ENVIRONMENTAL ASSESSMENT KORE Power − KOREPlex Facility, City of Buckeye, Maricopa County, Arizona

Final Environmental Assessment and Finding of No Significant Impact

DOE/EA-2222
September 2023

CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

ACRONYMS AND ABBREVIATIONS

Acronym	Definition
Act	Section 136 of the Energy Independence and Security Act of 2007, as amended
ADEQ	Arizona Department of Environmental Quality
ADOT	Arizona Department of Transportation
AGFD	Arizona Game and Fish Department
APE	area of potential effect
APS	Arizona Public Service Company
ATVM Program	Advanced Technology Vehicle Manufacturing Loan Program
BACT	best available control technology
CFR	Code of Federal Regulations
City	City of Buckeye
CO	carbon monoxide
CO_2	carbon dioxide
DOE	U.S. Department of Energy
EA	environmental assessment
EJ	environmental justice
EPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FTZ	Foreign Trade Zone
GHG	greenhouse gas
GWh	gigawatt-hours
HAP	Hazardous air pollutant
HVAC	heating, ventilation, and air-conditioning
IPaC	Information for Planning and Consultation
KORE Power	KORE Power, Inc.
LFP	lithium-iron-phosphate
LPO	Loan Programs Office
MC	Maricopa County
MCAQD	Maricopa County Air Quality Division
NAAQS	National Ambient Air Quality Standards
NATA	National Air Toxics Assessment
NEPA	National Environmental Policy Act
NMC	nickel-manganese-cobalt
NMP	n-methyl-pyrrolidone
NO_X	nitrogen oxides
OSHA	the Occupational Safety and Health Administration
PM	Particulate-matter
PM_{10}	equal to or smaller than 10 microns in diameter
$PM_{2.5}$	less than 2.5 microns in diameter
RCRA	Resource Conservation and Recovery Act
SHPO	State Historic Preservation Office
SO_2	sulfur dioxide

Acronym	Definition
SR	State Route
U.S.C.	United States Code
USFWS	U.S. Fish and Wildlife Service
VOC	volatile organic compound

1.0 PURPOSE AND NEED

1.1 Purpose and Need for Agency Action

The purpose and need for agency action are to comply with the U.S. Department of Energy (DOE) mandate under Section 136 of the Energy Independence and Security Act of 2007, as amended (Act) (42 United States Code [U.S.C.] Section 17013), to select projects for financial assistance that are consistent with the goals of the Act. DOE has prepared this EA to comply with NEPA, Council on Environmental Quality (CEQ) regulations implementing NEPA (40 Code of Federal Regulations [CFR] Parts 1500−1508), and DOE NEPA Implementing Procedures (10 CFR Part 1021).

KORE Power, Inc. (KORE Power), is a developer of large-scale battery cells, which are produced primarily to support utility-scale energy storage systems and the e-mobility industry. KORE Power has applied for a loan pursuant to DOE’s Advanced Technology Vehicle Manufacturing Loan Program (ATVM Program), which was established to provide loans to automobile and automobile parts manufacturers for the cost of re-equipping, expanding, or establishing manufacturing facilities in the U.S. that produce advanced technology vehicles or qualified components. The primary goal of the ATVM Program is to improve fuel economy for light-duty vehicles and thereby reduce ozone precursors, greenhouse gas (GHG) emissions, and particulate matter emissions associated with vehicle emissions.

Construction and operation of the proposed manufacturing facility would help to ensure a reliable and independent U.S.-based supply of large-scale battery cells. Ultimately, the KORE Power manufacturing facility would have an estimated annual production capacity of approximately 12 gigawatt-hours (GWh) and be powered, in part, by an on-site solar cogeneration plant. KORE Power has applied for financial assistance under the ATVM Program to support development of the first phase of the proposed manufacturing facility. Phase 1 would include construction and operation of an approximately 1.15-million-square-foot building that would house two production lines, with an annual capacity of approximately 6 GWh. The project would also involve administrative offices, material storage and mechanical systems buildings, parking and access roads, and stormwater retention facilities.

The batteries produced by KORE Power support zero-emission EVs and will displace vehicles with internal combustion engines and their associated emissions, such as ozone precursors, particulate matter, and GHGs that contribute to global warming, as is consistent with the primary goal of the ATVM Program. Financially supporting KORE Power's proposals would help bring battery cells and batteries to market and into greater use, while contributing to the expansion of zero-emission propulsion, thereby reducing overall national emissions of air pollutants and human-caused GHGs.

1.2 Background

The ATVM Program is administered by DOE’s Loan Programs Office (LPO). LPO originates, underwrites, and services loans for eligible projects, including those involving automotive or component manufacturers. Pursuant to 10 Code of Federal Regulations (CFR) 611.2, eligible projects include re-equipping, expanding, or establishing a manufacturing facility in the U.S. to produce qualifying advanced technology vehicles or qualifying components; engineering integration performed in the U.S. for qualifying advanced technology vehicles and qualifying components; or manufacturing, recycling, processing, reprocessing, remediating, or reusing materials, components, or subcomponents involving critical minerals, critical minerals production, or the supply chain for such materials, as set forth in Executive Order 13953, *Executive Order Addressing the Threat to the Domestic Supply Chain from Reliance on Critical Minerals from Foreign Adversaries*, and Executive Order 13817, *A Federal Strategy to Ensure Secure and Reliable Supplies of Critical Minerals*, as amended. The primary goal of the ATVM Program is to improve fuel economy for light-duty vehicles and thereby reduce ozone precursors, greenhouse gas (GHG) emissions, and particulate emissions associated with vehicle fuel combustion. The ATVM Program is designed to stimulate production of the technology required to meet program objectives.

To fund its project, KORE power applied to the DOE ATVM Program for financial assistance. LPO determined that the application substantially complete per the rules governing the ATVM Program in 10 Code of Federal Regulations (CFR) Part 611. KORE Power was subsequently invited to enter into the LPO's due diligence process.

1.3 Scope of Environmental Assessment

LPO has prepared this EA to address the planned new construction and operation of Phase 1 of the proposed manufacturing facility (the KOREPlex) on an approximately 214-acre parcel (project area) in Buckeye, Maricopa County, Arizona (Figure 1). Future phases of the KOREPlex facility are outside the scope of analysis for this EA and are not considered in this evaluation.

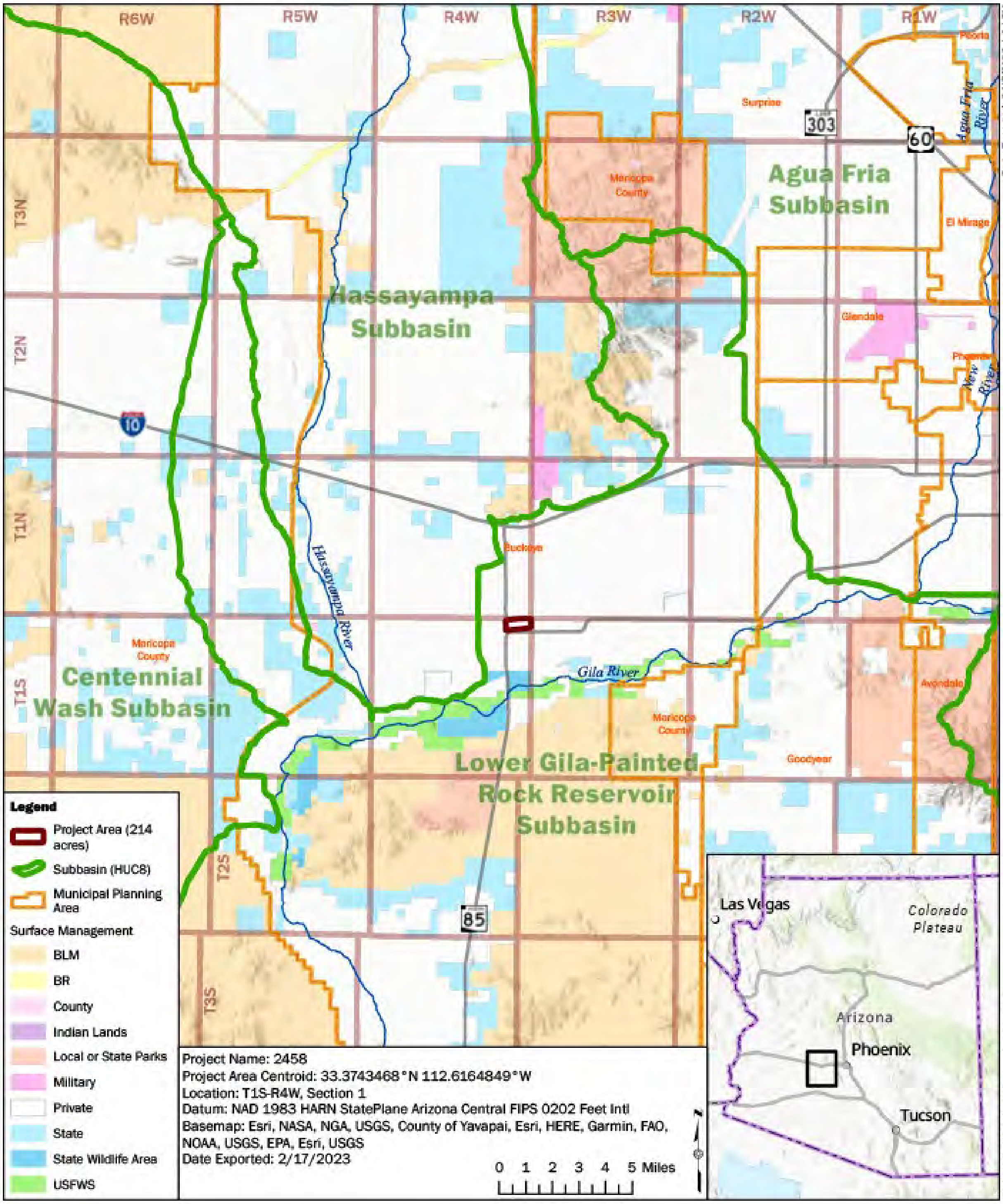
Section 2.0 of this EA describes the construction and operation of the KOREPlex manufacturing facility (the project) that is subject to LPO's financial assistance, e.g. the proposed action. Section 3.0 provides details regarding existing conditions occurring within and around the project area and analyzes the potential environmental consequences (impacts) associated with construction and operation of the KOREPlex manufacturing facility. Based on LPO's review of the scope of the project (i.e., construction and tooling of the new facility in Buckeye, Arizona), the existing site conditions, and permit status, the scope of the issues analyzed in this EA includes:

- Aesthetics and visual resources
- Water resources, including surface water and groundwater
- Air quality, including GHG emissions and climate change
- Biological resources, including vegetation, wildlife, and special-status species
- Cultural resources
- Socioeconomics and environmental justice and
- Human environment, including transportation, public health and safety, and waste management.

These resource areas were identified as potentially being affected by the project and each was assessed to determine the nature, extent, and significance of those impacts (see Section 3, Environmental Consequences). The assessment combined desktop research and analysis of existing available information with select field studies, including site assessments related to cultural resources, biological resources, and the identification of potential jurisdictional waters of the U.S.

Because the site for the proposed KOREPlex facility is in a rural area, on previously disturbed land (former agricultural production) away from sensitive noise receptors, and within an area zoned for industrial use, impacts on soil, geology, land use, recreational resources, as well as noise sensitive receptors are not anticipated. Additionally, the U.S. Army Corps of Engineers has concurred that waters of the U.S., including wetlands, do not occur in the project area (USACE 2022). As such, all of the aforementioned resources areas are not included in the scope of this EA.

Figure 1 Regional Overview



HILGARTWILSON
ENGINEER | PLAN | SURVEY | MANAGE

KOREPOWER

FIGURE 1 – REGIONAL OVERVIEW

KORE Power
Buckeye, AZ

2.0 DESCRIPTION OF THE PROPOSED ACTION

KORE Power is seeking to develop a manufacturing facility for the production of battery cells to support energy storage systems and e-mobility industries. As depicted in Figure 2, KORE Power proposes to construct the manufacturing facility on an approximately 214-acre parcel of land located south of the Union Pacific Railroad between Baseline Road and the Buckeye Canal and between State Route (SR) 85 to the west and Rooks Road to the east. The project area lies within the north half of Section 1 of Township 1 South, Range 4 West, of the Gila and Salt River Meridian.

The proposed KOREPlex facility will be located on private land approximately 1.5 miles west of the Buckeye city center and historic downtown. The landscape setting in the vicinity of the KOREPlex facility is predominantly rural, consisting primarily of agricultural land. However, residential master-planned communities exist northeast and southeast of the project area. Commercial and industrial uses exist or are under construction immediately west of SR 85, south of the project area along Maricopa County (MC) 85 and to the north along Baseline Road.

The current land use designation is Employment, per the *Imagine Buckeye 2040 General Plan,* Future Land Use Map (Matrix Design Group, 2018, as amended 2022). The current zoning designation is General Commerce, per the Buckeye Zoning Districts Map (City of Buckeye, 2022). The project area is also within Buckeye's Downtown Incentive District, which establishes certain reduced fees to encourage redevelopment and growth in the City's center.

During construction, the entire 214-acre site will be subject to mass grading and related activities, including, but not limited to, grading for construction offices and laydown areas. The entire project site has been previously disturbed by agricultural activities and includes fields, access roads, and irrigation facilities.

Table 1. Estimated Development Areas by Phase

	Estimated Development Area (acres)		
Primary Component	**Phase 1**	**Phase 2**	**Total**
Buildings and tanks	26	24	50
Access roads and parking areas	30	20	50
Electrical substation	6	--	6
Road, utility, and trail easements	25	--	25
Drainage & retention	50	--	50
Total	137	44	181
Landscape area*	12	10	22

**The City of Buckeye requires 10 percent of the site to be subject to landscaping/site enhancement. This will overlap and include portions of the area designated for drainage and retention; therefore, it is not included in the site totals. The timing of for landscaping is subject to change.*

Figure 2 Aerial Photograph

FIGURE 2 - AERIAL PHOTOGRAPH

HILGARTWILSON ENGINEER | PLAN | SURVEY | MANAGE

KOREPOWER

KORE POWER
BUCKEYE, AZ

2.1 Construction

2.1.1 Facilities

The proposed DOE loan will support development of the first phase of the project, which will include construction and operation of an approximately 1.15-million-square-foot manufacturing facility that will house two production lines with an annual capacity of approximately 6 GWh. The facility will also include administrative offices, material storage areas, buildings for mechanical systems, an electrical substation, employee parking and access roads, and stormwater retention facilities. Figure 3 Proposed Action Site Layout shows the preliminary site plan for the project.[1]

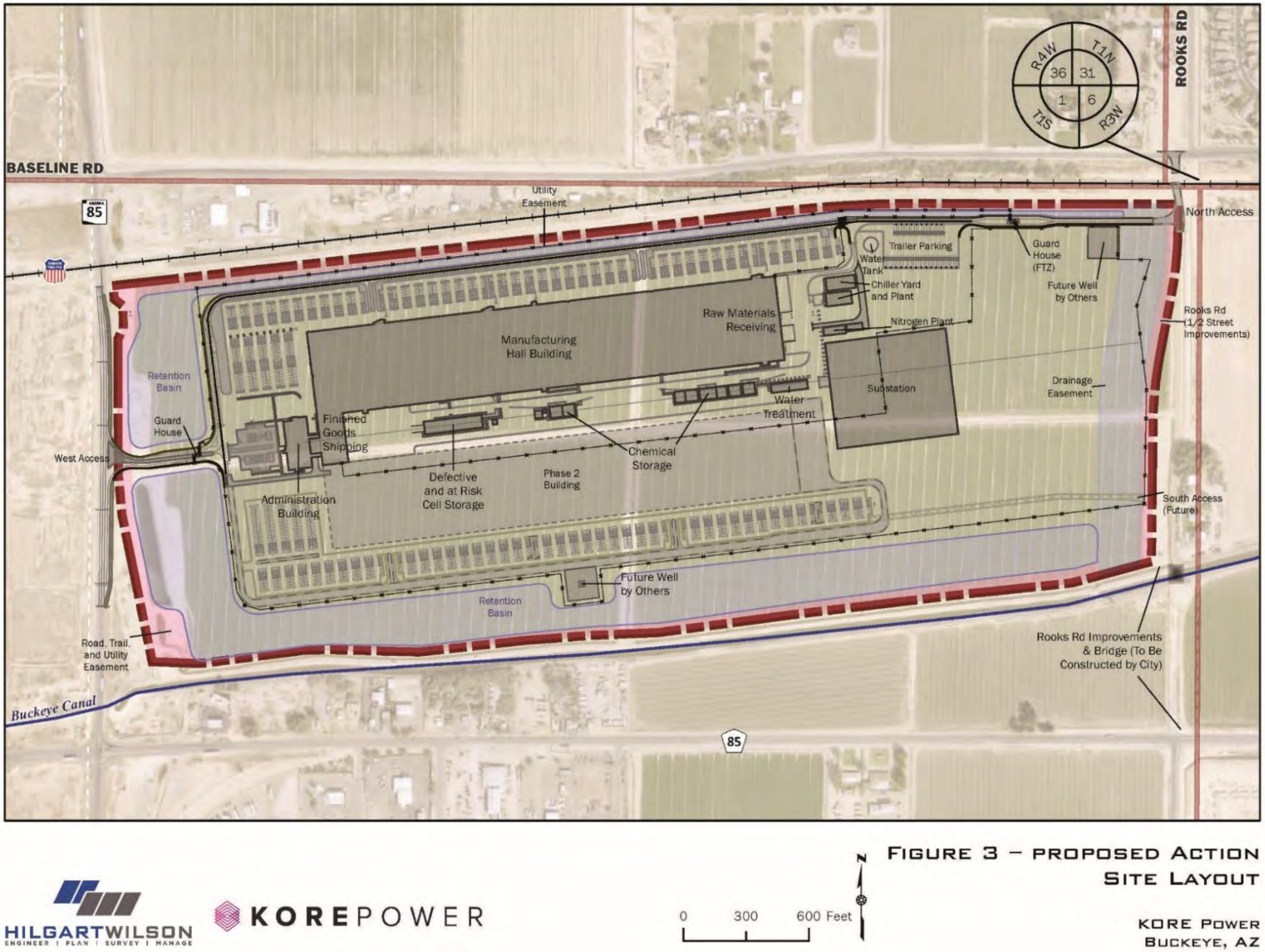
The manufacturing facility will comprise three primary sections, each of which will be approximately 600 feet by 400 feet. Including the connected raw materials warehouse and finished goods warehouse, the overall footprint of the main building will cover more than 900,000 square feet (roughly 2,250 feet long [east–west] by 400 feet wide [north–south]. The manufacturing facility will have a single story, with varying ceiling clearances, depending on equipment. The maximum building height will be approximately 75 feet. The building foundation will be constructed with cast-in-place reinforced-concrete drilled piers/caissons. The roof system will be fabricated with steel trusses supported by steel columns. The interior building floor will be concrete, with epoxy coating (or similar) in some areas. Metal decking/equipment platforms will be erected in some areas to accommodate some of the process units and/or heating, ventilation, and air-conditioning (HVAC) systems. The manufacturing facility will include space for battery production as the process progresses from the raw materials receiving area (with truck bays) at the east end of the building to the finished goods area at the west end of the building, at which point the batteries will be shipped by tractor-trailer rigs (see Section 2.2.3). Accessory rooms and facilities will generally be constructed along the center spine of the building (e.g., restrooms, employee break rooms, employee offices, conference rooms, quality assurance laboratories, control rooms).

Other facilities will be staged in supporting structures south of the manufacturing facility; the placement of these facilities, including tanks for chemical storage, will generally correspond to the requirements of a particular process step. It is anticipated that four 30,000-gallon tanks and one 5,000-gallon tank will be needed for electrolyte storage. Additional chemical storage will be required for n-methyl-pyrrolidone (NMP) and carbon nanotubes. The chemical storage areas will be constructed with cast-in-place reinforced-concrete for containment purposes; these areas will slope to a sump pump in one corner to facilitate waste removal, if needed. Containment areas will provide chemical-resistant water stops and have an epoxy coating to decrease absorption. A pre-engineered metal building will be constructed to store defective and at-risk cells at the west end of the area south of the manufacturing facility.

HVAC systems will include a combination of equipment, such as dehumidification units, rooftop units, air rotation units, air handling units, and exhaust fans, for climate control and process service. Preliminarily, the primary climate control system is anticipated to include an estimated 38 dehumidification units and 62 rooftop units.

[1] The site layout depicted in Figure 3 is a preliminary site plan and subject to refinement and change.

Figure 3 Proposed Action Site Layout



The project will include an administration building at the west end of the manufacturing facility; the administration building will be a two-story structure, consisting of approximately 30,000 square feet on each level. Visitor parking and an entrance will be provided farther to the west. Facilities east of the manufacturing facility will include a chiller yard and compressed air plant, a nitrogen plant, and an area for a substation that will be operated and maintained by the Arizona Public Service Company (APS) (see Section 2.1.3). One guard house and gated entry will be provided for Foreign Trade Zone (FTZ) ingress and egress along the north access road; the guard house will comprise prefabricated modular assemblies.

2.1.2 Stormwater Management

The stormwater retention areas to be constructed will be capable of managing the volume of runoff generated in the project area as a result of a 100-year, 2-hour return storm event. Stormwater runoff from the northern portion of the site and building will be directed to an approximately 10-acre retention basin at the northwest corner of the project area. Stormwater runoff from the southern portion of the building and remainder of the project area will be directed to an approximately 30-acre retention area along the southern edge of the project area. Stormwater will be managed using a combination of overland flow and open channels to direct runoff to surface inlets; runoff will flow into an underground storm collection system or directly to retention areas. The basins will retain stormwater and discharge through evaporation and drywells.

The project area will also have a regional stormwater conveyance channel along the eastern edge of the property. It is not anticipated that on-site stormwater runoff will intermingle with off-site stormwater conveyed in the regional channel. The size and configuration of the regional channel have not been determined.[2]

2.1.3 Utilities

Wet Utilities

Potable water will be provided by the City of Buckeye (City). This water will be used for drinking; it will also be used in restrooms and a closed-loop chiller water. The City's water will also feed into a reverse-osmosis and de-ionization treatment unit, providing ultrapure process water for the facility.

A new water main will be constructed along the Rooks Road alignment. The new main will connect to existing water lines in Baseline Road and MC 85. Water demand at the facility is anticipated to total approximately 500 acre-feet per year, which is roughly half the amount of water that had been used annually for irrigation associated with agricultural use.[3] KORE Power plans to provide up to two locations for groundwater wells to the City in the project area.[4]

Fire protection services will be provided by the City of Buckeye; water for fire-flow demand will be provided from the City's water distribution system. This will be supplemented by a fire-

[2] If the channel is constructed as an underground culvert, the corresponding easement will be roughly 20 to 30 feet wide. Alternately, if the channel is constructed as an earthen ditch, the width will be roughly 150 to 170 feet. Other configurations, such as those involving drainage tiles or shotcrete, may be considered; these will alter the footprint of the drainage easement.

[3] The project area is under Irrigation Grandfather Right No. 58-103039.001, with an annual allotment of 985.73 acre-feet of water (Arizona Department of Water Resources, 2023).

[4] Groundwater wells will be constructed, operated, and maintained by the City of Buckeye; the wells are not a part of the scope of this analysis. Groundwater from wells in the project area will be conveyed through water transmission mains to an existing water campus; following potential treatment and chlorination, potable water will be conveyed (indirectly) to the KORE Power facility through the City's water distribution system.

protection pumphouse and storage tank that will be constructed on-site. The storage tank will be sized in accordance with the requirements of the Fire Marshal, providing an available fire flow of 4,000 gallons per minute for 4 hours, or 960,000 gallons, and booster pumping capacity.

Domestic wastewater will be conveyed generally to the southeast corner of the site and discharged from a connection to the City's existing wastewater collection system in Rooks Road. A small on-site lift station may be required to facilitate this connection. Currently, process wastewater is anticipated to be collected from sumps located throughout the plant and pumped to a wastewater treatment area south of the Phase 1 manufacturing facility. The primary sources of process wastewater are anticipated to be water from cleaning the mixing areas and, infrequently, tray washing.

The volume of process wastewater is estimated to be approximately 20,000 gallons per month. Process wastewater is anticipated to be pretreated on-site and then discharged to the City's existing wastewater collection system. Routine sampling and monitoring will ensure compliance with local limits established by the City of Buckeye's industrial pretreatment program (City of Buckeye, 2021). Alternately, process wastewater will be collected, stored in holding tanks with secondary containment, and hauled by tanker truck to an off-site facility for treatment.

Dry Utilities

APS will be the electric utility provider. An electrical substation will be constructed on approximately 6 to 8 acres of the site to facilitate three-phase, 69-kilovolt service to the site.

Natural gas service will be provided by Southwest Gas; it is assumed that the connection will enter the site from the northeast and run east along the northern utility right of way.

It is anticipated that communication facilities will include fiber optic/internet. Robust internal control systems will be designed and integrated into the facility.

2.1.4 Transportation

Access for construction on the site will be via northbound SR 85; a second point of ingress/egress will be provided via Rooks Road northbound to Baseline Road at the northeast corner of the site.

In anticipation of operations, KORE Power is working with the City of Buckeye and the Arizona Department of Transportation (ADOT) to develop appropriate access routes and traffic solutions for facility operations. As part of the project, the following improvements to transportation infrastructure are anticipated, based on the latest draft of the traffic impact analysis (Southwest Traffic Engineering, 2023).

- Improvements to SR 85 will consist of the addition of a right-turn acceleration/ deceleration lane along the frontage of the KOREPlex facility, in accordance with ADOT guidelines. This driveway will be the primary route for employee and visitor ingress and egress to the site ("west access").
- The primary truck access route to the facility will be via MC 85 and Rooks Road.
  - For Phase 1, truck access to the KOREPlex facility will be via Rooks Road near the northeast corner of the site ("north access").
  - Ultimately, a second point of connection to the KOREPlex facility will be added to Rooks Road ("south access").

  - The southbound and northbound turn lanes to Rooks Road from the north and south access roads on the KOREPlex facility will provide adequate storage to facilitate traffic movements.

- KORE Power will dedicate 70 feet along the eastern frontage of the project area, providing a right of way for half-street improvements along Rooks Road plus an 8-foot-wide public utility easement. The half-street improvements are anticipated to include three travel lanes, along with a curb, gutter, and sidewalk.
- The City of Buckeye will extend improvements to the Rooks Road alignment south of the KOREPlex facility; this will include adding a bridge over the Buckeye Canal.
- Stop signs will regulate traffic from Rooks Road to MC 85 and from Rooks Road to Baseline Road. These intersections will be monitored as the KOREPlex facility and other developments progress. Traffic signals will be installed when warranted.
- It is anticipated that dual right-turn lanes will be constructed at the intersection of Southern Avenue and northbound SR 85, either as part of the second phase of the KOREPlex facility or if warranted by other development in the area.

2.1.5 Schedule

Construction of the KORE Power facility will include site preparation and the installation of temporary facilities, security fencing, access roads, parking lots, and construction laydown areas.

Clearing and grubbing will be followed by mass grading of the site. Building construction will start with forming and pouring the concrete foundations. Wet and dry utilities will be brought to the project site. Building and process structure erection will be initiated shortly thereafter. The installation of mechanical systems and process equipment, as well as electrical and instrumentation infrastructure, will be the final construction step, leading to commissioning and the start of operations.

Phase 1 construction was initiated during the fourth quarter of 2022; construction completion is anticipated in fourth quarter of 2024.[5] Up to 1,000 new jobs are anticipated during construction.

KORE Power will be responsible for compliance with federal, state, and local laws and regulations, including, but not limited to, the Clean Air Act, Clean Water Act, National Historic Preservation Act, and Endangered Species Act. The City of Buckeye will issue building permits in accordance with City and Maricopa County codes and ordinances. The general contractor will be responsible for compliance with permits for construction, including, but not limited to, a dust control permit from the Maricopa County Air Quality Division (MCAQD) and stormwater pollution prevention permits issued by the Arizona Department of Environmental Quality (ADEQ). A list of the permits that have been completed or are in process is included in Appendix A, List of Permits.

2.2 Operations

2.2.1 Personnel

The KOREPlex facility is anticipated to require approximately 1,500 employees for operation of Phase 1 buildout. Preliminarily, the facility will operate on two 12-hour shifts per day, 7 days per

[5] DOE issued a memorandum entitled *Allowable Interim Actions under NEPA Review – KORE Power (Loan #A1017)* on November 28, 2022, which contemplated the initiation of construction activities prior to completion of the NEPA review process.

week, with personnel rotating 36-hour and 48-hour work weeks. Buildout of Phase 2 will support an estimated 3,000 employees on the same rotating schedule.

2.2.2 Traffic and Transportation

Phase 1 of the project is anticipated to generate approximately 100 truck trips per day plus employee trips. Raw material deliveries will enter the site via the Rooks Road entrance on the east side of the facility. After passing through a guard station, deliveries will be directed to the truck bays at the east end of the manufacturing facility. Chemical deliveries and supplies will be transferred to fixed tanks located within the secondary containment area along the delivery route on the south side of the building. Shipping of the outgoing product will occur at the truck bays on the west end of the manufacturing facility.

The primary truck access route to and from the site will be the north access driveway from Rooks Road to MC 85 and then to SR 85 at the existing signalized intersection. The west access driveway, with right-in/right-out traffic movements to SR 85, will be the primary route for employee and visitor access. When SR 85 ultimately transitions to a limited access freeway, it is anticipated that access along the western edge of the site will connect to a frontage road.

2.2.3 Production

Generally, battery cells comprise three primary components: electrodes (anodes and cathodes), electrolytes, and separators. Battery cells can be packaged into different form factors (or shapes) and then sold individually as battery cells or assembled into modules, battery packs, or larger configurations (refer to Appendix B, Battery Basics).

By using various materials and chemicals for the primary components, batteries can be tailored for different applications. KORE Power proposes to manufacture lithium-ion battery cells, using nickel-manganese-cobalt (NMC) in pouch form and/or lithium-iron-phosphate (LFP) chemical configurations in prismatic forms. The NMC and LFP batteries may be assembled into modules and packs and integrated into e-mobility products and/or used for utility-scale energy storage. Although the aforementioned chemistries and form factors are anticipated, research into battery systems continues; the KORE Power facility may adjust or change its production lines to match innovative technologies and developments in the future.

The battery production process is highly automated and precise. Many of the individual steps, as well as much of the production line, include internal or external recycle functions that eliminate and/or substantially reduce waste streams. Control equipment will be installed where appropriate to maintain air quality standards.[6] Production will also include quality assurance and quality control measures to meet performance requirements and ensure product stability and safety. The process steps generally include:

- Production of the electrode
- Assembly of the battery cell
- Battery formation
- Module assembly

The production sequence and major equipment required for the battery cell manufacturing process are outlined herein.

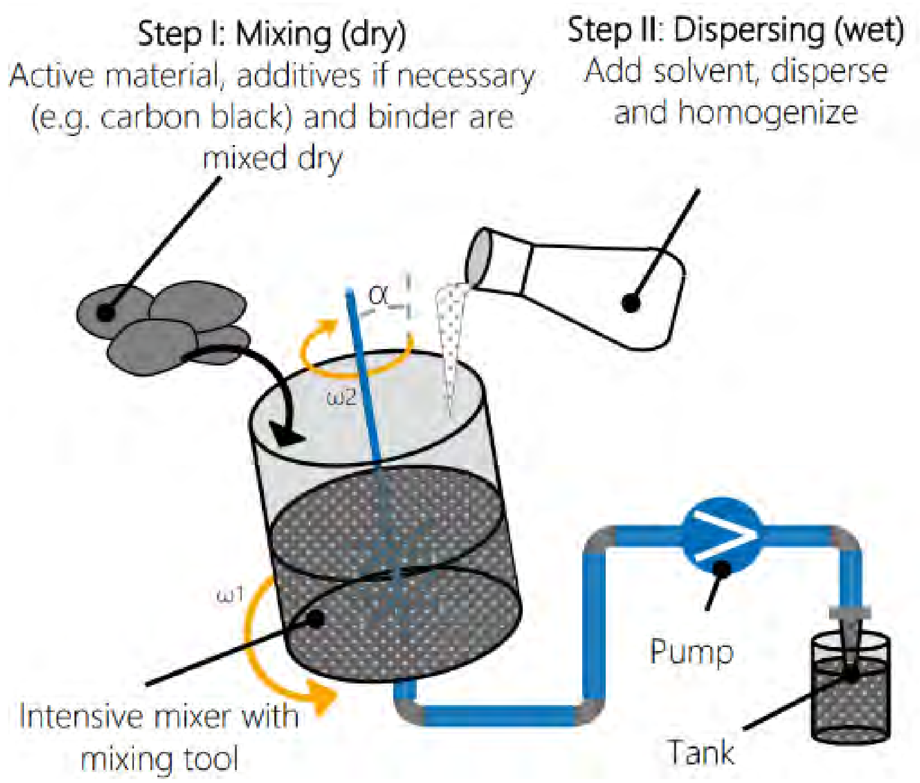
[6] See the additional discussion of air quality control measures in Section 3.2.2

Electrode Production

Mixing

Raw materials, such as conductive additives, solvents, and binders, are mixed in a dry form and then combined with liquids to form the cathode slurry, anode slurry, and ceramic slurry (Figure 4).

Figure 4 Mixing



Uniform distribution of the components, along with monitoring parameters such as viscosity, density, and solid content, is directly related to the quality of the battery. The process will be fully enclosed to avoid gas inclusions and control dust and moisture. Particulate-matter (PM) emissions generated from the mixing process will be abated with the use of dust collectors.

Coating

As depicted in Figure 5, slurries generated from the mixing step will be evenly spread onto the current collectors (typically copper and aluminum foils) and dried (Figure 6). NMP solvent will be used as part of this process; solvent vapors will be abated with use of an exhaust gas recovery device. Following coating and drying, the collectors will be wound into coils before proceeding to the roll pressing operation.

Figure 5 Coating

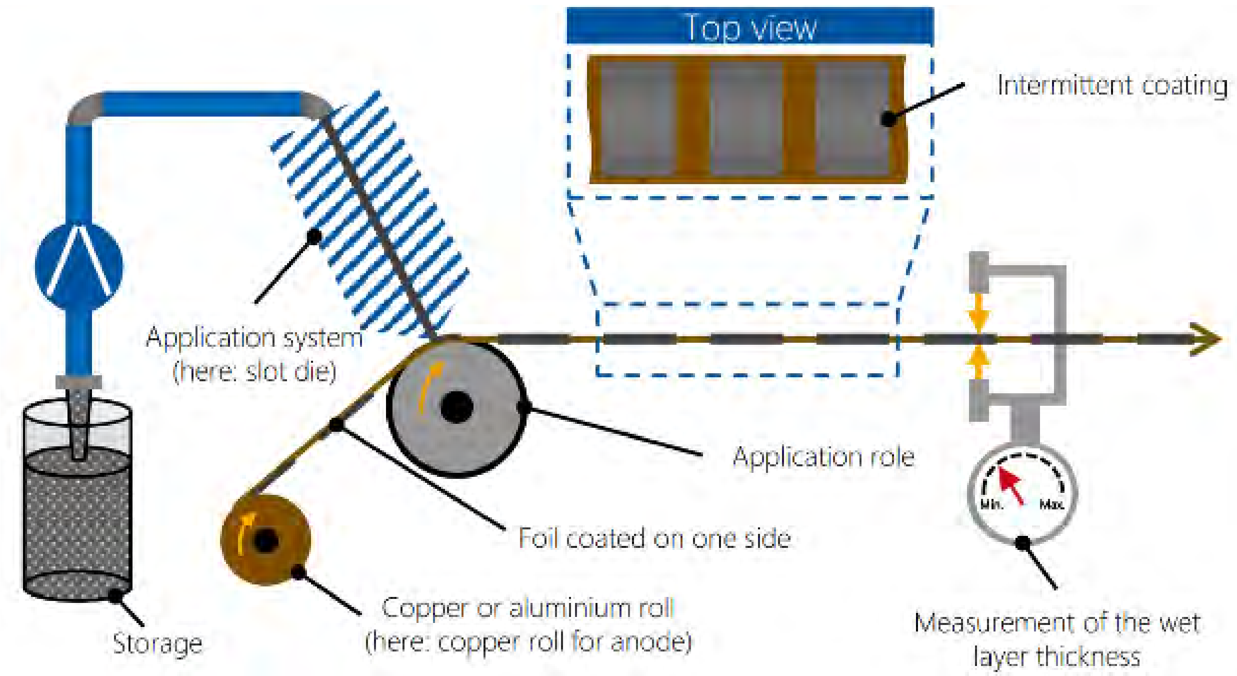
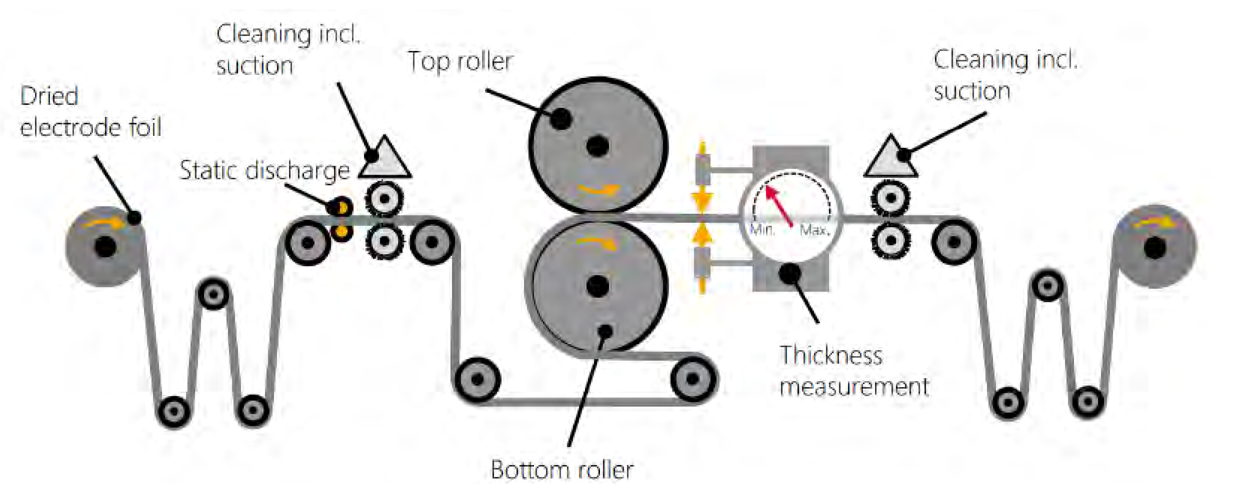


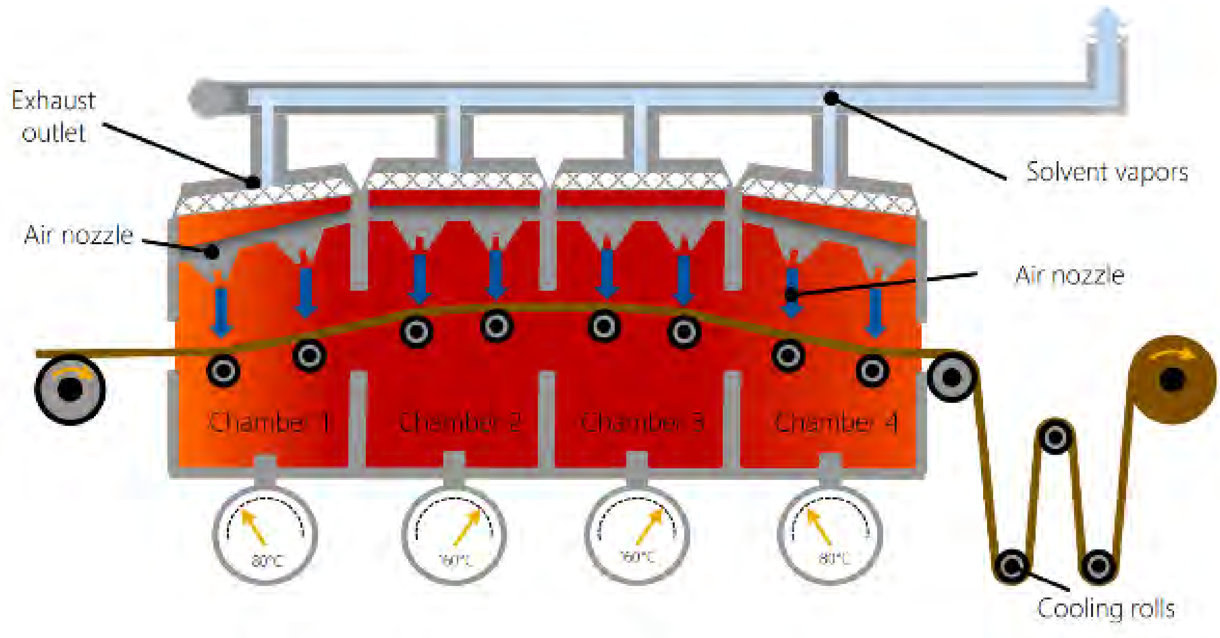
Figure 6 Drying



<u>Roll Pressing</u>

The coated copper or aluminum foil will be compressed by a pair of rollers (Figure 7). The electrode foil will be statically discharged and cleaned by brushes or air flow. The material will be compacted by the top and bottom rollers.

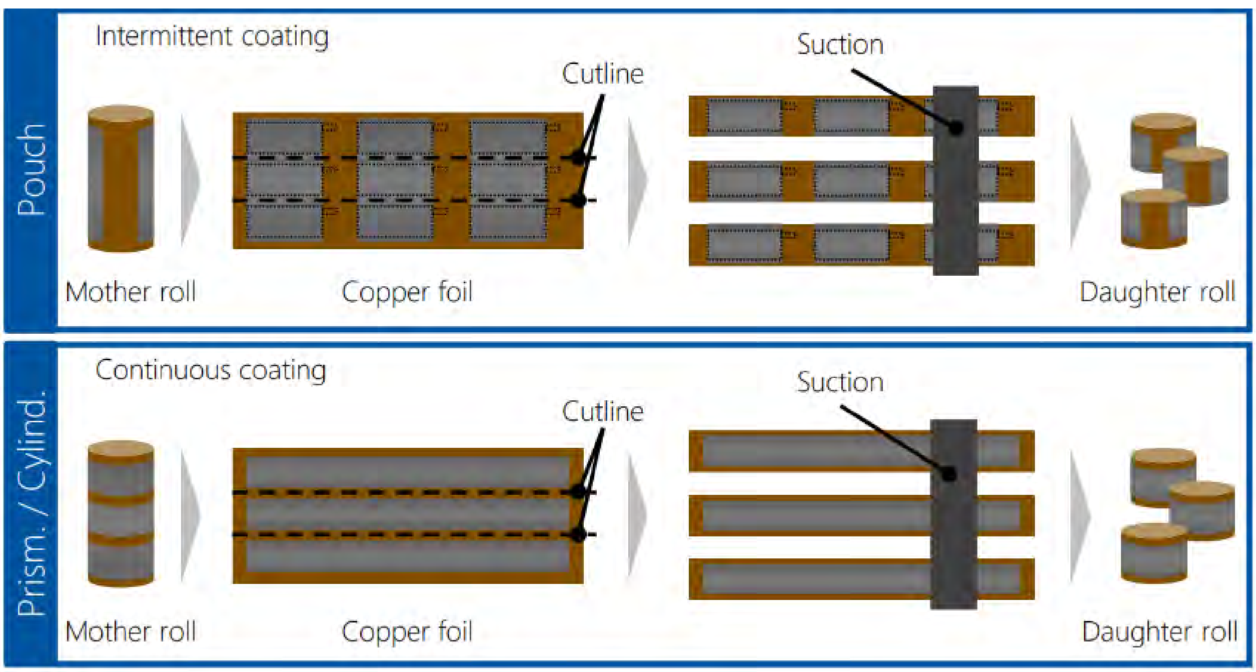
Figure 7 Roll Pressing



Notching/ Slitting

Typically, rolls are fed to a slitting station in which a wide electrode coil (mother roll) is divided into several smaller electrode coils (daughter rolls). The individual daughter rolls are then cleaned and rewound. Figure 8 depicts the general notching and slitting process for both pouch and prismatic-/cylinder-form batteries.

Figure 8 Notching/ Slitting



Cell Assembly

Die Cutting and Stacking

The separated electrode sheets will be fixed with adhesive tape or glue and shear cut with a punching tool (Figure 9) before being stacked in a repeating cycle of anode, separator, cathode, separator, etc. (Figure 10). PM emissions generated from the cutting process will be abated by the dust collector.

Figure 9 Die Cutting

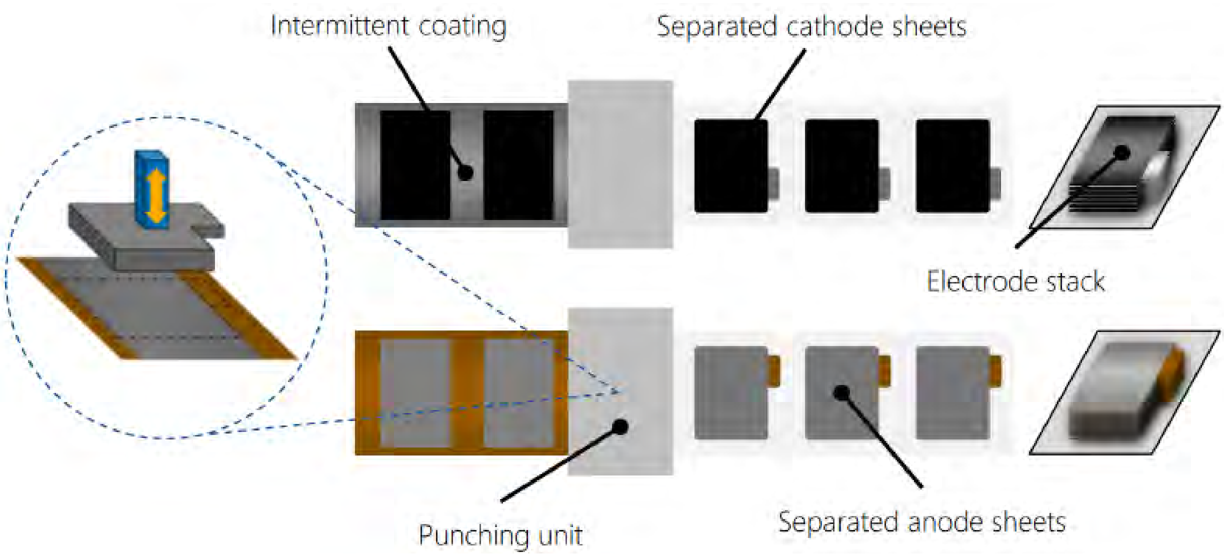
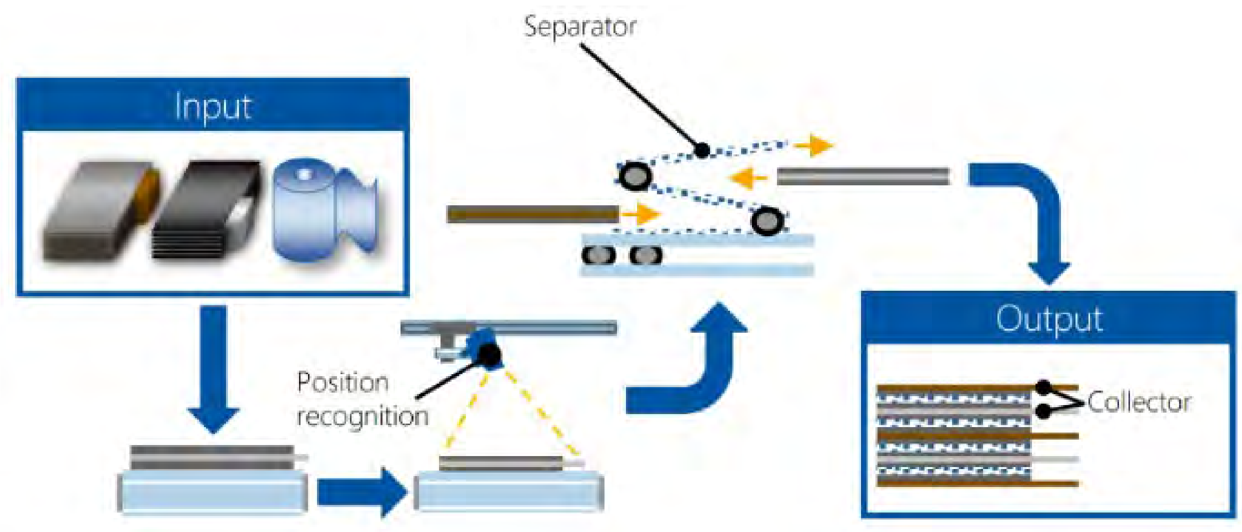


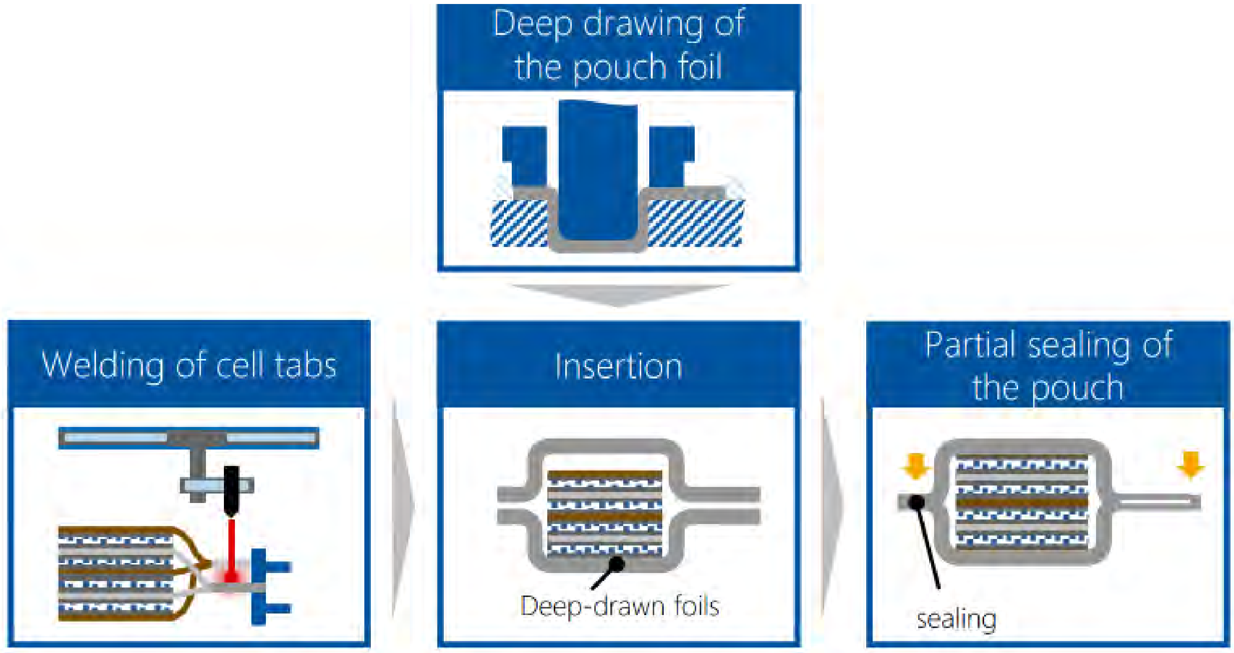
Figure 10 Stacking



Welding, Packing, and Sealing (Pouch)

The current collectors (anodes and cathodes) will be connected to cell tabs using an ultrasonic or laser welding process (Figure 11). The cell stack will then be positioned in a pouch and sealed on three sides (typically). One side of the cell will be left open to add electrolyte. PM emissions from welding will be abated by the dust collector.

Figure 11 Welding



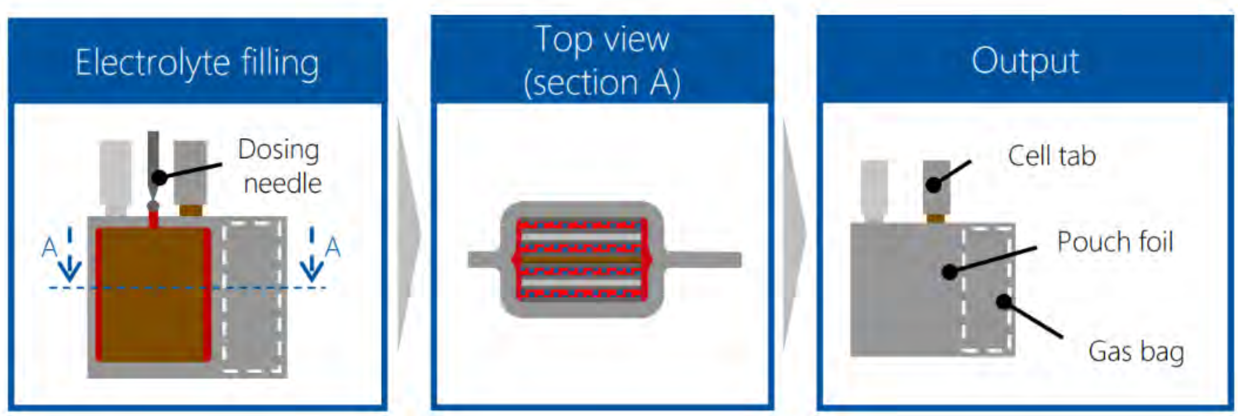
Baking

Cells will be placed in a large oven and dried at high temperature and under vacuum to control moisture and oxygen.

Electrolyte Filling

As depicted in Figure 12, the electrolyte will enter the cell, which is under vacuum, with help from a high-precision dosing needle. The liquid electrolyte consists of organic carbonates that generate volatile organic compound (VOC) emissions. VOC emissions will be abated by carbon beds.

Figure 12 Electrolyte Filling



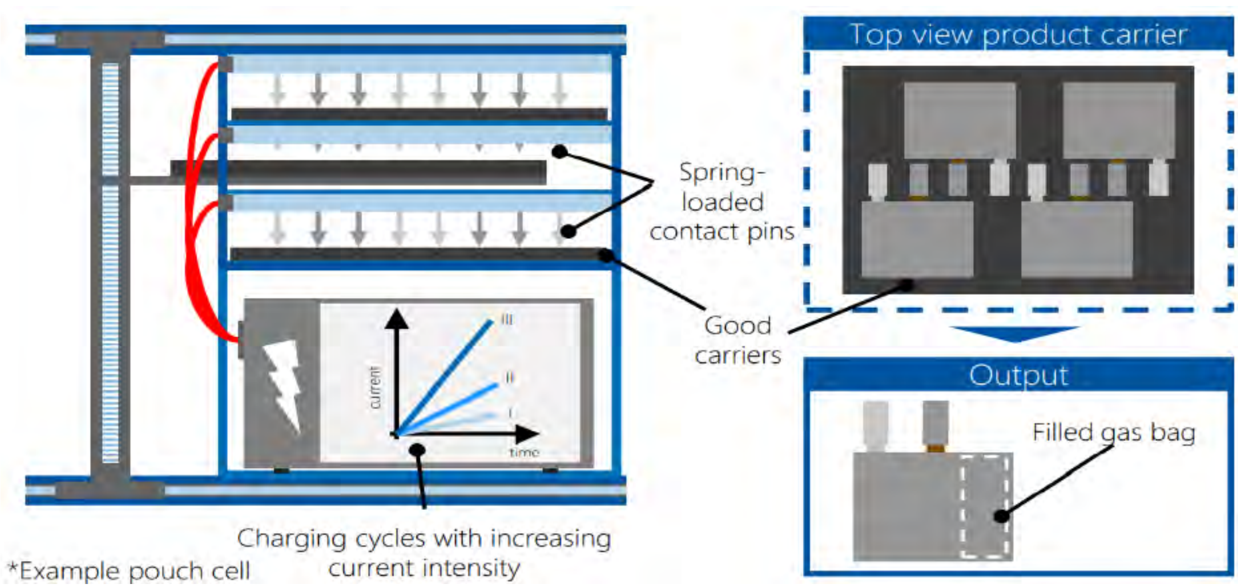
The cell will also get activated (wetted) by applying pressure and relying on the capillary effect. Finally, the pouch foil will be sealed under vacuum.

Formation

<u>Formation</u>

The cells will be activated for the first time by charging and (possibly) discharging during the formation step (Figure 13). Defined currents and voltages will then applied to embed lithium ions in the anode and establish an interface layer between the electrolyte and the electrode (the solid electrolyte interface).

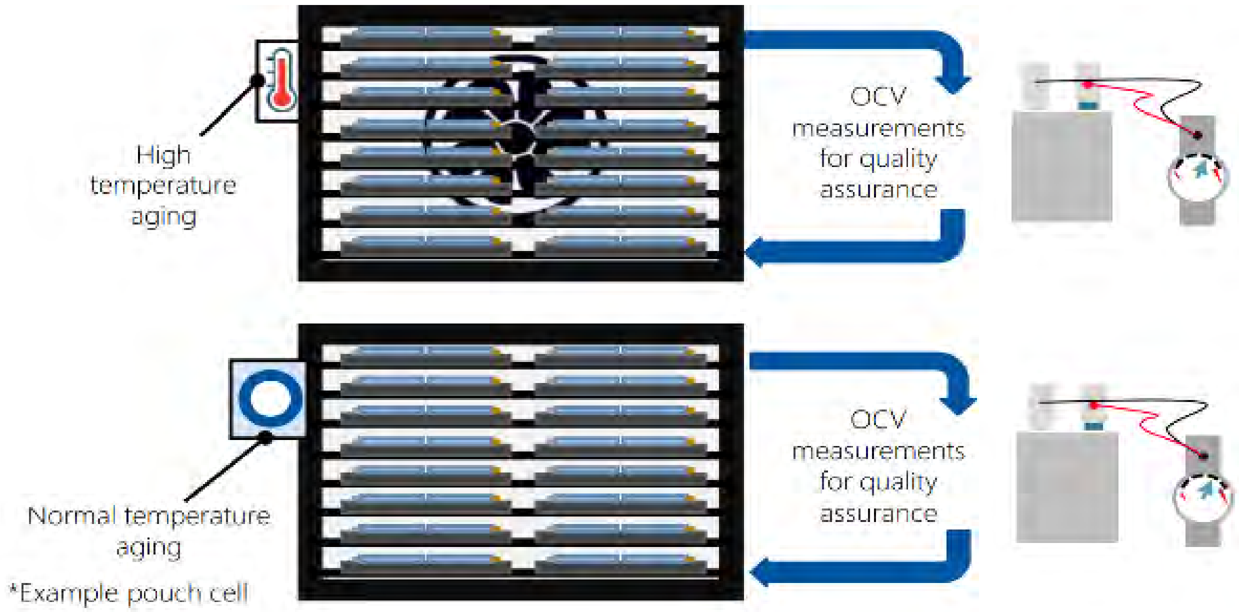
Figure 13 Formation



<u>Aging</u>

The aging process will be used for quality assurance; cell characteristics and performance will be monitored and measured (Figure 14).

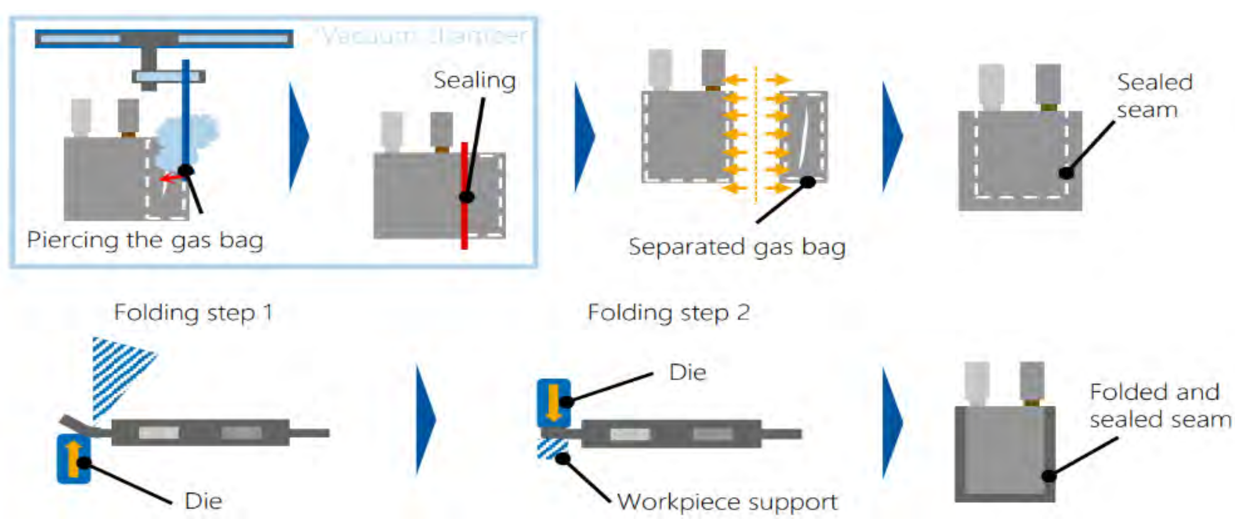
Figure 14 Aging



<u>Degassing and Sealing</u>

Off gases can be produced during the first charging of a cell; the gases will be collected in a vacuum chamber for removal and treatment. Following degassing, the cell will be sealed under vacuum, and the gas bag will be separated and properly disposed of. As needed, final folding and gluing will be conducted to reduce the dimensions of the pouch cell. These steps are depicted in Figure 15.

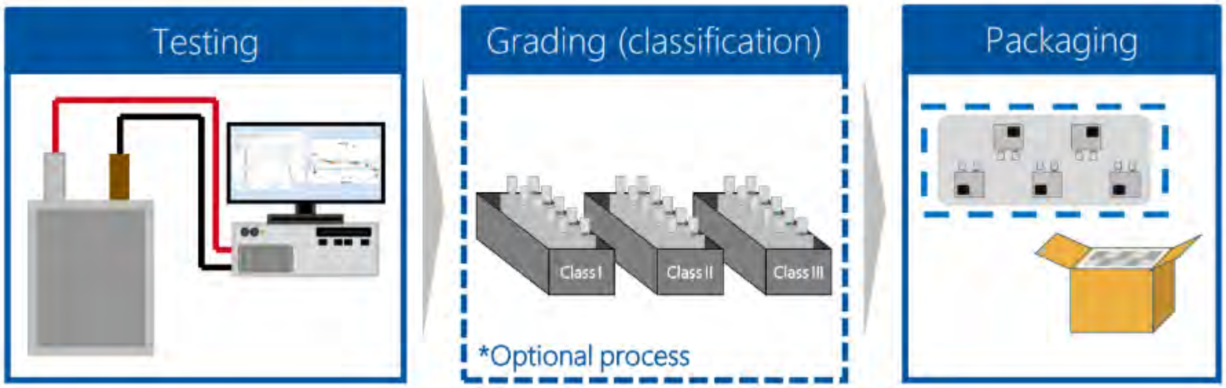
Figure 15 Degassing and Sealing



<u>Grading</u>

Grading is used to determine cell quality by analyzing data such as capacity, internal resistance, and voltage drop over time (Figure 16). Testing of the cells may include pulse tests, internal resistance measurements, visual inspections, voltage tests, and leakage tests.

Figure 16 Grading



Module Assembly

Sorting

After testing, cells will be grouped according to their performance data. Cells that do not meet performance specifications will be sent to recycling.

Module Assembly and Packing

Once the tests have been completed and passed, the cells will be packed and shipped or integrated into battery energy storage systems.

2.2.4 Waste Management

Lithium-ion battery production is inherently a closed system that produces little to zero waste material. Waste materials within the system are recycled back into the process to maintain efficiencies. Defective cells (with or without electrolyte) are identified at several steps in the process; these make up the majority of the solid waste generated by the production process. Generally, the defective cells will be recycled. Other solid wastes generated by the production process include electrode sheet and/or separator scrap, cutoff or defective pieces, and aluminum-plastic film cutoff from the welding and packing step. Solid waste that cannot be recycled will be disposed of at an appropriate facility.

During operations, isolation tanks/cases for the management and control of defective cells will be staged throughout the production line, with smaller cases located more frequently and sized to handle individual cells. Larger isolation tanks will be established for the different steps in production. The isolation tanks/cases will eliminate potential risks from defective cells and be appropriate to the corresponding stage of production.

The KOREPlex facility will generate both solid and liquid hazardous and non-hazardous waste from manufacturing processes. Solid non-hazardous waste is generally associated with routine building operations and maintenance. The storage, transport, recycling, and disposal of waste material will be in accordance with applicable federal, state, and local environmental regulations. Section 3.7.3 provides additional information related to waste generation and management.

3.0 ENVIRONMENTAL CONSEQUENCES

In each of the following sections, a specific resource area is addressed with both qualitative and, where applicable, quantitative information to concisely describe the nature and characteristics of the resource that may be affected by the project, as well as the potential impacts (direct and indirect) on that resource from the project given proposed controls. A conclusion regarding the significance of impacts is provided for each resource area.

Section 3.8, Cumulative Impacts, provides a review of the present and reasonably foreseeable federal and nonfederal actions that may contribute to a cumulative impact when added to the impacts of the project. The impacts of past actions were reviewed and are included as part of the affected environment to establish the current condition of the resource (i.e., the baseline condition) that may be affected by the project.

3.1 Aesthetics and Visual Resources

The project area is situated in the Buckeye Valley. The White Tank Mountains lie approximately 10 miles to the north (north of Interstate 10). The Gila River is roughly 3 miles to the south. South of the river, the terrain rises slightly in the Buckeye Hills. The historic center of the City of Buckeye is about 1.5 miles to the east.

Historically, the predominant land use in the City of Buckeye was agricultural production, which was interspersed with industrial uses and residential development. Agricultural fields continue to convert to industrial and residential uses. Existing and planned warehousing and manufacturing uses tend to align along major transportation corridors. The northbound lanes of SR 85 border the project area on the west, the Union Pacific Railroad forms the northern boundary, and the Buckeye Canal lies adjacent to the south. Rooks Road forms the eastern boundary of the project area.

South of the Buckeye Canal, a gas station, tire shops, truck and transport facilities, equipment yards, and other enterprises front MC 85. A strip of similar, as well as agricultural, uses lie north of the railroad and south of Baseline Road. Fertizona, a concrete batch plant, and the new (under construction) APS Western Service Center lie west of the southbound lane of SR 85. A residential property lies east of Rooks Road on the north side of the Buckeye Canal (at the southeast corner of the project area) (Figures 1-3).

After construction, the site would contain manufacturing facilities and buildings, an electrical substation, a water storage facility, retention ponds, and paved parking lots. A setback of 400 feet would separate facilities from adjacent roadways and other land. Exterior building materials would include steel, glass, and concrete panels that would be designed to offer aesthetically pleasing breaks in color and material across the face of each building. Landscaping would consist of a variety of native, low-water-use, and desert-adapted plants. Trees would be strategically placed to offer shade along walkways and cool parking lots, and understory planting would be used to soften and connect the project to the ground plane. Plantings along adjacent perimeter streets and at the entrance would be used to enhance the aesthetic appeal.

Because the area is zoned for industrial use, existing and planned manufacturing and other industrial facilities are adjacent to the project area, and landscaping would be incorporated, impacts on aesthetics and visual resources as a result of the project would not be significant.

3.2 Water Resources

3.2.1 Surface Water

The project area lies within the historic floodplain of the Gila River. The hydrology within the study area has been altered by development, transportation structures, agriculture, and irrigation features. The Buckeye Flood Retarding Structure system, constructed by the Flood Control District of Maricopa County in 1975, parallels Interstate 10 and intercepts and diverts stormwater runoff from the White Tank Mountains to the north. The Roosevelt Canal, located approximately 2.3 miles north of the project area, prevents stormwater flows from south of Interstate 10 from reaching the project area. The Union Pacific Railroad is located along the northern boundary of the project area; the Buckeye Canal traverses the southern boundary. The project area is composed entirely of agricultural fields; return flows are captured in a constructed basin at the southwest corner. The project area receives negligible stormwater flows from upgradient areas and does not contribute flows to downgradient areas. The drainage channel to be constructed along the west side of the Rooks Road alignment is part of a recommended regional solution for stormwater management (Dibble, 2009).

Floodplains

The project site is currently comprised of undeveloped agricultural land that generally slopes to the south at a fall of approximately 0.7 percent. Under existing conditions, stormwater run-on from off-site areas that may affect the project area are limited. Stormwater run-on tends to pond along the north side of the Union Pacific Railroad, which parallels the northern boundary of the site.

As depicted in Figure 17, the southern portion of the project area (along the Buckeye Canal) is on a Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map, Panels 0413C2580L and 0413C2115L (FEMA, 2013). The majority of the property is within Special Flood Hazard Area “Zone X” (i.e., an area with a 0.2 percent annual chance of a flood hazard or an area with a 1 percent annual chance of a flood with average depth of less than 1 foot or with drainage areas of less than 1 square mile). The portion of the project area lying adjacent to the Buckeye Canal is delineated as Special Flood Hazard Area “Zone AH” (i.e., an area with a 1 percent annual chance of shallow flooding, usually in the form of a pond, with an average depth ranging from 1 to 3 feet). The base flood elevation for this portion of the project area is 881 feet.

Stormwater management for the KORE Power facility includes collection facilities (underground piping and open channels) to convey stormwater runoff away from structures to retention areas. Drywells would be constructed within the retention areas to facilitate the infiltration of ponded water. The retention areas would also account for the volume of stormwater retained in the project area prior to development, as mapped in FEMA Special Flood Hazard Area Zone AH. A Conditional Letter of Map Revision would be submitted to revise floodplain mapping accordingly.

Construction activities would be conducted under an Arizona Pollutant Discharge Elimination System Construction General Permit and a notice of intent would be filed with the ADEQ. As a result of these detailed best management practices, a Stormwater Pollution Prevention Plan and various on-site erosion and sediment controls, impacts to surface water resources, including floodplains, would not be significant.

Figure 17 FEMA Flood Zones and National Wetlands Inventory

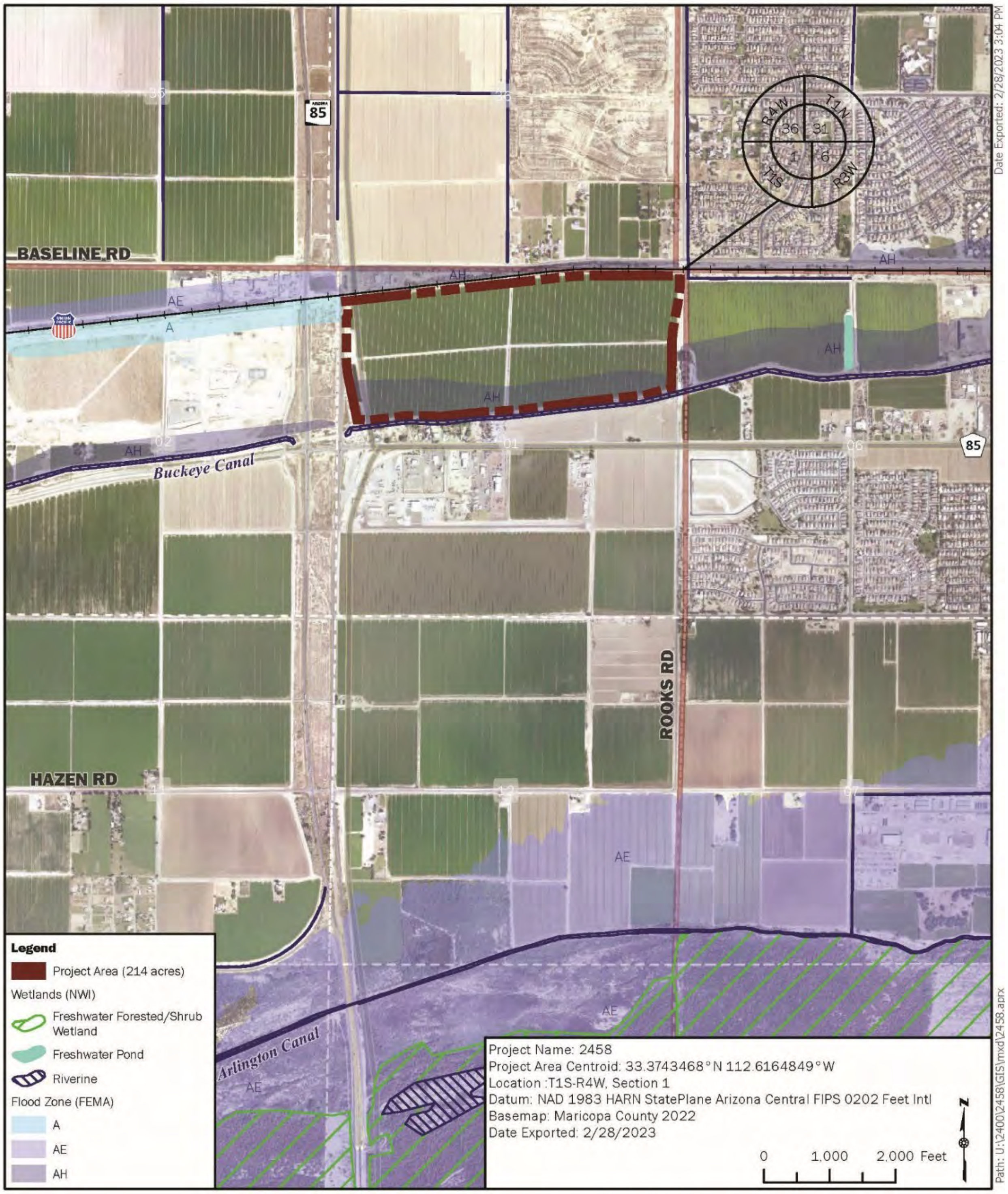


FIGURE 17 - FEMA FLOOD ZONES & NATIONAL WETLANDS INVENTORY

HILGARTWILSON ENGINEER | PLAN | SURVEY | MANAGE

KOREPOWER

KORE POWER
BUCKEYE, AZ

3.2.2 Groundwater

The average depth to groundwater in the project area is approximately 35 to 50 feet below the ground surface (ADWR, 2022). Although KORE may provide locations for groundwater wells for the City of Buckeye, construction and development of the well sites would be conducted by the City. Therefore, the wells are outside the scope of analysis for this EA.

Excavation activities for the KORE Power facilities would not reach the depth of groundwater; thus, the project would have no direct or indirect impact on groundwater. The manufacturing process is not water-intensive; water to the facility would be provided by the City of Buckeye. The KOREPlex facility would not have a direct impact on groundwater sustainability. Furthermore, the conversion of the project area from agricultural use to manufacturing would reduce the groundwater demand from the project area. Impacts to groundwater resources would not be significant.

3.3 Air Quality

3.3.1 Setting

Air quality is determined by the ambient concentrations of pollutants that are known to have detrimental effects on public health and the environment. In accordance with Section 109 of the Clean Air Act, the U.S. Environmental Protection Agency (EPA) has promulgated National Ambient Air Quality Standards (NAAQS) for six criteria pollutants: carbon monoxide (CO), PM, lead, sulfur dioxide (SO_2), ozone, and nitrogen oxides (NO_X) (40 CFR 50). Standards for PM exist for two categories of particles: those equal to or smaller than 10 microns in diameter (PM_{10}) and those equal to or less than 2.5 microns in diameter ($PM_{2.5}$). Areas that do not meet the air quality standards are designated as “non-attainment areas.” A designation of non-attainment submits an area to regulatory control of pollutant emissions so that attainment of the NAAQS can be achieved within a designated time period.

The EPA regulates emissions of air pollution from mobile and stationary sources under the authority of the Clean Air Act. The MCAQD has jurisdiction over stationary air pollution sources in the county and administers the permitting program pursuant to Part 70 of the Clean Air Act. Operating permits issued by MCAQD are legally enforceable documents. They are designed to improve compliance with the Clean Air Act by specifying control measures for facilities with the potential to emit pollutants.

The project area is within Maricopa County, which is currently designated as an attainment area with respect to the NAAQS, except for the 8-hour ozone and PM_{10} standards (EPA, 2022a). Specifically, the project area is in attainment for the NAAQS, except for the 8-hour ozone standard. The non-attainment area for PM_{10} is adjacent to the project area and to the east (Figure 18).

3.3.2 Emissions Analysis

Air emissions would result from construction and operation of the proposed KOREPlex facility. Generally, impacts on air quality from construction activities are considered short-term impacts, lasting only for the duration of construction. Operational impacts are considered long-term impacts, occurring while the facility is in use. Required permits, air quality standards, and the consequences of the project on air quality are discussed below.

Figure 18 Air Quality

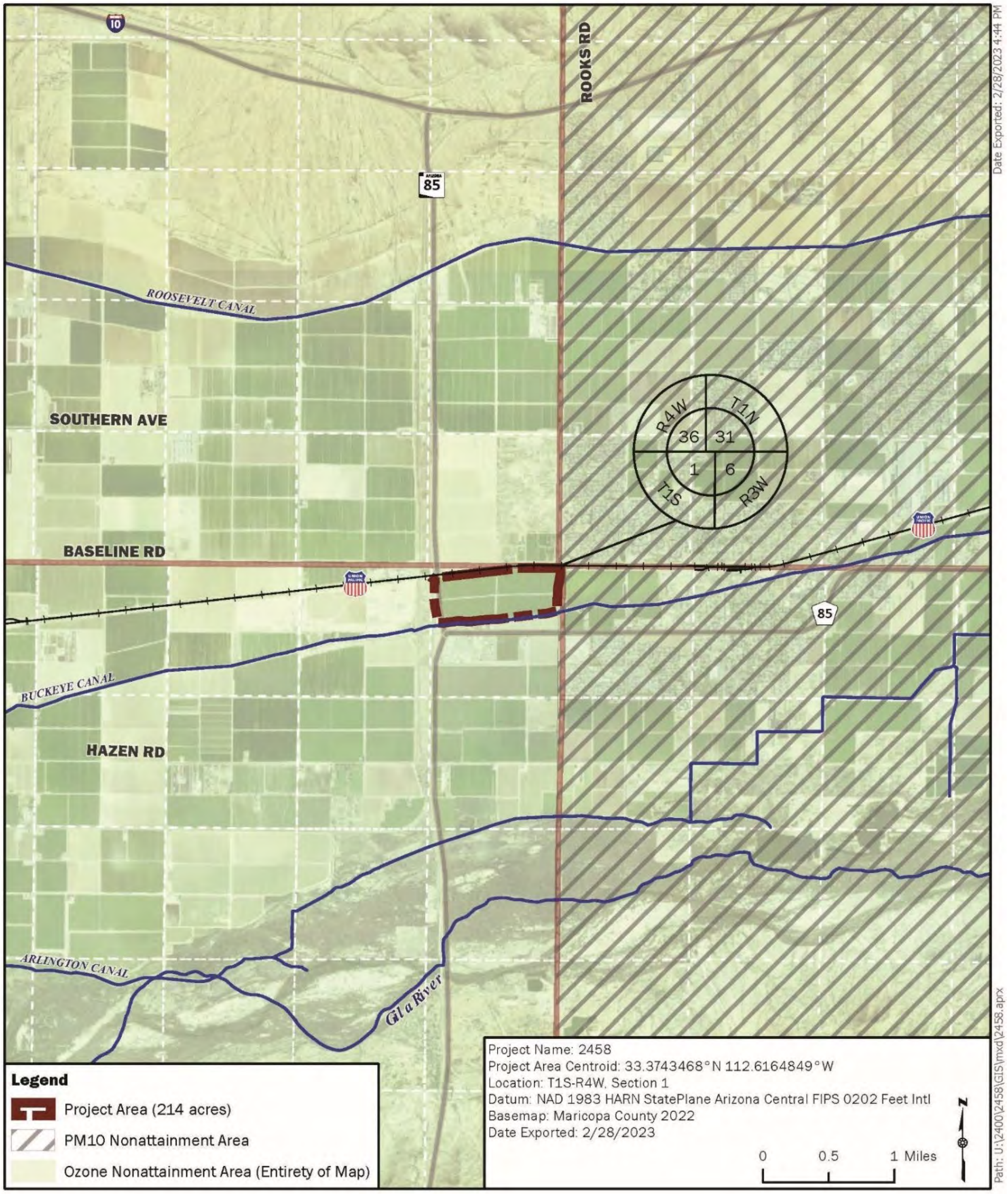


FIGURE 18 - AIR QUALITY

HILGARTWILSON
ENGINEER | PLAN | SURVEY | MANAGE

KOREPOWER

KORE POWER
BUCKEYE, AZ

Construction

Air emissions resulting from development of the proposed facility would include fugitive dust (PM_{10} and $PM_{2.5}$) associated with construction activities (e.g., earthmoving) and emissions from vehicles and equipment (e.g., CO, SO_2, NO_x, precursors to ozone) may result in temporary impacts to the Project site. To reduce emissions of pollutants, during construction, appropriate construction best management practices would be implemented, and vehicles and equipment would be properly maintained. Contractors would be required to comply with the best management practices specified in the Dust Control Permit; additional measures to minimize soil erosion and sedimentation are mandated under the Arizona Pollutant Discharge Elimination System Notice of Intent/Construction General Permit, which would also minimize dust generation. Because of the relatively short duration of air emissions associated with construction, and the best management practices that would be employed, impacts on air quality during construction would not be significant.

Operation

In accordance with the MCAQD Part 70 permit program, industrial operations that have the potential to emit 5.5 pounds per day or 1 ton per year of any regulated air pollutant are required to obtain an air quality permit to operate the facility. The type of permit issued by MCAQD requires a detailed review of facility systems, projected emissions, and the current ambient air quality. New manufacturing facilities must demonstrate use and implementation of best available control technology (BACT) to reduce emissions, as practicable.

Permits set emission limitations and define monitoring, recording, and reporting requirements and are valid for 5 years. Although an owner may revise and/or transfer an air quality permit, continued operation of the facility must be in accordance with the active permit.

Because the proposed facility would be a new stationary source with the potential to emit regulated pollutants, an application for a permit to operate is being prepared for submittal to the MCAOD. Expected emissions from the KOREPlex manufacting process include:

- PM emissions from the mixing stage
- VOC emissions during the coating and drying stage
- Hazardous air pollutant (HAP) emissions from chemical usage in die cutting
- PM emissions during laser cutting (permit exempt)
- VOC emissions during electrolyte filling
- NO_X, CO, VOC, PM_{10}, $PM_{2.5}$, SO_2, and HAP emissions from natural gas combustion in HVAC units[7]
- VOC emissions from storage tanks

KORE Power would use an exhaust gas recovery device with an estimated 95 percent control efficiency to abate NMP emissions during cathode application, thereby meeting the BACT requirement. Carbon beds with an estimated 95 percent control efficiency would abate VOC emissions during the electrolyte filling process and from storage tanks, also in accordance with BACT requirement. Dust collectors and carbon beds would comply with MCAQD regulations to control visible emissions, fugitive dust and PM, and VOC emissions.

[7] The KOREPlex facility is evaluating the efficiency of two approaches to climate control (i.e., air-conditioning and heating): a combination of dehumidification and rooftop units or air handling units. In either case, natural gas combustion would power the climate control systems. For the purposes of this analysis, 38 dehumidification units and 62 rooftop units are assumed to be necessary for cooling or heating the facility. If elected, the air handling units would be anticipated to have lower emissions.

Based on information from the air permit application, Table 2 summarizes anticipated emissions from continuous operation of the facility with BACT measures implemented. The anticipated maximum emissions of all pollutants would be below the MCAQD permit threshold for a Major Facility (Class I). As such, a Class II permit issued by the MCAQD would be applicable for long-term operation of the facility. Compliance with permit conditions would prevent pollutant levels from exceeding the NAAQS within non-attainment areas.

Table 2. Estimated Facility-Wide Emissions

Source	Pollutant	Controlled Emissions (pounds/year)	Controlled Emissions (tons/year)	Major Facility Threshold (tons/year)
Natural gas combustion	NO_X	21,000	11	100
Natural gas combustion	CO	5,800	2.9	100
Natural gas combustion, cathode application, Line 1 electrolyte filling, Line 2 electrolyte filling, storage tanks	VOCs	25,000	13	100
Natural gas combustion, anode mixing (Line 1 & 2), cathode mixing (Line 1 & 2)	PM	1,200	0.60	100
Natural gas combustion, anode mixing, cathode mixing (Line 1 and 2)	PM_{10}	1,200	0.60	70
Natural gas combustion	SO_2	100	5.0×10^{-2}	100
Natural gas combustion	Benzene	1.3	6.6×10^{-4}	10
Natural gas combustion	Formaldehyde	2.8	1.4×10^{-3}	10
Natural gas combustion	Total PAHs (exc. naphthalene)	0.02	8.2×10^{-6}	10
Natural gas combustion	Naphthalene	0.05	2.5×10^{-5}	10
Natural gas combustion	Acetaldehyde	0.71	3.5×10^{-4}	10
Natural gas combustion	Acrolein	0.44	2.2×10^{-4}	10
Natural gas combustion	Ammonia	530	0.27	10
Natural gas combustion	Ethylbenzene	1.6	7.8×10^{-4}	10
Natural gas combustion	Hexane	1.0	5.2×10^{-4}	10
Natural gas combustion	Toluene	6.0	3.0×10^{-3}	10
Natural gas combustion	Xylene	4.5	2.2×10^{-3}	10
Cathode mixing	Cobalt compounds	0.53	2.6×10^{-4}	10
Cathode mixing	Nickel compounds	0.53	2.6×10^{-4}	10
Cathode mixing	Manganese compounds	0.53	2.6×10^{-4}	10
Die cutting*	Acetonitrile	18,000	9	10

Source	Pollutant	Controlled Emissions (pounds/year)	Controlled Emissions (tons/year)	Major Facility Threshold (tons/year)
Natural gas combustion, cathode mixing, die cutting	Total HAPs	19,000	9.5	25

ERM, 2022. The estimated emissions assume continuous operation of the KOREPlex facility (8,760 hours/year).
**An alternate die-cutting process, using tape in lieu of acetonitrile, is under evaluation, which would eliminate this potential emission.*
PAH = polycyclic aromatic hydrocarbon

Through implementation of BACT measures and compliance with the MCAQD Class II Minor Air Quality Permit, the impact on air quality within the analysis area would not be significant.

3.4 Biological Resources

This section describes biological resources that may be affected by implementation of the project, including vegetation, wildlife, and special-status species.

3.4.1 Vegetation

The project area lies within the Lower Colorado River subdivision of the Sonoran desert scrub biotic community, as defined by Brown (1994). The project area comprises fallowed fields, most recently planted in alfalfa (*Medicago sativa*), and structures used for irrigation and agricultural operations, (e.g., canals, roadways). Negligible native vegetation is present. A retention pond in the southwest corner holds return agricultural flows; however, wetland plants are not present.

3.4.2 Wildlife

The project area provides habitat for many species of wildlife. Mammals known to exist within the vicinity include coyote (*Canis latrans*), desert cottontail (*Sylvilagus audubonii*), black-tailed jackrabbit (*Lepus californicus*), and round-tailed ground squirrel (*Spermophilus tereticaudus*). Lizard species in the vicinity include tiger whiptail (*Aspidoscelis tigris*), side-blotched lizard (*Uta stansburiana*), and Gila monster (*Heloderma suspectum*). Snakes in the area include western diamondback rattlesnake (*Crotalus atrox*) and gophersnake (*Pituophis catenifer*). Several bird species are known to occur in the project area, including western burrowing owl (*Athene cunicularia*). Detailed information regarding these special-status species can be found in the *Migratory Birds* section, below.

Agricultural lands, as well as the retention pond for agricultural return flows, serve as foraging habitat for wildlife in the project area. Construction would remove land used as foraging habitat for wildlife, including bird species; however, these individuals would most likely relocate to adjacent fields and retention ponds. Direct mortality of a few mammals and reptiles may occur during construction, although the grading and soil disturbance that would occur would be similar to normal agricultural practices. Construction could temporarily disturb wildlife species that use habitat adjacent to the project area; however, this disturbance is not expected to be substantial because loud ground-disturbing activities are common in agricultural lands. Wildlife generally leave an area upon initial construction. Therefore, the impacts on vegetation, wildlife, and wildlife populations would not be significant.

Special-Status Species

Threatened and Endangered Species

Threatened and endangered species and their critical habitat that have the potential to occur in the project area were evaluated (Appendix C, Screening Analysis for Threatened and Endangered Species). The evaluation concluded there would be no effect on threatened or endangered species or their critical habitat from implementation of the project.

Migratory Birds

Migratory birds are protected under the Migratory Bird Treaty Act. Migratory birds observed in the project area include western burrowing owl, Gambel's quail (*Callipepla gambelii*), killdeer (*Charadrius vociferus*), red-winged blackbird (*Agelaius phoeniceus*), yellow-headed blackbird (*Xanthocephalus xanthocephalus*), great-tailed grackle (*Quiscalus mexicanus*), great blue heron (*Ardea herodias*), great egret (*Ardea alba*), mallard (*Anas platyrhynchos*), and black phoebe (*Sayornis nigricans*). The majority of the birds were using the retention pond in the southwest corner of the project area. Western burrowing owls located on the banks of the irrigation ditches used irrigation pipes in the agricultural fields for cover prior to site grading. Because of grading, the project area is not considered suitable breeding habitat for birds. Killdeer and western burrowing owls are the exception; both of these species nest in or on the ground in disturbed areas.

Site-specific surveys were conducted for western burrowing owl prior to ground-disturbing activities. A federally permitted biologist conducted the surveys in conformance with the protocol outlined in the Arizona Game and Fish Department (AGFD) *Burrowing Owl Project Clearance Guidance for Landowners*. Several pairs of burrowing owls, as well as active burrows, were identified on or adjacent to the site during the survey. A Migratory Bird Special Purpose Permit was obtained through the U.S. Fish and Wildlife Service (USFWS) for relocation of the owls and destruction of the nests. Owls were trapped, and active and potential burrows were collapsed on-site and along the berms of the irrigation canal immediately adjacent to the site, according to USFWS guidelines.

Fliers regarding western burrowing owl were provided to construction contractors and posted at the project site for continued management. If an owl cannot be flushed and is in the path of construction, work should stop until the owl flushes or until a permitted biologist arrives to evaluate and resolve the situation. A biological monitor would be provided during initial construction and for future stages of the project if new burrowing owl activity is detected.

With implementation of preconstruction efforts by permitted biologists to remove and relocate western burrowing owl from the subject site, impacts would be considered negligible and short term. It is not anticipated that western burrowing owl would occupy active developed portions of the project area. Should owls repopulate berms on existing canals or retention basins, KORE Power operations would not be anticipated to affect these individuals. Based on these considerations, impacts on migratory birds from the project would not be significant.

3.5 Cultural Resources

3.5.1 Historic Properties

A qualified archaeological consultant conducted a Class I site file search and literature review covering a 1-mile radius around the area of potential effect (APE) and a Class III cultural resources inventory of the project site (Paleowest, 2022). The archaeological APE consists of a 213.8-acre parcel of farmland, which is situated entirely on private land. The architectural APE (i.e., site file search radius) consists of the 213.8-acre project footprint as well as a 1-mile buffer surrounding the area to address potential indirect effects. The survey of the APE identified one site, one isolated occurrence, and two in-use historic structures. The identified site includes historic building foundations and a well that was associated with historic agricultural/farming practices in the area. The isolated occurrence is a capped well of unknown age. One in-use historic structure is made up of lateral segments of an irrigation canal, along with roads associated with farming in the region. The other in-use historic structure is a segment of the 69-kilovolt transmission line from Buckeye to Gillespie that parallels the eastern edge of the project area. None of these sites are considered eligible for listing on the National Register of Historic Places or Arizona Register of Historic Places, and no avoidance measures are recommended for ground-disturbing activities.

No historic architectural structures, historic areas, or archaeological sites are present within the project area. On June 9, 2022, a consultation letter was sent to the Arizona State Historic Preservation Office (SHPO) for Section 106 consultation, requesting concurrence with the archaeological and architectural APEs, as well as the DOE review and finding of no historic properties affected. On October 31, 2022, SHPO concurred with the recommendations in the Class III survey that no archaeological resources in the APE are eligible for listing in the NRHP.

Should unexpected archaeological resources be discovered during construction, activities would be halted in the immediate area of the discovery until the resources have been evaluated for NRHP eligibility criteria (36 CFR 60.4) in consultation with the SHPO, Arizona State Museum, DOE, and/or interested tribal consulting parties, as appropriate, and in accordance with 36 CFR 800.13. Appropriate mitigation would be determined during this consultation.

Due to the absence of eligible architectural and archaeological resources within the APE, the controls that are in place in the event of an unanticipated discovery, and the SHPO's concurrence on the archaeological and architectural findings, impacts on cultural resources as a result the project would not be significant.

3.5.2 Consultation with Native American Tribes

In conjunction with this EA and the National Historic Preservation Act Section 106 historic and archeological review process, DOE sent a June 2022 NEPA notice regarding the KORE Power project to Native American tribes in an effort to identify tribal interest in the project site and provide an opportunity to make comments or express concerns. The following federally recognized tribes and councils were contacted (see Appendix D, Consultation with Agencies and Native American Tribes):

- Ak-Chin
- Colorado River Indian Tribes
- Fort McDowell Yavapai Nation
- Fort Mojave Indian Tribe
- Gila River Indian Community
- Hopi Tribe
- Mescalero Apache Tribe
- Pascua Yaqui Tribe
- Pueblo of Zuni
- Salt River Pima-Maricopa Indian Community
- San Carlos Apache Tribe

- Tohono O'odham Nation
- White Mountain Apache Tribe
- Yavapai Apache Nation
- Yavapai Prescott Indian Tribe

Following submission of the notice, each tribe was contacted by telephone to ensure receipt and respond to any immediate questions or concerns. No immediate concerns were relayed by the tribes. Next, the DOE contacted the aforementioned tribes upon completion of the cultural resources survey for the project site. The Pascua Yaqui Tribe, Tohono O'odham Nation, Gila River Indian Community, and White Mountain Apache Nation requested a copy of the cultural resources survey for review. All of the aforementioned tribes that reviewed the survey concurred with the DOE finding of no adverse effect on Native American interests within or surrounding the project site.

Because of the absence of cultural resources or Native American interests within or surrounding the project site, impacts on Native American interests resulting from the project would not be significant.

3.6 Socioeconomic Resources and Environmental Justice

3.6.1 Socioeconomics

The project is in a primarily agricultural area of Buckeye, Arizona, but with light industry and residential communities either constructed or under construction to the east. The nearest emergency center, Abrazo Buckeye Emergency Center, at 525 South Watson Road, is approximately 9.5 miles to the northeast, and the nearest school, Bales Elementary School, at 25400 West Maricopa Road, is approximately 2.1 driving miles to the northeast (0.9 air mile). The nearest airport is Buckeye Municipal Airport, located 7 miles northwest of the project site and the project site is approximately 36 miles from the city of Phoenix, a major metropolitan area.

The City of Buckeye has a population of approximately 100,000, with a population density of approximately 230 people per square mile (U.S. Census Bureau, 2020a). The civilian labor force is approximately 51 percent of the total population in the City of Buckeye; the civilian labor force in all of Arizona is approaching 57 percent. Roughly 73 percent of the labor force is employed by private companies, and 14 percent are local, state, or federal government employees. Construction work represents roughly 10 percent of the jobs. Manufacturing, warehouse, and transportation work represent roughly 16 percent of the jobs (U.S. Census Bureau, 2021a). Per the 2021 American Community Survey, the median annual household income in the City of Buckeye is $75,417; median annual household income is $69,056 for all of Arizona. The median annual household income by family type in the City of Buckeye is $86,985 for families, $93,882 for married couples, and $53,943 for non-family households (U.S. Census Bureau, 2021b).

The KORE Power facility would have beneficial socioeconomic impacts on the area, from increased employment opportunities, increased tax revenue, and direct and indirect spending in the local economy. Notably, the facility would change land use from agricultural to manufacturing. The change in land use would increase property taxes on the land, generate sales tax, and result in more jobs than under current conditions.

Construction of the facility is anticipated to take roughly 2 years from the initial site survey, grading, and layout through final certificate of operation. The design and construction phases are anticipated to employ approximately 1,000 workers. Currently, the construction industry is roughly 10 percent of the civilian employed population in Buckeye. Given the current working population of roughly 50,000 people in Buckeye, there are 5,000 construction jobs in the area.

The additional 1,000 construction jobs needed to build the facility would represent a 20 percent increase in construction jobs in Buckeye over the next 2 years. This would have a positive, temporary effect on the local economy. The impact of the project on local infrastructure and services such as housing, schools, and healthcare would not be significant due to the availability of local infrastructure and services within the City of Buckeye and in the nearby city of Phoenix.

The first phase of the KOREPlex facility is anticipated to begin operations in the fourth quarter of 2024. Phase 1 is anticipated to require approximately 1,500 workers to operate at full capacity. Manufacturing, warehousing, and transportation currently represent about 16 percent of the jobs in Buckeye (roughly 8,000 jobs). The addition of another 1,500 manufacturing, warehouse, and transportation jobs would be a 19 percent increase in this job category compared with current conditions. This would have a positive long-term effect on the local economy.

3.6.2 Environmental Justice

LPO's review of environmental justice (EJ) issues is guided by Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, the National Air Toxics Assessment (NATA) cancer risk and respiratory hazard index, as defined in EPA's EJ screening tool. Executive Order 12898 directs federal agencies to address environmental and human health conditions in minority and low-income communities. The evaluation of EJ is dependent on determining if high and adverse impacts from a project would disproportionately affect minority or low-income populations in the affected community.

In accordance with EPA's EJ guidelines, minority populations should be identified when either 1) the minority population of the affected area exceeds 50 percent or 2) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis.

The total 2020 population of Arizona was 7,151,502; 1.3 percent of the population, 91,502 people, lived in Buckeye. The project area is located within Census Tract 506.17, which has a population of 5,312. People living in poverty make up 12.8 percent of the population in Arizona, 9.1 percent in Buckeye, and an estimated 14.3 percent in Census Tract 506.17. Table 3 summarizes the ethnic and racial composition of the City of Buckeye, Maricopa County, and the state of Arizona (U.S. Census Bureau, 2020a, 2020b, 2020c, and 2020d).

Table 3. Population and Ethnicity (2020 Census)

	City of Buckeye	Maricopa County	Arizona
Total population	91,502	4,420,568	7,151,502
Race and Ethnicity			
White, not Hispanic or Latino	45.1%	53.4%	53.2%
Hispanic or Latino	43.5%	32.0%	32.3%
Two or more races	8.5%	3.3%	3.1%
Black or African American	6.6%	6.7%	5.4%
Asian	2.1%	4.8%	3.8%
American Indian and Alaska Native	1.4%	2.9%	5.3%
Native Hawaiian and Pacific Islander	0.2%	0.3%	0.3%
Poverty	9.1%	11.6%	12.8%

Sources: U.S. Census Bureau, 2020a, 2020c, 2020d.

Minority populations in the City of Buckeye make up approximately 54.9 percent of the population. The relative percentage of the minority populations is not meaningfully different from that of the larger reference area of Maricopa County. The number of people living in poverty is higher in the census tract (14.3 percent) than it is in Buckeye (9.1 percent), Maricopa County (11.6 percent), or the state of Arizona (12.8 percent). The low-income population for Buckeye is estimated to be 25 percent, compared to 33 percent for the state of Arizona (EPA, 2022b). Because no adverse environmental impacts are anticipated under the project, no disproportionately high or adverse human health or environmental effects would affect minority or low-income populations in the project area. The facility would be anticipated to have a positive impact on poverty and low-income rates in the project area due to the added potential opportunity for employment.

Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks,* requires an analysis of EJ to determine whether a project would place an undue burden on children. Because construction and operation of the project would not occur near any schools, day-care facilities, playgrounds, or other places frequented by children, and because of the remote location and high security for the project, trespassing children are not expected on the site. Therefore, children would not be disproportionately affected by environmental health and safety risks.

Table 4 lists selected variable from EPA's EJ screening tool. The NATA cancer risk and respiratory hazard indices are a way to see how local residents compare to everyone else in the state as well as the entire U.S. With respect to the NATA cancer risk, the project area is in a census tract that is in the 80th to 90th percentile in the U.S.; however, the value of the census tract is slightly lower than the state average and slightly greater than the 50th percentile in the state. The respiratory hazard index for the evaluated census tract is below the 50th percentile for the state and the U.S.

Table 4. Selected Variables from EPA's EJ Screening Tool

	Census Tract Value	State Average	Percentile in State	U.S. Average	Percentile in U.S.
NATA* cancer risk (lifetime risk per million)	30	32	56th	28	80-90th
NATA* respiratory hazard index	0.3	0.37	42nd	0.36	<50th
People of color	60%	46%	72nd	40%	73rd
Low-income population	30%	33%	51st	30%	54th

Source: EPA, 2022b.
**More information on the NATA can be found at https://www.epa.gov/national-air-toxics-assessment.*

Permitted emission levels of criteria pollutants and HAPs are considered to be protective of human health and the environment. Also, the air quality permit from MCAQD would mandate the installation and use of BACT during operations to minimize emissions and potential air quality impacts (refer to Section 3.2.2). The project would comply with applicable federal, state, and local air regulations and would not be expected to affect the NATA cancer risk and respiratory hazard indicators; therefore, impacts from the project would not be significant.

3.7 Human Environment

3.7.1 Transportation

The existing regional roadway network includes Interstate 10, which is approximately 3.5 miles north of the project area. Interstate 10 runs east–west through central Buckeye, connecting the Phoenix metropolitan area to Southern California. SR 85 is adjacent to the project area on the west, running north–south through Buckeye and connecting Interstate 10 and Interstate 8. Interstate 8 begins in San Diego, California, runs through Gila Bend, Arizona, and connects to

Interstate 10 in Casa Grande, Arizona. SR 85 acts as a bypass to Interstate 10, allowing freight-related traffic to avoid the Phoenix metropolitan area. SR 85 is ultimately planned to be a part of the Interstate 11 corridor (ADOT, 2021a).

Currently, SR 85 is a limited-access state highway, except for two existing signalized intersections in Buckeye at MC 85 and Baseline Road. Per the City of Buckeye's transportation master plan, MC 85 and Baseline Road are planned as six-lane arterial roadways (Matrix Design Group, 2019). Rooks Road, running north–south along the eastern edge of the project area, is also planned as an arterial roadway. The Union Pacific Railroad parallels the northern boundary of the project area; rail service is not planned as part of the KORE Power project.

The project is in a rapidly growing area of Buckeye. In coordination with the City, adjacent roadways would be widened and improved as the area develops. According to the traffic impact analysis, existing transportation networks would experience increases in traffic and delay both with and without the KOREPlex facility. However, levels of service along key Buckeye arterial roadways and associated intersections would improve as development widens and improves the roadways. Interim measures such as widened intersections and traffic signals along SR 85 are anticipated to provide temporary relief for increasing traffic and movements associated with the KOREPlex facility and other proximate development (Southwest Traffic Engineering, 2023).

Under existing conditions, the intersection of MC 85/SR 85 is signalized. The intersections at Baseline Road/SR 85 and Southern Avenue/SR 85 are controlled by stop signs for east–west traffic movements. With ongoing growth and development in the area, widened intersections and traffic signals would be anticipated at Baseline Road/SR 85 and Southern Avenue/SR 85. These measures would provide temporary relief for traffic congestion, but a regional solution, driven by ADOT, Maricopa County, the Maricopa Association of Governments, and the City of Buckeye, would be required to fund and construct the ultimate SR 85 limited-access highway.

Due to the implementation of the proposed traffic and roadway improvements being coordinated with the City; impacts to transportation networks in and around the project site would not be significant.

3.7.2 Public and Occupational Safety and Health

Congress passed the Occupational Safety and Health Act of 1970 to ensure worker and workplace safety. The act also created the Occupational Safety and Health Administration (OSHA) to set and enforce standards; provide training, outreach, and education; establish partnerships; and encourage improvement in workplace safety and health (29 CFR Part 1910). The Arizona Division of Occupational Safety and Health operates under an approved plan with the U.S. Department of Labor to retain jurisdiction over occupational safety and health issues in Arizona, excluding mining operations, Indian reservations, and federal employees.

The KOREPlex facility would be designed, constructed, and operated to ensure employee and community health and safety, in accordance with OSHA standards. The facility would implement corporate health and safety policies and procedures, including employee training, emergency drills, proper personal protective equipment, engineering controls, monitoring, and internal assessments. Additional policies and procedures would be implemented as needed as new potential risks are identified. These measures would help to ensure compliance with applicable health and safety regulations and minimize health and safety risks to employees and the public.

Points of ingress and egress would be positioned such that employees would have ready access to safe exits from the building. The emergency action plan would incorporate employee training, including a minimum of 4 hours of site- and job-specific training during orientation. Emergency drills would be conducted regularly, with information regarding safety stations and muster locations. Work areas and emergency exits would be well maintained and free of obstructions.

With respect to chemical storage and handling, loading/unloading areas would be designed and built with appropriate secondary containment, leak sensors, and engineering controls as appropriate. Protocols would include proper practices for controlling potential emissions, employee exposures, and/or releases to the environment. Safety data sheets for chemicals would be maintained on-site, and appropriate practices and protocols would be implemented. KORE Power would prepare appropriate emergency planning and response plans and file required documents in accordance with the Community Right-to-Know Act.

The plant management system would allow integrated monitoring and system control from the operating center. Each step in the manufacturing process would be monitored to ensure proper product spacing and ventilation, and appropriate protocols would be implemented to ensure safe production practices.

Because of measures such as best management practices and compliance with federal, state, and local regulations and standards, impacts on the health and safety of workers, as well as the public, from project construction and operation would not be significant.

3.7.3 Waste Management

The Resource Conservation and Recovery Act (RCRA) of 1976 charged the EPA with controlling the generation, transport, treatment, storage, and disposal of hazardous waste. RCRA also promulgated a framework for the management of non-hazardous solid wastes. The 1986 amendments to RCRA enabled the EPA to address environmental problems that could result from underground storage tanks where petroleum and other hazardous substances are stored.

Solid waste generated during the construction phase would be managed and transported in accordance with applicable federal, state, and local regulations. During operations, the KOREPlex facility would use hazardous and non-hazardous materials in controlled environments. The use of these materials and the generation of waste materials during operations would be conducted in accordance with applicable regulations, including regulations regarding transport, storage, and disposal.

Table 5 provides an estimate of annual hazardous and non-hazardous waste generation at the KOREPlex facility. The table also lists the anticipated methods for collection, transport, and disposal. The majority of the waste material would be collected and sent for recycling (see Section 2.2.4). Solid and hazardous waste that cannot be recycled would be disposed of at appropriate disposal facilities in accordance with applicable state and federal laws.

With planned waste management practices, including recycling, and solid and liquid waste disposal controls, impacts from waste management activities would not be significant.

Table 5. Annual Projected Operational Waste Generation and Management

Waste Stream	Type	Annual Generation (pounds)*	Collection	Transportation	Anticipated Disposal Method
General					
Oils and greases	Non-hazardous	3,000	Drums	By truck	Recycling
Lab chemicals	Hazardous	3,000	Drums characterized for disposal	Drums by truck	Recycling
Off-spec NMP	Non-hazardous	30,000	Aboveground storage tank	By tanker truck	Recovery/refining
Bag filter media	Non-hazardous	35,000	Drums characterized for disposal	Drums by truck	Recycling
NMC					
Defective positive tab	Non-hazardous	9,000	Gaylord boxes	By truck	Recycling
Defective negative tab	Non-hazardous	8,000	Gaylord boxes	By truck	Recycling
Cathode offcut	Non-hazardous	59,000	Gaylord boxes	By truck	Recycling
Anode offcut	Non-hazardous	95,000	Gaylord boxes	By truck	Recycling
Cathode electrode	Non-hazardous	385,000	Gaylord boxes	By truck	Recycling
Anode electrode	Non-hazardous	329,000	Gaylord boxes	By truck	Recycling
Copper foil	Non-hazardous	37,000	Gaylord boxes	By truck	Recycling
Aluminum foil	Non-hazardous	91,000	Gaylord boxes	By truck	Recycling
Aluminum-plastic film	Non-hazardous	436,000	Gaylord boxes	By truck	Recycling
Scrap battery cells	Hazardous	1,095,000	Trays/Drums	By truck	Recycling
LFP					
Defective positive tab	Non-hazardous	9,000	Gaylord boxes	By truck	Recycling
Defective negative tab	Non-hazardous	8,000	Gaylord boxes	By truck	Recycling
Cathode offcut	Non-hazardous	59,000	Gaylord boxes	By truck	Recycling
Anode offcut	Non-hazardous	95,000	Gaylord boxes	By truck	Recycling
Cathode electrode	Non-hazardous	385,000	Gaylord boxes	By truck	Recycling
Anode electrode	Non-hazardous	329,000	Gaylord boxes	By truck	Recycling
Copper foil	Non-hazardous	37,000	Gaylord boxes	By truck	Recycling

Waste Stream	Type	Annual Generation (pounds)*	Collection	Transportation	Anticipated Disposal Method
Aluminum foil	Non-hazardous	91,000	Gaylord boxes	By truck	Recycling
Hard shell	Non-hazardous	500,000	Gaylord boxes	By truck	Recycling
Scrap battery cells	Hazardous	1,471,000	Trays/drums	By truck	Recycling

Preliminary estimate of waste generation; estimates are subject to change.

3.8 Cumulative Impacts

This section discusses cumulative effects, which are effects on the environment that result from the incremental effects of a project when added to the effects of other past, present, and reasonably foreseeable future projects, regardless of what agency (federal or non-federal) or person undertakes such other projects (40 CFR Part 1508.1[g]). Projects were identified through a review of active project lists and planning documents from the City of Buckeye, ADOT, the Maricopa County Department of Transportation, and the Maricopa County Planning Office.

- ADOT is widening Interstate 10 between Verrado Way and SR 85; the intersection of SR 85 and Interstate 10 is currently under construction. Reconstruction of the Watson Road interchange will follow. Anticipated completion is summer 2023 (ADOT, 2021b).
- ADOT and the Federal Highway Administration are completing an environmental impact statement for the proposed Interstate 11 corridor from Nogales, Mexico, to Wickenburg, Arizona. SR 85 through Buckeye comprises a portion of the preferred alignment for the proposed interstate freeway (ADOT, 2021a).
- Construction of a new Maricopa County vehicle maintenance building, fuel island, and vehicle wash bay canopy is proposed south of the Buckeye Canal (south of the project area). Construction would be initiated in summer 2023 (Maricopa County, 2022).
- An approximately 80-acre industrial center is proposed at the southeast corner of Southern Avenue and Apache Road, roughly 1.5 miles east of the project area; the City is reviewing preliminary plans for this facility.
- A 1.7-million-square-foot distribution center for Ross Dress for Less is under construction roughly 2 miles east of the project area.
- Multiple new distribution centers and a Fry's grocery store are planned for construction on Miller Road just south of Interstate 10, northeast of the project area.
- Teravalis, a 37,000-acre mixed-use master planned community with an estimated 100,000 homes is undergoing planning and entitlement at the northwest corner of the Buckeye Municipal Planning Area (more than 20 miles northwest of the project area).
- Numerous other residential, commercial, and industrial development projects are in various stages of permitting, design, and land acquisition in the City.

The geographic area was reviewed to consider area trends and other projects that, in combination with the project, have the potential to result in incremental adverse effects. The analysis area is defined as the reasonable area where cumulative impacts could be measured as result of the project. The analysis area is not necessarily the same across all resources.

LPO reviewed the identified projects in the region to determine the resources that may be subject to a cumulative impact. The review focused on resources that may be affected by the project and other projects in the region. Based on that review, the following resources were evaluated for cumulative impacts:

- Air quality
- Greenhouse gas emissions
- Transportation

3.8.1 Air Quality

Construction activities would occur at the KOREPlex facility and at other project sites in the vicinity. Construction impacts would be temporary and minimized through compliance with dust control permit requirements and implementation of best management practices mandated by Maricopa County.

Emissions associated with operation of the KOREPlex facility in combination with emissions from other projects would have the potential to result in cumulative impacts on regional air quality. As discussed in Section 3.2.2, the county is in attainment with respect to the NAAQS, except for the 8-hour ozone and PM_{10} standards. The State Implementation Plan identifies measures to achieve compliance with the NAAQS. In addition, new sources of emissions, including those from the identified projects in the region, would be subject to air quality permitting requirements, which are under the jurisdiction of the MCAQD and EPA. These air quality permitting requirements would ensure compliance with the NAAQS. Therefore, cumulative impacts on air quality associated with the operation of the project and the other projects in the region would not be significant.

3.8.2 Greenhouse Gas Emissions

Current study of Earth's climate shows that human activity has been the primary cause of observed global warming since the mid-twentieth century (Intergovernmental Panel on Climate Change, 2023). Since the beginning of the industrial era, human activity has increased the concentration of GHG in the atmosphere. The rising global temperatures have been accompanied by changes in weather and climate (e.g., changes in rainfall that result in more floods, droughts, or intense rain; rising sea levels; polar sea ice decline; and more frequent and intense heat waves). The increase in atmospheric GHG concentrations is affecting the Earth's climate. Table 6 estimates GHG emissions from the KORE Power facility during operations; emissions from construction activities would be short term and would not be signficant.

Table 6. Estimated GHG Emissions

Equipment Description	Equipment Type	Fuel Type	Equipment Rating (MMBtu/ hour)	Greenhouse Gas Emissions			
				CO_2 (pounds/ year)	Methane (pounds/ year)	N_2O (pounds/ year)	CO_2 eq. (metric tons/ year)
Natural gas combustion (HVAC units)*	Other combustion equipment	Natural gas	19.3	2.0×10^7	370	37	9.0×10^3

Source: EPA, 2009.

** Refer to footnote 7 in Section 3.3.2 for assumptions on the number and size of HVAC units.*

CO_2 = carbon dioxide; CO_2 eq. = carbon dioxide equivalent; MMBtu = 1 million British thermal units; N_20 = nitrous oxide

The magnitude of potential reductions in the number of gallons of petroleum consumed annually would depend on the number of electric vehicles with manufactured battery cells. With buildout of Phase 1 of the KOREPlex facility, the project would produce enough batteries to supply up to 60,000 vehicles annually, assuming a 100-kilowatt-hour battery pack is used in each vehicle. The petroleum usage that would be displaced is calculated to be approximately 25 million gallons per year (based on annual mileage of 12,000 miles and an average fuel economy of 29 miles per gallon for light-duty vehicles). Therefore, the use of battery cells produced by the project and used in electric vehicles would reduce carbon dioxide (CO_2) emissions by approximately 243,000 tons of per year. The potential benefits associated with reducing CO_2 emissions would lead to a reduction in GHG concentrations and associated climate change impacts (e.g., increases in atmospheric temperature, changes in precipitation, increases in the frequency and intensity of extreme weather events, rising sea levels) such that a signficant adverse impact on climate change would not occur.

3.8.3 Transportation

The project, in conjunction with the identified development in the region, would lead to an incremental increase in overall traffic; however, ongoing regional planning, including planned and ongoing improvements to local and regional streets, would be consistent with City of Buckeye and ADOT transportation plans and guidelines. Therefore, no significant adverse cumulative effects on the regional transportation network are anticipated.

4.0 FINDING

Based on this EA, DOE has determined that providing a federal loan to KORE Power to construct a battery manufacturing facility in Buckeye Arizona, will not have a significant effect on the human environment. The preparation of an EIS is therefore not required, and the DOE is issuing this Finding of No Significant Impact (FONSI).

TODD STRIBLEY Digitally signed by TODD STRIBLEY Date: 2023.09.11 20:24:37 -06'00'

September 11, 2023

Todd Stribley
NEPA Compliance Officer
DOE Loan Programs Office

Date

5.0 LIST OF PREPARERS

The following individuals participated in preparation of this EA:

5.1 U.S. Department of Energy

Alicia Williamson, DOE − LPO Environmental Protection Specialist

Todd Stribley, DOE – LPO NEPA Compliance Officer

5.2 Hilgartwilson, LLC

Sheila A. Logan, PE, Manager – Environmental Services

Jill Hankins, Senior Project Manager

Rafael de Grenade, PhD, Senior Biologist

5.3 KORE Power, Inc.

Randy Cowder, Senior Vice President of Manufacturing

Bill Mervine, Director of Plant Engineering

John Gregory, Senior Process Engineer

6.0 REFERENCES

Arizona Department of Transportation. 2021a. *Interstate 11 Corridor Tier 1 Environmental Impact Statement, Nogales to Wickenburg*. Retrieved from Overview. Available: http://origin.i11study.com/Arizona/.

Arizona Department of Transportation. 2021b. *Central District Projects*. Retrieved from Interstate 10: SR 85 to Verrado Way Improvements. Available: https://azdot.gov/projects/central-district-projects/i-10-sr85-verrado-way-improvements.

Arizona Department of Water Resources. 2022. *ADWR GIS*. Retrieved from Wells 55 Database. Available: https://gisweb3.azwater.gov/WellReg. Accessed: June 23, 2022/

Arizona Department of Water Resources. 2023. *Groundwater Rights*. Retrieved from Interactive Maps and Data. Available: https://azwatermaps.azwater.gov/igfr. Accessed: March 21, 2023.

Brown, D.E. 1994. Biotic Communities of the Southwestern United States and Northern Mexico. Salt Lake City, UT: University of Utah Press.

City of Buckeye. 2021. *Industrial Pretreatment Program.* Buckeye, AZ. Available: http://azdeq.gov/updated-public-notice-proposed-arizona-pollutant-discharge-elimination-system-azpdes-pretreatment. Accessed: March 29, 2023.

City of Buckeye. 2022. *City of Buckeye*. Retrieved from Buckeye Planning Map. Available: https://buckeyearizona.maps.arcgis.com/apps/View/index.html?appid=690f24e4daf84883a8d7fdf547b3303f. Accessed: November 22, 2022.

Dibble. 2009. Buckeye Area Drainage Master Plan, FCD 2004C058, Recommended Design Report. Prepared for Flood Control District of Maricopa County.

ERM. 2022. Application for Authority to Construct and Permit to Operate for Cell Manufacturing Facility. Buckeye, AZ.

Federal Emergency Management Agency. 2013. *Flood Insurance Rate Map Panels 04013C2115L and 04013C2580L*. October 16. Available: https://msc.fema.gov/portal/search?AddressQuery=buckeye%2C%20az#searchresultsanchor. Accessed: October 20, 2022

Intergovernmental Panel on Climate Change. 2023. *Sixth Assessment Report.* Available: https://www.ipcc.ch/assessment-report/ar6/. Accessed: Retrieved January 11, 2023.

Maricopa County. 2022. *Maricopa County Planning Department*. Retrieved from Active Permit Viewer, Permit #B2021173. Available: https://www.maricopa.gov/797/Planning-Development.

Matrix Design Group. 2018, as amended 2022. *Imagine Buckeye 2040 General Plan.* Buckeye, AZ. Available: https://www.buckeyeaz.gov/home/showpublisheddocument/6300/637928096311900000.

Matrix Design Group. 2019. *Buckeye in Motion Transportation Master Plan.* Phoenix, AZ. Available: https://www.buckeyeaz.gov/business/engineering/transportation-master-plan.

Paleowest. 2022. Class III Survey of 213.8 Acres Prior to Converting Private Farmland to a Manufacturing Facility in Buckeye, Maricopa County, Arizona – Revised. Phoenix, AZ.

Southwest Traffic Engineering. 2023. Draft KORE Power Baseline Road/State Route 85 Traffic Impact Analysis. Phoenix, AZ.

U.S. Army Corps of Engineers (USACE). 2022. *Approved Jurisdictional Determination File No. SPL-2022-00348.* September 29. Phoenix, AZ.

U.S. Census Bureau. 2020a. *QuickFacts*. Buckeye, AZ. Available: https://census.gov/quickfacts/buckeyecityarizona. Accessed: December 5, 2022.

U.S. Census Bureau. 2020b. *Explore Census Data*. Census Tract 506.17. Arizona, AZ. Available: https://data.census.gov/map?g=0400000US04_0500000US04021$1400000_1600000US0407940&layer=VT_2020_140_00_PY_D1&mode=selection&loc=33.3727,-112.6021,z13.6640. Accessed: December 5, 2022.

U.S. Census Bureau. 2020c. *QuickFacts*. Maricopa County, AZ. Available: https://www.census.gov/quickfacts/maricopacountyarizona. Accessed: December 5, 2022.

U.S. Census Bureau. 2020d. *QuickFacts*. Available: https://www.census.gov/quickfacts/AZ. Accessed: December 5, 2022.

U.S. Census Bureau. 2021a. American Community Survey – S2406. Employment – Buckeye City, AZ. Available: https://data.census.gov/profile?g=160XX00US0407940. Accessed: March 22, 2023.

U.S. Census Bureau. 2021b. American Community Survey – S1901. Income and Poverty – Buckeye City, AZ: Available: https://data.census.gov/profile?g=160XX00US0407940 Accessed: March 22, 2023.U.S. Environmental Protection Agency. 2009. Mandatory Reporting of Greenhouse Gases (40 CFR Part 98). *74 FR 56374*, 56259–56519. October 30. Available: https://www.federalregister.gov/documents/2009/10/30/E9-23315/mandatory-reporting-of-greenhouse-gases.

U.S. Environmental Protection Agency. 2022a. *Green Book, National Area and County-Level Multi-Pollutant Information*. Retrieved from Arizona Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants. October 21. Available: https://www3.epa.gov/airquality/greenbook/anayo_az.html. Accessed: November 22, 2022.

U.S. Environmental Protection Agency. 2022b. *EJScreen: Environmental Justice Screening and Mapping Tool*. Retrieved from EJScreen – City of Buckeye. Available: https://ejscreen.epa.gov/mapper/. Accessed: March 24, 2023.