

Hermosa Mine Debate Worksheet

Names: Caelin, Ava & Caroline

Stakeholder Group (see list at bottom of doc): Local economy (Chamber of Commerce), builders/trades associations

1. From the perspective of your Hermosa Mine stakeholder, are you **for** or **against** the mine? Do quick research to determine the three primary reasons why you either support or oppose the mine.

- 1) Economic benefits
 - a) The mine creates jobs and brings in money for the community.
- 2) Resource extraction
 - a) It provides essential minerals needed for many industries.
- 3) Environmental responsibility
 - a) The mine uses modern methods to protect the environment while extracting resources that are being put back into the benefiting the environment to cut down gas and oil use.

2. Continue your research, and for each reason, above, write down one or two pieces of evidence to support your position (you should therefore have 3-6 pieces of evidence to support your 3 main arguments). These should be specific and directly related to the proposed Hermosa Mine. Remember, the better the evidence, the stronger your argument. Be sure to keep track of sources. A strong source → stronger piece of evidence. For example, eventually your argument could be, “*According to a detailed economic study conducted by researchers at the University of Arizona, this project was determined to be great/horrible for the local economy. They found that...*”

Evidence for reason 1) →

<https://www.mining.com/south32-to-invest-2-1-billion-to-develop-hermosa-critical-minerals-project-in-arizona/>

1. Largest Private Investment: The approval of \$2.16 billion in funding for the Hermosa project represents the largest private investment in southern Arizona's history. This injection of capital directly contributes to economic growth and development in the region.
2. Boost to Local Economy: South32 states that this investment is the largest in the local Santa Cruz county economy to date by nearly nine times. Such a substantial investment will have ripple effects throughout the local economy, including job creation, increased consumer spending, and infrastructure development.
3. Job Creation: Construction and mine development at Hermosa have already commenced, indicating the creation of employment opportunities. These jobs not only provide income for local

residents but also stimulate secondary economic activity in the form of housing, retail, and services.

4. **Infrastructure Investment:** The funding will support the construction of key infrastructure projects, including water management systems, power facilities, and site facilities. These infrastructure developments not only facilitate the operation of the mine but also contribute to the overall infrastructure improvement of the area, enhancing its attractiveness for further investment and development.
5. **Future Potential Development:** The infrastructure funded by this investment will not only support the current zinc deposit but also future potential development, including the exploitation of the battery-grade manganese deposit. This suggests the long-term economic viability of the project and its potential to generate sustained economic benefits for the region.

Evidence for reason 2) →

<https://www.azcentral.com/story/news/local/arizona-environment/2024/02/15/zinc-mine-south32-to-proceed-in-southern-arizonas-patagonia-mountains/72604918007/>

1. **Mineral Deposits:** The Hermosa prospect contains significant deposits of zinc, manganese, lead, and silver. These minerals are crucial for various industries, including manufacturing, electronics, construction, and renewable energy.
2. **Strategic Importance:** The U.S. government considers domestic production of these minerals strategically important. This acknowledgment underscores the essential role these minerals play in national security and economic resilience.
3. **Focus on Zinc:** Zinc is highlighted as a critical mineral used in batteries to store energy, in wind turbines, electric vehicles, and in galvanizing steel for road and bridge construction. The demand for zinc is expected to exceed supply by 3 million tons in 2031, driven by factors such as renewable energy projects and infrastructure redevelopment.
4. **Potential for Electric Vehicle Batteries:** The article mentions the potential for the large manganese deposit at Hermosa to provide minerals for the growing market for electric vehicle batteries. Manganese is a key component in lithium-ion batteries, which are essential for electric vehicles and renewable energy storage systems.
5. **Renewable Energy Projects:** The growth in renewable energy projects, such as wind farms, is cited as a factor driving the demand for zinc. This indicates the role of minerals like zinc in supporting the transition to a low-carbon economy and meeting the needs of industries focused on renewable energy generation.

Evidence for reason 3)

<https://www.proquest.com/openview/a5f3846059b4069441579c0187c88b16/1?pq-origsite=gscholar&cbl=39>

1. **Water Treatment and Dewatering Program:** The Hermosa project includes a comprehensive dewatering program that involves constructing a large water treatment plant and installing wells to manage groundwater around the Taylor and Clark deposits. This program is essential for

accessing resources but also involves advanced water treatment to meet Arizona surface water quality standards before discharge.

2. Environmental Permitting: Hermosa has secured necessary environmental permits from the Arizona Department of Environmental Quality, indicating adherence to strict environmental regulations and standards during operations.
3. Resource Efficiency and Domestic Supply: The project aims to establish a vital domestic source of critical minerals like manganese, zinc, and silver, which are important for reducing reliance on imported resources and promoting sustainable domestic production.
4. Innovation in Resource Extraction: Metallurgical test work has demonstrated the ability to produce battery-grade manganese from the Clark deposit, potentially supporting the development of sustainable technologies like electric vehicles, which reduce reliance on fossil fuels.
5. Reclamation and Environmental Responsibility: The water treatment process not only ensures water quality but also supports the re-infiltration of treated water back into the environment, demonstrating a commitment to responsible environmental stewardship and ecosystem health.
6. Community and Stakeholder Engagement: Modern mining practices often involve engagement with local communities and stakeholders to address environmental concerns, ensure transparency, and promote sustainable development.

List of sources (Here are some [resources](#)):

3. Which stakeholder groups might disagree with your position on the mine?

- Indigenous communities + local community

The specific Indigenous communities and local residents who might disagree with support for the mine could include those directly impacted by the project's location, particularly if they rely on the affected land for cultural practices, livelihoods, or sustenance. For example, Indigenous tribes whose ancestral lands encompass the proposed mine site and nearby communities whose well-being is closely tied to the local environment might oppose the project due to concerns about its potential adverse effects.

4. Why exactly are they likely to disagree? What do you think their main arguments might be?)

Indigenous communities and local residents are likely to disagree with the establishment of a mine due to concerns about environmental damage, cultural heritage preservation, and community well-being. Their main arguments might include:

1. Environmental Impact: They would argue that the mine poses a significant threat to local ecosystems, water sources, and air quality, leading to irreversible damage to biodiversity and natural habitats.
2. Cultural Heritage Preservation: Indigenous communities would emphasize the importance of protecting sacred sites, ancestral lands, and cultural practices that are integral to their identity and way of life, which could be endangered by the mine's development.

3. Community Well-being: Both Indigenous and local communities would express concerns about negative social and economic impacts, such as health hazards, displacement, loss of livelihoods, and disruptions to traditional lifestyles, outweighing any potential benefits promised by the mine.

5. How do you plan on responding to each of their arguments? Again, be specific. Find evidence that will refute their arguments. And, as always, link your evidence to the source: *"According to XX, that argument is not true. They measured economic growth using a different method and came up with XXX"*

1. Indigenous Communities:

- Concern: Potential environmental impact on traditional lands and cultural heritage.
- Response: Research shows that modern mining practices can mitigate environmental harm. For example, a study by the International Council on Mining and Metals (ICMM) found that advancements in technology and regulations have led to significant reductions in the environmental footprint of mining operations, including land reclamation and water management strategies. (Source: ICMM)

2. Local Community Residents:

- Concern: Decreased quality of life due to noise, traffic, and pollution.
- Response: Economic benefits from mining can outweigh negative impacts. A report from the World Bank highlights cases where mining projects have contributed to local economic development, including infrastructure improvements, job creation, and increased government revenue for social programs. (Source: World Bank)

3. Environmental Groups:

- Concern: Habitat destruction and pollution from mining activities.
- Response: Sustainable mining practices can minimize environmental damage. The Responsible Mining Foundation's assessment of leading mining companies found that many are implementing measures to reduce their ecological footprint, such as adopting renewable energy sources, implementing water recycling systems, and investing in biodiversity conservation programs. (Source: Responsible Mining Foundation)

4. Labor Unions:

- Concern: Worker safety and fair labor practices.
- Response: Mining companies can improve safety standards and working conditions. According to the International Labour Organization (ILO), collaborative efforts between employers, workers, and governments have resulted in improved occupational safety and health in the mining sector, including reduced accident rates and better enforcement of labor rights. (Source: ILO)

5. Government Agencies:

- Concern: Compliance with environmental regulations and indigenous rights.
- Response: Robust regulatory frameworks can ensure responsible mining practices. A report by the United Nations Environment Programme (UNEP) highlights the importance

of comprehensive legal frameworks and enforcement mechanisms for promoting sustainable mining, protecting indigenous rights, and minimizing environmental impacts. (Source: UNEP)

6. Investors and Shareholders:

- Concern: Financial risk and corporate social responsibility.
- Response: Ethical mining practices can enhance long-term value for investors. Research published in the Journal of Business Ethics suggests that companies with strong environmental and social performance tend to outperform their peers financially, indicating that sustainable mining can be both ethical and profitable. (Source: Journal of Business Ethics)

List of sources:

<https://www.mining.com/south32-to-invest-2-1-billion-to-develop-hermosa-critical-minerals-project-in-arizona/>

<https://south32hermosa.com/wp-content/uploads/2022/11/hermosa-project-county-economic-benefits-report-23-march-2022.pdf>

Debate Format & Outline

1-2-minute opening statement (prepared in advance):

Ladies and Gentlemen,

Today, we stand at the beginning of a transformative era for our community with the Hermosa Mine project. This venture is not just a mine; it's the largest private investment in southern Arizona's history, amounting to \$2.16 billion. It's a beacon of economic revival, promising to inject vitality into our local economy, which is projected to be nearly nine times the current level. The Hermosa Mine is a symbol of progress, offering job creation, infrastructure development, and long-term economic viability.

Our support for the Hermosa Mine is rooted in its ability to provide essential minerals like zinc and manganese, which are critical for industries ranging from manufacturing to renewable energy. With the U.S. government recognizing the strategic importance of domestic mineral production, Hermosa stands as a pillar of national security and economic resilience.

Moreover, this project is a testament to our commitment to environmental stewardship. The mine employs modern methods to protect our environment, including a comprehensive water treatment and dewatering program that meets Arizona's strict water quality standards. We are not

just extracting resources; we are investing in a future where these minerals help us transition to a low-carbon economy, reducing our reliance on gas and oil.

1-minute rebuttal (notes):

In the face of skepticism, we must not lose sight of the empirical evidence that underscores the viability and necessity of the Hermosa Mine. Critics may voice concerns over environmental impacts and sustainability, yet the project's stringent adherence to environmental regulations and its comprehensive water treatment and dewatering program speak volumes of our commitment to stewardship of the land. Hermosa has secured all necessary environmental permits, reflecting our unwavering dedication to meeting and exceeding the highest standards of operation.

1-minute response (notes):

The Hermosa Mine is not just about extraction; it's about innovation and responsibility. The cutting-edge metallurgical test work has demonstrated our capability to produce battery-grade manganese, a critical component in the burgeoning market for electric vehicle batteries. This aligns with our broader goal of supporting sustainable technologies and reducing reliance on fossil fuels. Our reclamation efforts and the re-infiltration of treated water back into the environment are concrete examples of our pledge to responsible environmental management.

1-minute closing statement (prepared in advance):

As we draw this discourse to a close, let us reflect on the profound implications of the Hermosa Mine for our community and our nation. This project is not merely a mine; it is the embodiment of a future where economic development and environmental consciousness coexist in perfect harmony. The Hermosa Mine stands as a beacon of innovation, illuminating the path to a sustainable economy powered by the very minerals it extracts.

As a driver of job creation, the Hermosa Mine is set to become the bedrock of our local economy, providing countless opportunities for our skilled workforce and stimulating secondary economic activities that will resonate throughout our community. It is a catalyst for growth, a promise of stability, and a commitment to the well-being of every individual who calls this region home.

Moreover, the Hermosa Mine is a provider of critical resources—resources that are indispensable in our collective quest to transition to a low-carbon economy. By harnessing the potential of minerals like zinc and manganese, we are laying the foundation for a world where renewable energy is not just a vision, but a tangible reality. We are investing in technologies that will power our homes, our vehicles, and our industries with clean, sustainable energy.

By embracing the Hermosa Mine, we are making a statement—a statement that we stand for progress, for innovation, and for a future where our environment is not sacrificed for economic gain. We are investing in our community, safeguarding our national security, and contributing to the global effort to combat climate change.

Let us not waver in our resolve to advance towards a future where economic prosperity and environmental responsibility are not mutually exclusive, but are interwoven threads in the fabric of our society. Together, with confidence and conviction, let us stride forward towards a sustainable and prosperous tomorrow—a tomorrow where the Hermosa Mine is remembered not just for the resources it provided, but for the legacy it created.

Supporting Arguments:

1. [Mining Technology News](#)

Economic Growth: The Hermosa mine is expected to significantly contribute to Arizona's economy, potentially adding \$1.4 billion annually, with \$999 million benefiting Santa Cruz County directly. This level of economic infusion is a substantial boon for local communities and the state at large.

2. [Mining Technology News](#)

Job Creation: The operation of the Hermosa mine is projected to generate up to 900 jobs, providing employment opportunities and fostering economic stability for individuals and families in the region.

Critical Mineral Supply: The Hermosa mine will produce two federally designated critical minerals — zinc and manganese — which are essential for powering the nation's clean energy future. This positions the mine as a strategic asset in the transition to a low-carbon economy.

2. [Sustainable Mining Practices: The aspiration for the Hermosa project is to set a new standard for sustainable mining, ensuring that environmental conscientiousness is at the forefront of its operations².](#)

3. [Domestic Supply Chain Strengthening: By producing critical minerals domestically, the Hermosa mine will reduce America's reliance on foreign countries for these essential resources, thereby strengthening national security and the domestic supply chain](#)³.
4. [Long-Term Value: The feasibility study for the Hermosa mine confirms the potential for a long-life, low-cost, low-carbon operation, with an initial operating life of approximately 28 years and an average EBITDA margin of around 50%](#)⁴.
5. [Community Investment: The project aims to improve lives in Santa Cruz County and the surrounding community, indicating a commitment to the well-being and development of the local population](#)².

In summary, the Hermosa mine presents a multifaceted opportunity for economic development, job creation, and environmental stewardship, all while securing a critical supply of minerals necessary for a sustainable future.