WELCOME TO THE

Lava Run Wind & Solar Projects Open House

PLEASE SIGN IN

REPSOL | Lava Run WIND & SOLAR PROJECTS

Why Lava Run?

About Repsol

In March 2024, ConnectGen was acquired by Repsol and is now integrated into Repsol Renewables North America. Repsol is a global multi-energy company committed to reaching net zero emissions by 2050. Today, Repsol has 750+ MW of operational solar energy projects across New Mexico and Texas, with a stated target of having 7,800 MW of renewable energy projects in operation in the United States by 2030. The Lava Run Wind & Solar projects are a strategic part of this plan.

A Growing Trend...

In recent years, there has been a growing trend of coal-fired power plant closures across the western US. In Apache County, the Springerville Generating Station began seasonal operations in 2023 with plans to fully retire Unit 1 in 2027 and Unit 2 in 2032. Further, the Coronado Generating Station has announced beginning seasonal operations in 2025 with plans to fully retire by 2032.

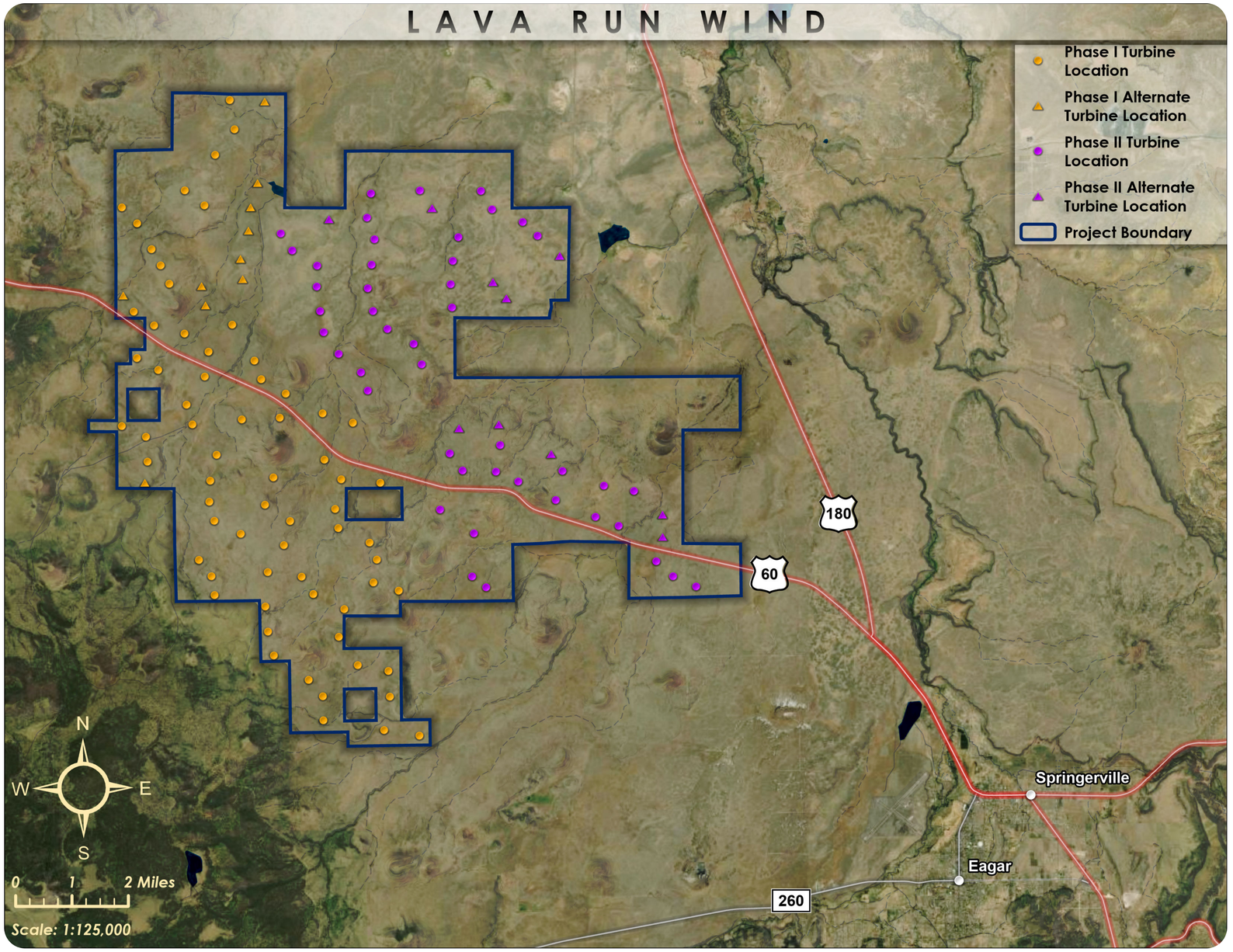
With Arizona's energy demand quickly growing, local utilities like Tucson Electric Power are looking for renewable energy projects like Lava Run Wind & Solar to help meet electricity needs in the midst of these coal plant closures.

Looking Towards the Future...

The decreased operation of these power plants is expected to significantly reduce the County's local jobs and property tax base. The Lava Run Wind & Solar projects present a unique opportunity to mitigate some of these economic losses by creating up to 32 full-time operations jobs and $74.4 million in estimated property tax revenues paid to Apache County over 35 years, among other local benefits.

For decades, Apache County has thrived by powering Arizona with energy from coal plants. The Lava Run Wind & Solar projects are a chance to continue this legacy for the next generation, this time with energy from clean and renewable sources.

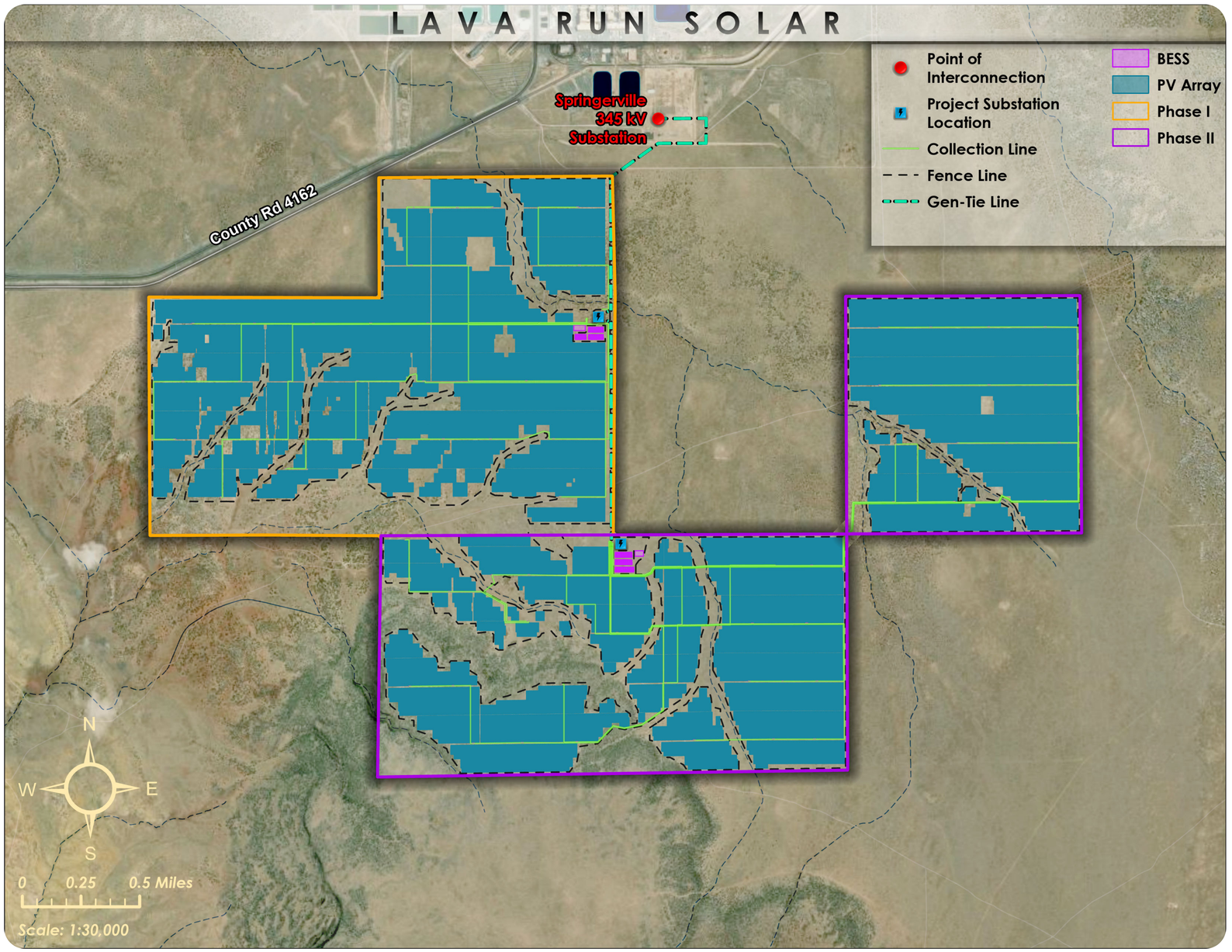
Lava Run Wind Project Overview



NB: Map above depicts 20 extra "alternate" turbine locations and presents more turbines than proposed for installation (up to 112 total turbines, 20 alternate turbines).

- 500 MW total across two project phases with the potential to power 90,000+ Arizona homes annually
- Sited primarily on Arizona State Trust lands, with an infrastructure footprint of approx. 500 acres
- Capital investment of approximately $1 billion, resulting in significant contributions to the local property tax base and substantial economic benefits to Apache County, which will mitigate some of the losses expected from the closure of Unit 1 at the Springerville Generating Station in 2027
- Wind in this region has a complementary energy generation profile to solar-plus-battery to help deliver around-the-clock electricity
- Compatible with the existing land uses; grazing and recereational activities will continue during wind project operations

Lava Run Solar & Battery Project Overview



- 450 MW total across two project phases, with the potential to power 100,000+ Arizona homes annually
- Sited on approx. 3,760 acres of Arizona State Trust lands
- Capital investment of approximately $1.1 billion, resulting in a significant increase in the local property tax base and substantial economic benefits to Apache County, which will mitigate some of the losses expected from the closure of Unit 1 at the Springerville Generating Station in 2027
- 4-hour lithium-ion batteries help meet electricity demand during the evening hours
- Have been in close coordination with the grazing lessee within the project area

General Project Timeline

DEVELOPMENT
6 years
2020-2026

CONSTRUCTION
2 years
2026-2028

OPERATION
35+ years
2028 and beyond

Land Acquisition And Community Engagement

- Pursue lease agreements with Arizona State Land Department
- Engage elected town officials and local stakeholders; inform the broader community
- Hold community meetings over the course of development

Environmental Studies And Preliminary Design

- Complete desktop and field studies to identify environmental constraints in the project areas
- Conceptual design will avoid and/or minimize impacts to environmental resources and the community

Electric Grid Interconnection Studies

- Undergo technical studies completed by Tucson Electric Power to secure the right to connect to the electrical grid

Permitting

- Pre-application consultations with local, state, and federal agencies
- Secure all permits for project construction and operation, including the County Conditional Use Permit and the Arizona Corporation Commission Certificate of Environmental Compatibility

Final Engineering & Design

- Complete final engineering and design in preparation for construction and pre-construction compliance filings

Estimated Local Project Benefits

Combined, the projects represent a capital investment of $2.1 billion, which will result in significant economic benefits for Apache County to help mitigate some of the tax revenue and job losses expected from planned retirement of Units 1 and 2 at the Springerville Generating Station.

	LAVA RUN WIND	LAVA RUN SOLAR	CUMULATIVE
Capital Investment	$1 Billion	$1.1 Billion	$2.1 Billion
Property tax revenues over first 35 years to fund schools and other critical services within Apache County	$31,500,000	$42,900,000	$74,400,000
Sales tax revenues paid on construction materials collected by Apache County	$373,000	$416,000	$789,000
Full-time equivalent **construction jobs**, average during 2-year construction period	Approx. 100	Approx. 116	Approx. 216
Long-term, well-paying **operations jobs**	15	17	32
Estimated **state land rent payments** to benefit state public schools and universities	$75,000,000	$25,000,000	$100,000,000

- **Increasing local business activity** among hotels, motels, restaurants, grocery stores, gas stations, and more
- Enhancing local economic impact by **sourcing Arizona-based equipment, materials, and labor** when feasible during development, construction, and operations
- Developing Community Benefits Program of **over $1 million to fund community initiatives and establish long-term partnerships** with local organizations

Community Engagement

Repsol Renewables has been engaging with local stakeholders since early 2020 and is committed to robust community engagement.

- In-person meetings with county and city officials, community leaders, local non-profits, small business community
- Ongoing communications with grazing lessees within project area
- Conversations with 100+ community members at 2023 Apache County Fair
- Public presentations before Springerville and Eagar Town Councils, and public Q&A session in June 2024
- $17,000+ in donations and sponsorships to support the Apache County Fair, 4-H group, and youth sports teams

Environmental Considerations

Resource Assessment

- Wind: 140+ cumulative months of on-site wind data thus far confirms wind project viability given advancements in turbine technology.
- Solar: 1 year of on-site solar data collected.

Visual & Noise Studies

- Wind: Completed preliminary viewshed analysis and visual simulations. Additional simulations planned for 2024 to support the Conditional Use Permit (CUP) application.
- Solar: Visual simulations and glare studies planned for 2024 to support the CUP application.
- Wind & Solar: Noise studies upcoming as part of the CUP process. Baseline noise readings will be taken, and the change in noise levels will be evaluated based on specific project layouts and equipment models.

Aquatic Resources Delineations

- Wetland and surface water delineations inform design, permit requirements, and necessary mitigation
- Wind: Planned for 2024
- Solar: Completed in 2021

Cultural Surveys

- Surveyors walk a series of transects spaced up to 20m apart throughout entire project area. Surveys are reviewed by the Arizona State Land Department's Archaeology Department and the Arizona State Museum.
- Wind: Planned for 2024.
- Solar: Completed in 2023; no new archaeological sites identified.

Biological Studies

- Wind: Completed 2 years of raptor nest, avian use, and bat acoustic surveys. Incorporated setback and other mitigation recommendations from Arizona Game & Fish Department and US Fish & Wildlife Service into project design. Coordination with both agencies is ongoing. Studies will inform Eagle Conservation Plan and Bat & Bird Conservation Plan, typically developed closer to project construction.
- Solar: Completed 2 years of raptor nest and incorporated results into project design. Completed native plant inventory in 2021 to inform design and mitigation, as necessary.
- Additional studies planned for 2024.

General Public Health & Safety - Wind

Wind turbines are safe

- Wind turbines do not cause wind turbine syndrome or other adverse health effects
- At 1500 feet away, turbines reach a noise level similar to a that of a refrigerator
- We incorporate a half-mile setback distance from residences to help reduce potential noise impacts even further

Wind turbine fires are rare

- Wind turbine fires are incredibly rare and are concentrated in the older generation of wind turbines (i.e., those installed 10+ years ago)
- All turbines at Lava Run will be equipped with fire detection systems and programmed to automatically shut down if an alarm is triggered
- The project will be monitored and controlled via an on-site operations and maintenance building, as well as a Remote Operations Control Center (ROCC). The ROCC will be staffed 24/7 and will be able to shut down the turbines at the request of the local fire department

Wind turbines have multiple safeguards to prevent and detect oil leaks, and on-site technicians will be ready to respond in a timely manner should one occur

- To prevent equipment damage and maximize performance, 4.5-MW turbines require approx. 200 gallons of gear and hydraulic oils to ensure the main gearbox and hydraulic systems are well-lubricated
- In addition to routine inspections performed by on-site technicians, there are sensors throughout each turbine that detect abnormalities, such as temperature rises or low oil pressure, and will automatically shut down the turbine if necessary

Wind projects are compatible with grazing operations

- Do not harm cattle or cause birth defects
- Cattle often enjoy the shade offered by wind turbines

General Public Health & Safety - Solar & Battery

Solar panels are safe and do not contain harmful levels of toxic materials

- Solar panels meet strict electrical safety standards
- Panels are designed to ensure no release or leakage of materials into the surrounding environment
- The most common type of panels used for utility-scale facilities are made almost entirely of glass, aluminum, silicone, polymers, and copper

Solar panels do not pollute the local environment

- No combustion, emissions, or odors
- No water discharges or use of neighboring water bodies for heating or cooling

Solar panels are quiet

- Solar panels make little or no sound
- Associated electrical equipment creates minimal sound
- Limited required equipment maintenance such as vegetation management or access road upkeep would be conducted during the day

Energy storage battery fires are rare

- Battery fires are decreasing as a percentage of deployments thanks to improved technology and rapidly evolving regulatory codes
- Battery storage systems are designed to contain numerous redundant safety measures, including 24/7 remove monitoring, internal heat sensors and electrical monitoring, and built-in exhaust and ventilation
- In the rare case where fires do occur, they may be managed without endangering broader communities
- By way of comparison, the average toxicity level of a battery fire is similar to that of plastics fires involving materials such as sofas, mattresses, or office furniture
- Repsol Renewables will work with local fire officials to develop a Fire Control & Prevention Plan

Solar panels produce minimal glare

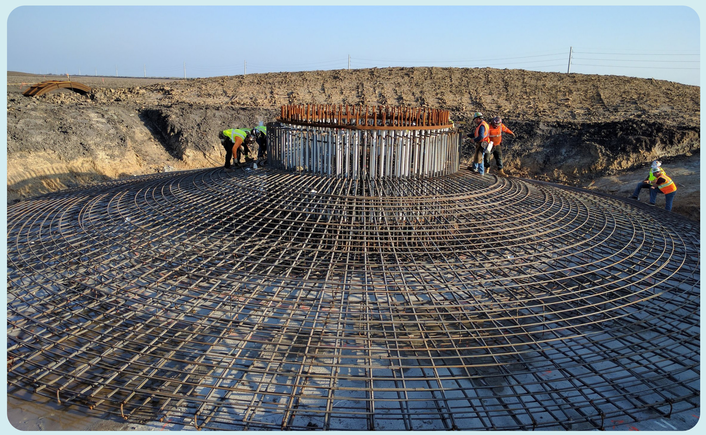
- Solar panels are designed to absorb light, not reflect light, and therefore produce minimal glare

Construction & Operations - Wind

CONSTRUCTION

SITE PREPARATION

- Perform civil work as required
- Construct site entrances and access roads (16-20 feet wide)
- Create temporary laydown yards



FOUNDATION & TURBINES

- Install concrete and rebar foundations (approx. 10 feet deep)
- Turbine towers are erected with a crane
- Nacelle houses generating components and sits atop the tower; three blades are connected to a hub, which is raised and affixed to the nacelle

ELECTRICAL SYSTEM

- Underground lines collect electricity from each turbine, and overhead lines carry multiple underground circuits to project substation
- Generation-tie line transports power from project area to Springerville Substation

OPERATIONS

SITE MANAGEMENT

- Limited upkeep is required during the life of the facility
- Most maintenance activities are associated with keeping access roads, fencing around substations, and other infrastructure in good condition

EQUIPMENT MAINTENANCE

- Project facility is designed for a minimum 35-year life span
- On-site, full-time technicians monitor and perform preventative maintenance to ensure optimal operations and minimize the potential for an issue

OPERATIONS & MAINTENANCE BUILDING

- On-site building houses full-time employees and is staffed during regular business hours

Construction & Operations - Solar

CONSTRUCTION

SITE PREPARATION

- Perform civil work required for access, construction, operations, and maintenance
- Construct site entrances and access roads
- Create temporary laydown yards

PILE/FOUNDATION INSTALLATION

- Install piles to hold panel racking system
- Drive piles for inverter installation and pour concrete pads for high voltage equipment at the project substation

RACK ASSEMBLY AND PV INSTALLATION

- Install panel racks on piles and solar modules on racks
- Install inverters on piles located near panels and connect to high-voltage substation via underground cables

OPERATIONS

SITE MANAGEMENT

- Limited upkeep is required during the life of the facility
- Most maintenance activities are associated with keeping access roads, fencing and other infrastructure in good condition

EQUIPMENT MAINTENANCE

- Project facility is designed for a minimum 35-year life span
- System's modular design allows for simple repair and replacement of project infrastructure, as needed
- On-site full-time technicians are trained on-the-job to troubleshoot, diagnose, and service equipment, as needed

OPERATIONS & MAINTENANCE BUILDING

- On-site building houses full-time employees and is staffed during regular business hours

Decommissioning and Restoration

For the Conditional Use Permit application, we will develop a Decommissioning & Site Restoration Plan that addresses the following:

- Equipment removal to 3 feet below grade
- Removal of graveled areas and access roads
- Restoration of surface grade and soil
- Re-vegetation with native plants suitable to the area
- Potential future uses
- Environmental and natural resources protection
- Schedule

Financial Security

- Apache County will hire a third party to determine a decommissioning bond amount, as required by its ordinance
- Repsol Renewables will post financial security prior to construction and adjust the amount annually to account for inflation
- The decommissioning bond ensures funds will be available to remove facility components and complete restoration of the site

DECOMMISSIONING AND SITE RESTORATION PLAN → **POST FINANCIAL SECURITY PRIOR TO CONSTRUCTION** → **REMOVE EQUIPMENT AT END OF PROJECT LIFE** → **RESTORE PROJECT LAND** → **RETURN LAND TO AGRICULTURE OR OTHER USE**

Recycling

- **Wind turbines:** Up to 94% of a wind turbine is recyclable today, as they are mostly made of steel, copper, aluminum, and iron. The fiberglass blades can be used as an input into thermal electricity generation or cement production
- **Solar panels:** Panels typically consist of glass, polymer, aluminum, copper, and semiconductor materials, which can be safely disposed of in landfills. In recent years, new recycling technologies have emerged, enabling over 90% of the glass and over 95% of the semiconductor materials in panels to be recovered and recycled. In other cases, panel components can be reused to have a “second life” of generating electricity

The industry is confident that these and other recycling and repurposing technologies will continue to advance and increase the percentage of recyclable material in wind turbines and solar panels by the time that our project is fully decommissioned.