is asking the very company whom these policies aim to put out of businesses, to be the solution to a crisis they haven't created. Usibelli Coal Mine has been a community partner, in every sense of the word for generations. From internship programs, to multi generation hiring, to expansion of company operations (including renewable energy), to creating a Foundation that supports education, non-profits, community programs and more.

Provide the greatest domestic job creation (both directly and indirectly) during implementation of the clean energy project, particularly:
In "economically distressed areas" (as written above), and with respect to dislocated workers who were previously employed in manufacturing, coal power plants, or coal mining;
While our unemployment numbers can be high, we are talking about 18% of 2000 people. There is no way that any large-scale construction operation would be completed with the local workforce, especially in regard to the training they would need for many of these positions.
These projects are also highly unlikely to result in "permanent replacement jobs" to allow local residents to stay in their homes in the event of coal mine or power plant closured down the line. Approximate employment numbers between Usibelli Coal Mine and Golden Valley Electric Association power plants are 160 – no alternative energy project I am currently aware of, on a scale that makes sense for Interior Alaska, will come close to covering that many high-wage jobs.

Have the lowest levelized cost for generation or stored energy
In rural Alaska, local infrastructure limitations, increased cost of construction and operation, and challenging access to construction sites, mean that generally speaking – building on existing generation or storage facilities is more practical and cost effective than creating new ones.

Additionally, with the Alaska intertie (which transmits electricity along 170 miles from south central Alaska to Interior Alaska and connects multiple power suppliers) we also have the challenge of having to complete with purchased power from other entities throughout the State of Alaska. Will anyone build a new "clean energy project" at all, when power can be purchased through existing power generations sources? And if they do, will it be in a rural, remote area with little infrastructure, no workforce and more expensive operating/construction costs? Unlikely. It is more likely that any replacement project will be near existing transmission lines and sites, or an addition to existing facilities. Which means that the next three criteria are likely to be a non-issue for my community.

Have the greatest potential for technological innovation and commercial deployment;
No comment

Have the lowest rate of greenhouse gas emissions per unit of electricity generated or stored; and
Have the shortest project time from permitting to completion.
No comment

Provide the greatest net impact in avoiding or reducing greenhouse gas emissions
No comments

The local residents of our communities understand that being good stewards of our environment is important. Our residents here value recreation, nature and sustainability, just as much as they value

their jobs in the energy sector, and it is a large part of why we live in such a remote and challenging place. Our residents would also be the first to tell you that with changing technology, coal is cleaner to burn than it has ever been – and that policy change always needs to straddle the line between progress and practical action. Policy created in Washington D.C. isn't likely to understand the specific challenges of our area, and Alaska as a whole – when looking at sustainability, practicality and feasibility regarding energy production and cost. Alaskan's already pay some of the highest energy costs in the nation.

I would welcome the opportunity to discuss any of this in more detail, or answer questions on what I have shared. The best path forward for my community is one in which Usibelli Coal Mine and Golden Valley Electrical Association are part of the plan, implementation and completion of any project moving forward. These companies have demonstrated for decades, a commitment to environment through proactive measures, reclamation and clean energy projects – while simultaneously caring for their employees and the community as a whole.

Sincerely,

Vanessa Jusczak
Executive Director