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Base Material and Critical Mineral Report

TexAmericas Center – Texarkana MSA – Texas

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3.3 Base Material, Critical Mineral Resource and Traditional Processing/Manufacturing

The Texarkana region offers several factors that make it an attractive and favorable location for resource-based, critical mineral, and traditional manufacturing operations:

- **Proximity to Raw Materials and Natural Resources:** Texarkana's location in the Southern United States provides access to abundant natural resources, including timber, minerals, and agricultural products. Its proximity to these resources provides a reliable and cost-effective supply chain for manufacturing operations as access to these raw materials reduces transportation costs and logistical challenges. If your manufacturing operation relies on critical minerals or other raw materials, proximity to these resources can streamline supply chains and reduce transportation costs.
- **Transportation HUB Infrastructure:** Texarkana is well-connected to major transportation routes, including three interstate highways, two railways, airport(s), and waterways. Its location at this intersection facilitates effective supply chain management and low-cost transportation of raw materials to manufacturing facilities. This strategic transportation infrastructure then enables efficient distribution to domestic and international markets for finished products.
- **Supply Chain Integration:** Texarkana's position within the regional supply chain network allows for integration with upstream suppliers and downstream customers. This integration can enhance collaboration, coordination, and efficiency throughout the supply chain, from raw material sourcing to product distribution guarantying lower logistics costs.
- **Market Access:** Texarkana provides access to regional, national, and international markets for manufactured products all from a central time zone. Proximity to major population centers and global transportation hubs enables manufacturers to reach customers efficiently and competitively.
- **Skilled Workforce:** Texarkana's available workforce can provide the expertise needed to operate critical mineral extraction and processing sites as well as traditional manufacturing facilities efficiently. The Texarkana region has a skilled labor pool with experience in resource-based industries, such as forestry, mining, agriculture, or manufacturing, and a workforce with experience in resource extraction, processing, and manufacturing in a Right-To-Work state. This access to a skilled labor pool, with low labor costs, will support the start-up, contribute to faster productivity and efficiency improvements, and reach stabilization of these types of manufacturing operations sooner.
- **Energy Resources:** The Texarkana area has access to affordable and reliable energy resources, including electricity, natural gas, and renewable energy sources, in the capacities needed by these industries. These power resources are essential for operating manufacturing operations and will contribute to cost-effectiveness and sustainability. Texarkana's access to energy infrastructure can

provide cost-effective energy solutions to support these manufacturing processes.

- **Business-Friendly Environment:** Texas is recognized globally for being a top location for business because of its regulatory environment, State Tax Policies, as well as access to financing and incentive programs. The Texarkana region, but especially TexAmericas Center, offers a favorable, business-friendly environment for manufacturing operations, with streamlined permitting processes, favorable tax policies, regulatory frameworks, access to business support services, and incentives to attract and support industrial development enhance the attractiveness of the industrial park for resource-based manufacturing. Further TexAmericas Center will work with the company to facilitate State of Texas permit process thus quickening the establishment, growth and stabilization of these types of manufacturing facilities.
- **Community Support:** Texarkana has a supportive business community, economic development organizations, and local government entities that actively promote and facilitate industrial development. Collaboration with these stakeholders can provide resources, incentives, and assistance to support the establishment and growth of resource-based and traditional manufacturing operations.
- **Quality of Life:** Texarkana offers a relatively low cost of living compared to larger metropolitan areas, contributing to a favorable quality of life for employees and business owners. A lower cost of living can attract and retain skilled workers, reducing labor costs for manufacturing operations.

By leveraging these factors, Texarkana's combination of access to raw materials, transportation infrastructure, skilled workforce, business-friendly environment, energy resources, quality of life, supply chain integration, market access, community support and other variables makes it a desirable location for resource-based manufacturing, critical mineral, and traditional manufacturing operations.

3.3.1 Resource-Based Production

- **Access to Raw Materials:** Texarkana's location in the southern United States provides access to abundant natural resources, including aggregate, timber, minerals, rare earth elements, metals, agricultural products and more. This access to raw materials is essential for resource-based production, reducing procurement costs, lowering logistics costs, reducing time waiting on materials and ensuring a stable supply chain.

- **Upstream Metals** includes manufacturers of cast metals such as rolled steel, coiled and bar steel, industrial parts, and structural steel, as well as extruded aluminum, titanium, and other specialty metals used in aerospace, medical devices, and other manufacturing industries. Texarkana's metals manufacturers are very innovative and advanced—they have to be in this globally competitive industry. Jobs in the Iron and

Steel Mills and Ferroalloy Manufacturing Industry are 11.4 times the US average.

- Specifically, the Primary Metal Manufacturing sector has four companies located here employing 623 in 2019 with LQ of 2.5 times the US average. There is a high probability of being able to access skilled employees because the number of employees working in this sector decreased by 51% from 2104 through 2019.
- The region is also highly specialized in metal manufacturing, though the primary metal sector has experienced a substantial decline over the past five years (2014 – 2019) due to job cuts at the Lone Star US Steel plant in Lone Star (TX). These numbers have improved in recent years because of Texarkana Aluminum's (Ta Chen) restarting of the former Alumax facility, its activity, and the significant investments that have been made by the company, suppliers, and customers. Further the presence of Forge Resources Group which can handle Carbon and Alloy Steels (0.5-350 lbs.), Aluminum/Non-Ferrous Forgings (0.5-50 lbs./0.5-125 lbs.) and Stainless Steels and ISO 9001 and AS 9001 certified and ITAR compliant means that there is premier forging solution provider here in our market. Also, Henderson Manufacturing Company, has become a quality supplier of carbon and stainless-steel castings up to 3,500 lbs. and is ISO 9001:2015 certified. Another recent addition to the market is Grand Forge Metals, LLC. Grand Forge Metals is a manufacturer of metal doors.
- Industry leaders in the greater Texarkana region that make product from base materials or support the industry include: Texarkana Aluminum (Ta Chen), Precision Roll Grinders Inc, Industrial Mill & Maintenance Supply, and Tri-State Iron & Metal Company, SIDCO Minerals, M&M Milling, Ashdown Sand & Gravel, TEC Sand & Gravel, TEC Sand & Gravel, Rimcor Inc., JR Building Supplies, Albemarle Corp., Ash Grove Cement, and more
- **Building Materials** are essential to life and living because these materials, products, and services define how our world is built. Our companies are constantly rethinking, reimagining, and reinventing solutions for the built environment, making homes, buildings, and infrastructure that will stand the test of time. Jobs in the Cement Manufacturing Industry are 14.6 times the US average. Companies in our local cluster include: Ash Grove Cement, West Fraser, TEC Sand & Gravel, Ashdown Sand & Gravel, and others.
- Manufactured goods were the Texarkana region's largest exports in 2023, with primary metal manufacturing exports of $127 million Upstream metals employment grew twice as fast in the Texarkana region as it did in the U.S. between 2009 and 2019.

3.3.2 Energy Production

The Texarkana area, situated at the border of Texas, Arkansas, Louisiana and Oklahoma, is part of a larger multistate region that contributes significantly to energy production through various operations. While the Texarkana area itself may not be a major hub for energy production like some other subregions in Texas, it does play a role in the broader energy landscape of the Southern United States. Here are some key energy production operations that are present in or near the Texarkana area:

- **Oil and Gas Production:** The region surrounding Texarkana has historically been involved in oil and gas production. While the oil and gas industry may not be as prominent in this area as in other parts of Texas, there are oil and gas wells, production facilities, and related infrastructure throughout the region.
- **Refining and Petrochemicals:** Texas is home to numerous refineries and petrochemical plants, particularly in the Gulf Coast region. While Texarkana itself may not have large-scale refining operations, it is situated within the vicinity of refineries and petrochemical complexes that process crude oil into various petroleum products and chemicals.
- **Renewable Energy:** The Texarkana area and surrounding regions have seen increasing interest and investment in renewable energy projects, including wind, solar, and biomass. Wind farms, solar installations, and biomass facilities may be operational in nearby counties, contributing to the region's renewable energy portfolio.
    - TexAmericas Center is pursuing a targeted business attraction program focused on renewable recycling waste streams such as plastics, tires, timber waste, animals waste, and other sources.
    - Multiple solar farms have been erected in the area, some for communal citizen use and others for industrial use. Many local companies and families see solar energy as a means to lessen their costs of living.
    - ENGIE NA has executed an initial lease on 750+ acres on TexAmericas Center's West Campus to construct a 100+MW solar farm. They have been granted the right to connect to the grid by the Southwest Power Pool and are now negotiating that Power Purchase Agreement with AEP/SWEPCO. They have optioned an additional 550+ acres for a Phase II development.
- **Electricity Generation:** The Texarkana area is served by electric utilities that generate electricity from various sources, including natural gas, coal, nuclear, and renewables. Power plants within the region or nearby may

supply electricity to meet the energy needs of residential, commercial, and industrial consumers.

  - The John W. Turk Jr. Coal Plant is a base load 600-megawatt coal-fired power station in Fulton, Arkansas, operated by the American Electric Power subsidiary Southwestern Electric Power Company (SWEPCO). It provides power to customers in Arkansas, Louisiana, and Texas. The plant came online in 2012 as the first sustained "ultra"-supercritical coal plant in the United States, reaching boiler temperatures above 1,112 °F (600 °C) and pressures above 4,500 psi (310 bar). The plant relies on low-sulfur coal from the Powder River Basin. At a total cost of $1.8 billion, it was the most expensive project in Arkansas history.
  - The region is well positioned and would be receptive to additional generation coming from natural gas-fired power plants, renewable and recyclables energy facilities, nuclear power plants, hydro power plants, and cogeneration plants.

- **Transmission and Distribution:** Energy transmission and distribution infrastructure, including power lines, substations, and distribution networks, are essential for delivering electricity from generation facilities to end-users. Utilities in the Texarkana area maintain and operate transmission and distribution systems to ensure reliable electricity supply. Jobs in the Electric Bulk Power Transmission and Control Industry are 6.4 times the US average in the Texarkana region.
- **Energy Services:** Additionally, the Texarkana area has expertise in companies providing energy-related services such as drilling, exploration, engineering, construction, and maintenance. These companies support various aspects of energy production, including oil and gas operations, renewable energy projects, and infrastructure development.

Overall, while the Texarkana area may not be synonymous with major energy production operations like some other regions in Texas, it is part of a broader energy landscape that includes diverse sources of energy production and related activities. The region's energy sector contributes to local economies, job creation, and the overall energy supply of the Southern United States.

3.3.3 Rare Earth Elements Or Critical Mineral Resources

Proximity to Resources: Rare earth elements are critical components in various high-tech industries, including electronics, renewable energy, and defense. While the United States has significant rare earth element deposits, including those in Arkansas, Texas and surrounding states, the region surrounding Texarkana is rich in natural resources, including deposits of rare earth elements and critical minerals. Access to these resources can significantly reduce transportation costs and ensure a stable supply chain for processing facilities. The development of Rare Earth Element mining projects

may face less restrictions in this area because of the existence of existing and former bromine mines which may lead to less regulatory, environmental, and economic challenges.

- **Deposits in Arkansas:**
  - Arkansas is known to have deposits of rare earth elements (REEs), although they may not be as extensively studied or developed as in some other regions. REEs typically occur in association with various minerals and geological formations found throughout the state.
  - The following critical minerals can be found in southern Arkansas area (Union, Columbia, Miller, Lafayette, and Ouachita Counties) of the greater Texarkana region:
    - Aluminum, Antimony, Arsenic, Barite, Beryllium, Bismuth, Cerium, Cesium, Chromium, Cobalt, Dysprosium, Erbium, Europium, Fluorspar, Gadolinium, Gallium, Germanium, Graphite, Hafnium, Holmium, Indium, Iridium, Lanthanum, Lithium, Lutetium, Magnesium, Manganese, Neodymium, Nickel, Niobium, Palladium, Platinum, Praseodymium, Rhodium, Rubidium, Ruthenium, Samarium, Scandium, Tantalum, Tellurium, Terbium, Thulium, Tin, Titanium, Tungsten, Vanadium, Yttrium, Ytterbium, Yttrium, Zinc, And Zirconium.
    - Bromine brine can be found in Union and Columbia counties. The Upper Jurassic Smackover Formation contains the richest of these brines (5,000 to 6,000 ppm) at a depth of 7,500 to 8,500 feet. Since 2007, all US bromine has been produced in southern Arkansas. In 2013, 28% of the global bromine production (225,000 tons) in Arkansas made the United States the second-largest producer of bromine, after Israel. These brines are also rich in Lithium.
    - Lithium is one of the most important metals in the transition to renewable power. Global production of the metal tripled throughout the 2010s, and demand is projected to increase as much as 40-fold by mid-century. Most sources of Lithium are in remote locations, expensive to mine and extraction is bad for the environment. Our Smackover site is uncommonly well-suited for direct lithium extraction (DLE). Finally, the Texarkana region in southwest Arkansas is home to both active and closed mining processes making startup faster and less expensive.
  - Some areas in Arkansas where REE deposits have been identified or explored are within 175-miles of TexAmericas Cener and include:
    - **Ouachita Mountains:** The Ouachita Mountains in western and central Arkansas have been of interest for REE exploration. These mountains contain geological formations that host minerals such as

monazite, bastnäsite, and xenotime, which can contain REEs as byproducts.

- **Phosphate Deposits:** Certain phosphate deposits in Arkansas may contain significant concentrations of monazite, a mineral that can host REEs. Monazite is often associated with phosphate rock and can be recovered as a byproduct of phosphate mining operations.
- **Granitic Intrusions:** Some granitic intrusions and pegmatite veins in Arkansas may contain minerals enriched in REEs. Pegmatites are known for their mineral diversity and can host minerals such as monazite, bastnäsite, and xenotime, which may contain economically significant concentrations of REEs.

- **Deposits in Oklahoma**
  - Oklahoma is known to have deposits of rare earth elements (REEs), although the extent and economic viability of these deposits vary. The state's geological formations contain several minerals that can host REEs, including bastnäsite, monazite, and xenotime. These minerals typically occur in association with other elements and minerals, such as uranium, thorium, and phosphate.
  - Some specific areas in Oklahoma where REE deposits have been identified or explored include:
    - **Southeastern Oklahoma: Parts** of southeastern Oklahoma, particularly in the Ouachita Mountains, have been explored for REEs. These efforts have focused on areas with known occurrences of monazite and bastnäsite-bearing rocks.
    - **Bear Lodge Mountains:** While primarily located in Wyoming, the Bear Lodge Mountains extend into northeastern Wyoming and northwestern Oklahoma. This region contains significant REE deposits, including the Bear Lodge Project, which is one of the largest known REE deposits in North America. The primary minerals hosting REEs in this area are bastnäsite and monazite.
    - **Phosphate Deposits:** Some phosphate deposits in Oklahoma, particularly in the southeastern part of the state, contain significant concentrations of monazite, a mineral that can host REEs as a byproduct of phosphate mining operations.

- **Deposits in Louisiana**
  - Ucore Rare Metals Inc. announced on January 1, 2024, the acquisition of a brownfield facility for its first commercial rare earth element processing facility in Alexandria, Louisiana. The site is expected to generate 2,000 tons per year of total rare earth oxides and grow to 7,500 tons by 2027. Actual REE's has not been disclosed at this time

but it is expected to be a combination of heavy and light rare earth oxides, excluding cerium and yttrium. The distance from TexAmericas Center to the deposit is about 200 mile, or a 3-hour drive.

- While Louisiana may not be traditionally known for REE deposits, the state's geological diversity and mineral resources suggest that there may be potential for REE occurrences. Some areas and geological formations in Louisiana that could potentially host REEs include:
  - **Coastal Plain Sediments:** Louisiana's coastal plain region contains sedimentary deposits that may host minerals associated with REEs. These sediments could potentially contain trace amounts of REEs, although further exploration and evaluation would be needed to assess their economic viability.
  - **Phosphate Deposits:** Certain phosphate deposits in Louisiana may contain concentrations of monazite, a mineral that can host REEs. Phosphate mining operations in the state may recover monazite as a byproduct, although the extent of REE occurrences in these deposits may vary.
  - **Heavy Mineral Sands:** Some coastal and deltaic environments in Louisiana may contain heavy mineral sands, which can host minerals enriched in REEs. These sands may accumulate along beaches, river deltas, and nearshore areas, potentially containing economically significant concentrations of REEs.

- **Deposits in Texas**
  - Texas is known to have deposits of rare earth elements (REEs), although they may not be as extensively studied or developed as in some other regions. REEs typically occur in association with various minerals and geological formations found throughout the state.
  - The Round Top Mountain near Sierra Blanca, in Hudspeth County, Texas, holds one of the biggest deposits of heavy rare-earth elements (REE) in the US. It also contains a variety of critical industrial minerals and technology metals including lithium, uranium, thorium, beryllium, gallium, hafnium and zirconium. The distance from TexAmericas Center to the deposit is about 725 mile, or a 10.5-hour drive.
  - Siderite or iron carbonate is mined in Linden County, Texas (40 miles south of TexAmericas Center) by Sidco Minerals, from high purity ore. After being dried, crushed and processed from the rich deposits, the ore is shipped to customers who span the globe. Iron Oxide, (Linden) also known as Calcined Iron Oxide is a mineral compound used in a variety of applications such as agriculture, steel making, wastewater treatment, environmental remediation, energy and power production

among others. The company also produces a specific blend of Hematite and Magnetite that is particularly useful for steel feed stock, pigments, remediation, water treatment, welding rods, wastewater treatment among other applications.

- Some areas in Texas where REE deposits have been identified or explored include:
  - **Llano Uplift:** The Llano Uplift in central Texas has been of interest for REE exploration. This region contains geological formations that host minerals such as monazite, bastnäsite, and xenotime, which can contain REEs as byproducts. The distance from Texarkana is about 400 miles.
  - **Granitic Intrusions:** Certain granitic intrusions and pegmatite veins in Texas may contain minerals enriched in REEs. Pegmatites are known for their mineral diversity and can host minerals such as monazite, bastnäsite, and xenotime, which may contain economically significant concentrations of REEs.
  - **Phosphate Deposits:** Some phosphate deposits in Texas may contain significant concentrations of monazite, a mineral that can host REEs. Monazite is often associated with phosphate rock and can be recovered as a byproduct of phosphate mining operations.

3.3.4 Recycling And Reuse Of Rare Earth Elements

The potential to reclaim rare earth elements (REEs) from recycling is significant and increasingly recognized as a critical aspect of sustainable resource management. REEs are essential components in various high-tech products, including electronics, electric vehicles, renewable energy technologies, and defense systems. Given their importance and limited global reserves, recycling offers a valuable opportunity to recover REEs from end-of-life products, industrial waste streams, and manufacturing scrap.

Recycling and Reuse of Rare Earth Elements (REE) is still in its infancy. While REEs could potentially be recovered and reused from LEDs, magnets, fluorescent light bulbs and rechargeable batteries, such recycling is limited and not presently economical. The European Union's REE4EU is one example of an innovative program aiming to retrieve and recycle rare-earth permanent magnets to be used in hybrid vehicles and wind turbine generators. Urban Mining Co., based in San Marcos, Texas, is conducting REE recycling on a pilot, small-scale basis.

The Texarkana region is exceptionally well positioned to be a center of excellence in the development of this industry. Being located within 500-miles of 2,200,000 businesses, 23 of the largest MSA's in the country (10 of which are the fastest growing) and having access to 10 million more residents than any other Texas MSA makes the Texarkana region ripe for this fledgling industry.

Another significant factor is the presence of the DOD's Defense Logistics Agency facility at the Red River Army Depot. This DLA facility is one of the three major facilities which facilitate all inbound and out bound distribution to the DOD facilities and ports in the center of the USA. Because of this, the Red River DLA facility is the primary return point for all electronic waste before being disposed of for all DOD operations in the Central USA. Various resources that could be recovered through a recycling operation in the Texarkana market, likely include neodymium, dysprosium, lanthanum, praseodymium, cerium, europium, terbium, and other REEs.

3.3.5 Traditional Manufacturing

In the greater Texarkana area, you can find a variety of traditional manufacturing operations spanning several industries. Some of these include:

- **Paper and Pulp Manufacturing:** Texarkana is home to several paper mills and pulp manufacturing facilities, benefiting from the region's surplus of timber resources. The significant vertical presence here makes this a cluster.
- **Steel Manufacturing:** Steel fabrication and manufacturing facilities are present in the area, contributing to the construction, advanced manufacturing, and equipment manufacturing sectors. The significant vertical presence here makes this a cluster.
- **Automotive Parts Manufacturing:** There are companies in the Texarkana area involved in the production of automotive parts, supplying the local, national, global, and Defense automotive manufacturing industry. The significant vertical presence here makes this a cluster.
- **Plastics Manufacturing:** Plastic injection molding and extrusion companies operate in the region, producing a wide range of plastic products for various industries. The significant presence here makes this a targeted industry.
- **Food & Beverage Processing:** The food processing industry is significant in the Texarkana area, with facilities involved in meat processing, poultry processing, grain processing, by-product processing, and other food manufacturing activities. The significant vertical presence here makes this a cluster.
- **Wood Products Manufacturing:** Given the abundance and surplus of timber resources in the surrounding area, wood products manufacturing is a prominent industry, encompassing sawmills, lumber processing, furniture manufacturing and specialty product manufacturing. The significant vertical presence here makes this a cluster.
- **Chemical Manufacturing:** Some chemical manufacturing companies operate in the Texarkana area, producing various chemicals for industrial and consumer applications. The significant presence here makes this a targeted industry.
- **Textile Manufacturing:** Though not as prevalent as in previous decades, textile manufacturing operations still exist in the area, producing textiles, garments, and specialty and safety clothing.
    - These are just a few examples of Textile companies and end product manufacturers located in the greater Texarkana region: Stanco Safety

Products, Domtar Industries, International Paper, Majestic Texarkana, and others.

The greater Texarkana area offers several advantages that make it a favorable location for traditional manufacturing operations:

- **Strategic Location:** Texarkana is strategically located at the junction of Texas, Arkansas, Louisiana and Oklahoma, providing easy access to major transportation routes including Interstate highways, railways, and waterways. This central location facilitates efficient distribution of raw materials and finished products to markets across the United States and the globe.
- **Abundant Natural Resources and Raw Materials:** The region is rich in resources, such as grains, meats, dairy, steel, aluminum, chemicals, rubber, paper, pulp, plastics, and particularly timber, which is essential for industries such as paper and wood products manufacturing. The availability of raw materials at competitive prices due to favorable logistics costs reduces production costs for manufacturers in these sectors.
- **Skilled Workforce:** Texarkana benefits from a skilled and experienced workforce with a strong background in traditional manufacturing industries in a Right-To-Work State. The presence of vocational training programs and technical colleges in additional world class universities in the area helps to ensure a steady supply of qualified workers for manufacturing operations.
- **Supportive Business Environment:** Local and state governments in the Texarkana area often offer incentives such as tax breaks, grants, and infrastructure support to attract and retain manufacturing businesses. Additionally, the region's business-friendly regulatory environment and low cost of living make it an attractive destination for companies looking to establish or expand their manufacturing operations.
- **Access to Utilities:** Texarkana has reliable access to utilities with excess capacity such as electricity, water, sewer, fiber, and natural gas, which are essential for manufacturing processes. The availability of affordable and stable utility services reduces operational costs and enhances the competitiveness of manufacturing businesses in the area.
- **Industrial Infrastructure:** The Texarkana area has well-developed industrial infrastructure, including business services, industrial parks, manufacturing facilities, and warehousing space. This infrastructure supports the efficient operation of manufacturing businesses and facilitates collaboration and synergy among industry players.
- **Quality of Life:** Texarkana offers a high quality of life with affordable housing, good schools, and recreational amenities. This makes it an attractive location for skilled workers seeking employment opportunities in traditional manufacturing industries.
    - Overall, the combination of strategic location, abundant resources, skilled workforce, supportive business environment, access to utilities, industrial

infrastructure, and quality of life makes the greater Texarkana area a desirable location for traditional manufacturing operations.

Whether you are looking to expand your business, your current lease is expiring, you are planning a move to Texas, or you have considered leaving the mid-south region, talk to us first!

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