Land Trust Alliance
Together, conserving the places you love

January 14, 2025

Submitted electronically to *AICommunityInput@science.doe.gov*

Chris Wright
Secretary
U.S. Department of Energy
1000 Independence Avenue SW
Washington, DC 20585-0121

Harriet Kung
Deputy Director for Science Programs
Office of Science
U.S. Department of Energy
1000 Independence Avenue SW
Washington, DC 20585-0121

Hal Finkel
Office of Science
CSRP Division Director
U.S. Department of Energy
1000 Independence Avenue SW
Washington, DC 20585-0121

RE: Land Trust Alliance Public Comments on Request for Information on Partnerships for Transformational Artificial Intelligence Models

Dear Secretary Wright, Deputy Director Kung and Director Finkel,

Thank you for seeking input from the public on the Request for Information on Partnerships for Transformational Artificial Intelligence (AI) Models. The Land Trust Alliance ("Alliance") appreciates the opportunity to submit comments on advancing scientific discovery and research options for artificial intelligence models.

Founded in 1982, the Land Trust Alliance is a nonprofit corporation and national land conservation organization based in Washington, D.C., that works to save the places people need and love by strengthening land conservation across America. The Alliance represents about 950

member land trusts nationwide. Alongside our members, we harness three fundamental aspects of the American ethos: volunteerism, community spirit and connection to the land.

The Alliance applauds the Department of Energy ("DOE" or "Department") for advancing scientific discovery and seeking feedback on research options for artificial intelligence models. The Alliance recommends that, as part of this research effort, the DOE set ambitious goals for energy-efficient AI algorithms and software and then collaborate with the private sector to realize these goals. Advancing energy-efficient AI algorithms and software would be a continuation of the DOE's demonstrated excellence in responsible and effective public-private partnerships.[1] As described in greater detail below, such advancements would protect our nation's conservation, ranch, forestry and agricultural lands and our nation's investment in those lands, while also meeting our nation's energy generation and transmission needs. Advancing energy efficiency in AI algorithms and software, and the corresponding decreased need for energy generation and transmission infrastructure, will also benefit ratepayers by keeping utility bills from rising while also accelerating AI deployment by minimizing transmission roadblocks.

I. The Connection between Energy Efficient AI Algorithms and Software and Land and Water Conservation

AI's energy demand is monumental, making energy efficiency of particular importance. "The power needs of artificial intelligence and cloud computing are growing so large that individual data center campuses could soon use more electricity than some cities, and even entire U.S. states, according to companies developing the facilities."[2] This massive electricity demand has a domino effect. For instance, as AI energy use rises, so too does the physical footprint of data centers, energy generation facilities and transmission infrastructure. Water consumption and pollution also rise.

This is particularly troubling for the Alliance and its 950 members because natural and agricultural lands are frequently targeted for new AI and energy infrastructure construction. In the case of transmission, this often results in the governmental taking of private lands, including already conserved lands. Conserved lands are lands that are owned either outright by a land conservation entity for conservation purposes or owned by a private landowner, and the lands are subject to a conservation easement[3] held by a land conservation entity. Conserved lands are

[1] One example to draw from is DOE's Exascale Computing Project, wherein the Department partnered with industry to successfully achieve a 200x improvement in energy efficiency for high-performance computing. Department of Energy, Office of Science, Blog Post (November 13, 2025). (https://www.energy.gov/science/articles/powering-future-quantum).

[2] Kimball, Spencer, "Data Centers Powering Artificial Intelligence Could Use More Electricity than Entire Cities (Nov. 23, 2024) (https://www.cnbc.com/2024/11/23/data-centers-powering-ai-could-use-more-electricity-than-entire-cities.html)

[3] Conservation easements are a unique legal tool used to keep land in private ownership and on the tax rolls while preserving resources vital to the public interest. For private landowners, conservation easements are an opportunity to protect land from development and to keep working agricultural lands in production. Landowners

selected for protection from development through an extensive and strategic conservation planning process targeting conservation priorities and the provision of public benefit. Through this strategic process, expert land conservation entities known as land trusts have worked with landowners to collectively conserve more than 61 million acres of land. These conserved lands have been recognized as critical forest, wildlife and game habitat, farmland, ranchland, wetland and grassland areas that provide benefits such as clean air, clean water, food and recreation.

The public value of conserved lands is reflected in the billions of dollars in state and federal tax incentives and grants for land conservation. Such programs include the U.S. Forest Service Forest Legacy Program, U.S. Department of Agriculture Agricultural Conservation Easement Program and the U.S. Department of Defense Readiness and Environmental Protection Integration Program. Farmers, ranchers, forest owners and others look to land conservation to both preserve their rural way of life and help fund their agricultural businesses.

States have also prioritized the preservation of conservation and agricultural lands by establishing state tax credit programs and grant programs. Forty-nine states have state enabling legislation allowing for the use of conservation easements in response to increased alarm at the rate that farmland, working forests and undeveloped lands are being converted to other uses.

In addition, Congress enacted Internal Revenue Code Section 170(h) and the accompanying Treasury regulations to provide significant tax benefits to individuals who donate (or who receive a portion of the purchase price for the conservation easement and then donate the remaining value) a qualified conservation easement to tax-exempt organizations.

While these significant public investments in conservation demonstrate that protecting natural and agricultural lands is a shared priority nationwide, the exponential growth of AI data centers and the corresponding energy infrastructure threaten this.

---

also receive the added benefit of income from the sale of the easement or tax savings from the conveyance of the easement. Landowners and their successors retain the right to possess and use the land, consistent with the conservation purposes of the easement. Land trusts and government holders of conservation easements enter into a voluntary and legally binding agreement with the landowner, where the land trust holds a real property interest in that land and agrees to perpetually monitor and enforce the conservation easement's provisions. This constitutes a major financial commitment by a land trust. Because of the perpetual and costly nature of holding a conservation easement, land trust easement holders don't enter lightly into these agreements. Instead, land trusts have a thorough process for strategic conservation planning, evaluating and selecting conservation easements that are consistent with the land trust's conservation priorities and provide public benefit. Through this process, land trusts work in partnership with the landowner to identify the important resources for protection, understand the landowner's conservation goals and desired future uses of the land, and finally, create a plan that best meets the needs of the land trust, the landowner and the land itself. Such a partnership allows landowners to exercise their private property rights, ensuring that their land is conserved as they wish while also providing benefits like clean air, clean water and food security.

II. AI Energy Inefficiency and the Rising Harms to Natural and Agricultural Lands and Communities

Excessive AI energy consumption leads to the development of conserved and other natural and agricultural lands for energy infrastructure in a manner that undermines the above-discussed public investments, public benefits, and economic and other returns. The aggregate impacts of taking conserved and other natural and agricultural lands and converting them to energy development are extensive. One such impact is fragmentation, or the dividing of large natural or working lands into smaller isolated patches. In the case of forests, fragmentation threatens forest sustainability, biodiversity and habitat values critical to wildlife, including fish and game. The fragmentation of agricultural lands limits the ability of ranchers, farmers and others to use the land for their agricultural businesses.

When conserved lands and other natural and agricultural lands are converted to developed lands for AI and its energy needs, there is a net loss of the natural benefits that arise from the critical forest, farm, wetland and grassland resources. These losses include, but are not limited to, food and fiber production, hunting and angling, species richness, drinking water quality, recreation and habitat conservation. These direct and indirect benefits were quantified in a study examining the ecological and economic benefits of Colorado's tax credit incentive for donating lands for conservation using a conservation easement. The study estimated that in 2022, "the total cumulative public benefits of conservation easement [tax] credits to Colorado taxpayers is between $35 and $57 billion, or about $20 thousand per acre conserved. . . and $43 and $74 billion if recreation and tourism benefits are included (about $25,500 per acre conserved). . . ."[4]

Applying this macro-level valuation methodology to an actual taking of 18.41 acres of conserved shortgrass prairie, or grassland/herbaceous in the report, for a transmission line in Colorado, results in a total loss of $198,459 in ecosystem services provided by that conserved prairie. These losses are even greater when damages specific to the conservation values of the underlying property are evaluated. In a separate taking of similar acreage for transmission infrastructure, the resource economist hired by the entity responsible for protecting the property's conservation values concluded that damages to the conservation values would be between $2-4 million because of the property's specific and unique attributes, including the presence of black-footed ferrets, a federally listed endangered species.

The Alliance encourages the Department to use this opportunity to lead the way forward in minimizing these impacts to conserved lands and other natural and agricultural lands by advancing energy efficiency in AI algorithms and software, and in turn, minimizing the associated infrastructure buildout.

[4] Seidl, A., Crossett, C., Greenwell, A, Bennett, D., and Menefee, M., 2023. Public return to private lands conservation in Colorado: The Conservation Easement Tax Credit Program. Colorado State University, Fort Collins, Colorado.

III. Conclusion

We thank the Department for its attention to the critical public interest in advancing energy efficiencies in AI algorithms and software to avoid impacts to conserved and other natural and agricultural lands. We welcome any opportunity to meet with you and Department staff to discuss this critical matter. Thank you for your attention to this matter.

Sincerely,

Lori Faeth
Senior Director of Government Relations