Carrizozo
Soil and Water Conservation District

Box 457 - Carrizozo, New Mexico 88301 - Telephone: 648-2941

Official Position of the Carrizozo Soil and Water Conservation District (CSWCD)

Subject: Opposition to Preliminary Permit Application, **Kinetic Energy Storage, LLC, Barber Springs Pumped Storage Project, FERC Project No. P-15402-000**

To: Debbie-Anne A. Reese, Secretary, Federal Energy Regulatory Commission (FERC)

Docket No.: P-15402-000

The Carrizozo Soil and Water Conservation District (CSWCD) strongly opposes the preliminary permit application (P-15402) for the proposed Barber Springs Pumped Storage Project in Lincoln County, New Mexico.

As the local governmental entity responsible for the conservation and protection of our natural resources, our opposition is based on fundamental conflicts with the hydrogeologic realities and the **prior appropriation doctrine** of this arid region. The project's water demands pose an unacceptable **risk of severe impairment** to the sole water source of our community.

1. The Project is an Unsustainable Drain on the Sole-Source Groundwater Supply

The CSWCD region is a hyper-arid area with **no perennial rivers or surface water features**; groundwater is the sole source for all agricultural, domestic, and commercial users [Source A]. The proposed water use is a permanent and non-replenishable depletion of this resource.

- **Massive Initial Draw:** The project requires a minimum of **9,000 acre-feet (AF)** of groundwater for the initial fill of the upper and lower reservoirs (4,500 AF each) [Source B].
- **Irreplaceable Loss:** This volume constitutes a major, non-recovering, and highly visible new depletion in a system characterized by critically low recharge. The region is part of

the northern Chihuahuan Desert and receives very little annual precipitation, averaging around **10 inches in Carrizozo**.

- **Groundwater Depletion:** The single, large-volume withdrawal for a new, non-essential energy use represents a direct and immediate threat of impairment to existing users, particularly given documented trends of accelerating groundwater level decline in neighboring basins [Source F].

2. Perpetual Water Loss Due to Evaporation and Seepage

Operating an open-loop pumped storage system in the northern Chihuahuan Desert ensures an unacceptable, perpetual water loss that must be replaced annually from the local aquifer.

- **Extreme Evaporation Rates:** The region's average annual evaporation rate is modeled at approximately **72 inches/year** (6 feet/year)—six times the average annual precipitation of 12 inches/year [Source C].
- **Perpetual Make-Up Water:** The combined surface area of the two reservoirs (85 acres) [Source B], exposed to these extreme rates, will result in a colossal and continuous demand for make-up water to replace evaporative losses, draining the aquifer year after year [Source D].
- **Seepage Risk and Karst Geology:** The proposed location is likely underlain by fractured Permian-age carbonate rocks (e.g., Yeso and San Andres formations) [Source E]. These formations are prone to **karst features and high-permeability fractures**, creating a significant risk of unchecked seepage loss from the reservoirs directly into the already stressed aquifer, dramatically increasing the perpetual water demand [Source D].

3. Potential Impairment of Water Rights and Quality Degradation

The project's water demands are inconsistent with the fundamental principles of New Mexico water management and introduce an environmental hazard.

- **Risk of Impairment to Senior Rights:** New Mexico operates under the **Doctrine of Prior Appropriation** (**"first in time, first in right"**) [Source I]. The project's proposed new groundwater appropriation would be **junior** to existing senior-priority rights held by local agricultural and domestic users. The large-volume withdrawal carries a high **risk of**

impairment, requiring a thorough review by the New Mexico Office of the State Engineer (OSE) to ensure compliance with the requirement that new appropriations do not injure existing rights.

- **Salinity Hazard and Concentration Risk:** The local groundwater is already saline (high in Total Dissolved Solids) due to the regional gypsum-bearing geology [Source E], with many wells exhibiting **elevated sulfate concentrations**. Open-air storage in a high-evaporation environment will lead to **evaporative concentration**, creating a highly concentrated brine and posing a long-term **contamination risk** to the local environment and the underlying aquifer through seepage [Source D].

- **Geologic Complexity and Low Aquifer Conductivity:** The nature of the local bedrock aquifer systems (Permian units) fundamentally limits the sustainable withdrawal rate. The low-permeability units, such as siltstones and gypsum beds, that interleave the fractured carbonate aquifers have **matrix hydraulic conductivity values as low as 0.02 ft/day** in unfractured zones [Source A]. This low matrix conductivity means that a sustained, large-volume withdrawal will lead to **rapid, localized drawdown** that directly impacts nearby wells and causes the groundwater system to be permanently depleted rather than slowly replenished.

Conclusion

The Barber Springs Pumped Storage Project is **hydrogeologically unsustainable** for Lincoln County, New Mexico. The enormous consumptive use of our region's sole-source groundwater, both for initial fill and perpetual replacement of evaporation and seepage, presents an unacceptable **risk of injury to senior water rights** and is therefore inconsistent with the water conservation and public welfare duties of the CSWCD.

We urge the Federal Energy Regulatory Commission to consider these documented environmental and water-scarcity concerns and deny the preliminary permit application.

Submitted By:

The Board of Directors Carrizozo Soil and Water Conservation District (CSWCD) Lincoln County, New Mexico

Source References

Citation	Source Type	Description
Source A	User-Provided Data	Carrizozo Soil and Water Conservation District Hydrogeologic Characterization-2.pdf (CSWCD Report).
Source B	Federal Register Notice	Federal Register : Kinetic Energy Storage, LLC; Notice of Preliminary Permit Application Accepted for Filing... (FERC Project No. P-15402-000).
Source C	Public Data/ External	New Mexico Water Budget: Dynamic Statewide Water Budget for New Mexico: Phase III (WRRI Technical Completion Report No. 380, Jan 2019) [Index 1.4].
Source D	External/ DOE Guidance	A Comparison of the Environmental Effects of Open-Loop and Closed-Loop Pumped Storage Hydropower (Department of Energy, Apr 2020) [Index 1.3].
Source E	Public Data/ External	Water losses along a reach of the Pecos River in New Mexico (ResearchGate) & Rio Chama Regional Water Plan [Index 1.2, 1.1].
Source F	Public Data/ External	MUNICIPAL WATER SUPPLIES AND USES - Southeastern New Mexico (OSE) [Index 2.7].
Source G	Public Data/ External	Priority Administration (Utton Center) [Index 3.3].
Source H	Public Data/ External	Hydrogeology, Water Resources, and Water Budget of the Upper Rio Hondo Basin, Lincoln County, New Mexico (USGS Publications Warehouse, 2014) [Index 2.5].
Source I	Public Data/ External	Water Law and Regional Water Planning (New Mexico Office of the State Engineer) [Index 3.6].