DRAFT RECOMMENDATION LETTER
(DELIBERATIVE, FINAL VERSION FORTHCOMING, IF APPROVED BY THE COMMITTEE)

April X, 2026

The Honorable Howard Lutnick
Secretary of Commerce
U.S. Department of Commerce
1401 Constitution Ave NW
Washington, D.C. 20230

Subject: Strategic Policy Recommendations to Expand US Leadership in Data Center Related Technologies and Services

Dear Mr. Secretary,

The Environmental Technologies Trade Advisory Committee (ETTAC) is a federally established committee whose purpose is to advise on the policies and procedures of the U.S. government that affect exports of environmental technology, goods and services. This includes small to large businesses, trade associations and thought leaders. In this capacity, the ETTAC appreciates the opportunity to provide these comments and recommendations to help achieve policy goals that lead to more competitive U.S. environmental technology, goods and services providers and create opportunities for their success in international markets that contribute to better balanced trade.

The ETTAC supports American next-generation industrial and resource technologies, national security, increasing U.S. manufacturing, reducing unnecessary burdens, remedying trade deficits and strengthening leadership in strategic sectors including aerospace, semiconductors, minerals, water systems, advanced environmental stewardship, and energy and energy storage.

The global deployment of artificial intelligence infrastructure is accelerating rapidly, creating unprecedented demand for computing capacity, electricity, and advanced environmental management systems. Hyperscale data centers supporting AI workloads now require hundreds of megawatts of reliable power and increasingly sophisticated cooling and resource management technologies.

The United States currently holds a strong technological advantage in several of the environmental technologies that enable next-generation data center infrastructure. These include advanced air and liquid cooling systems, innovative water reuse technologies, energy storage systems, clean back-up power and emerging materials that improve thermal performance.

By continuing to innovate and deploy these technologies domestically, the United States can strengthen its global competitiveness while expanding export opportunities for American

environmental technology companies. Other nations are actively investing in similar capabilities to capture a share of the rapidly growing global AI infrastructure market.

This letter outlines our recommendations to support continued U.S. leadership in environmental technologies that enable data center infrastructure and strengthen the export competitiveness of American firms.

ETTAC Recommendations

ETTAC recommends aligning the following actions

- Accelerate deployment of advanced air and liquid cooling technologies.
- Support demonstration projects for two-phase cooling systems.
- Promote clean energy generation and storage technologies that improve data center and grid resilience.
- Advance water reuse and wastewater management technologies for data center cooling.
- Launch a national research program on next-generation thermal materials.

We believe the rapid global buildout of artificial intelligence infrastructure presents a historic opportunity for the United States to lead not only in computing technology but also in the environmental technologies that enable next-generation data centers. Hyperscale facilities require unprecedented levels of electricity, cooling, and resource management, creating growing demand for advanced air and liquid cooling, water reuse systems, clean back-up power, energy storage technologies, and next-generation thermal materials. The United States already holds strong technological capabilities in many of these areas. By accelerating domestic development, demonstration, and deployment of these technologies, the U.S. can strengthen its global competitiveness while enabling American companies to capture a significant share of the rapidly expanding international market for AI infrastructure solutions.

Please see the Appendix A attached for more complete details about the various subjects touched upon by our recommendations above.

Sincerely,

Clare Schulzki
ETTAC Chair

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Appendix A

Embrace Advanced Air and Liquid Cooled Data Centers To Reduce Overall Power Grid Demands

Today's AI driven hyperscale data centers require 100 MW of baseload power or more to drive advanced GPUs. These GPUs, running AI driven processes requiring 1,000 times more power than conventional searches, produce tremendous heat. This heat, coupled with high electricity requirements to run the advanced GPUs, has created a shift, not just in how data centers are powered, but in how they are cooled.

The traditional method of data center cooling is forced air through large air handlers and chillers that deliver cold air into the individual rows of servers. This is energy intensive, leading to less energy to power more AI chips and high operating costs.

To achieve AI driven hyperscale designs, the industry must continue its shift to more advanced air cooling and to liquid cooling. With more advanced air and liquid cooling systems, a data center operator can reduce non-IT related energy costs as much as 90%.

To accelerate commercialization and proliferation of air and liquid cooling technologies, the ETTAC recommends a revised definition of "Data Center Project" in the President's EO to specify only projects with advanced cooling such as advanced air and indirect liquid cooling or direct to chip liquid cooling. Through this shift, we also believe that the US can maintain its current technology competitive advantage in international trade.

The ETTAC recommends that federal agencies prioritize demonstration and export promotion of U.S. water reuse, treatment, and zero-liquid discharge technologies supporting advanced data center cooling systems.

Encourage innovation in high water use legacy data centers

While liquid cooling offers significant improvements over air cooling, it comes with its own challenges and corresponding opportunities for export leadership. Conventional water-based systems rely on evaporative cooling towers to manage heat, an approach that consumes significant potable water which can exacerbate local water stress and drive municipal power usage associated with treatment costs. High concentrations of corrosion inhibitors, biocides, salts, and other minerals also create challenges for effective waste stream management.

Innovation in water and wastewater management is needed to enable effective maintenance of thousands of legacy data centers across the globe that rely on evaporative cooling. US leadership in industrial internet of things (IIoT), alternative water source, water reuse, and zero-liquid discharge solutions that increase water and power efficiency while easing the burden of waste

management is a significant an opportunity to meet domestic demand while cementing international trade dominance.

Further, with technologies such as direct to chip cooling or indirect cooling, systems are designed to either use engineering coolant fluids or closed-loop water. In either case, water consumption is reduced by millions of gallons per year versus antiquated evaporative systems. This shift is critical to developing the hyperscale centers of today, which require far more intensive heat management to support exponentially more powerful computing capacity. The United States has led this shift, now it is time to scale it commercially.

Incentives to Build on Two Phase Cooling

In 2023, the Department of Energy (DOE) released $40M in funding under ARPA-E for early innovations in two phase cooling. As the world's need for computing power increases, single phase liquid cooling will not be enough. Market estimates point to the need for two phase cooling as early as 2030. To achieve this timeline, we need to shift from small scale R&D studies such as those in the ARPA-E COOLERCHIPS program to larger scale demonstration units now. With the need for advanced Artificial Intelligence worldwide, we can expect that other nations are actively adjusting their domestic policies accordingly.

The ETTAC recommends making additional funding available for demonstration units of two-phase cooling technologies. The ETTAC further recommends adding increased financial incentives to end user data center operators who deploy two phase cooling at scale as well as encouraging the use of federally owned or managed land for these projects. These incentives could include loans, loan guarantees, or grants. We believe, by taking these actions, we can accelerate United States technology development for the next generation of cooling.

Incentives to Build on Domestically Sourced Energy Storage Infrastructure

Battery technologies manufactured domestically should be formally recognized as environmental technologies within federal policy frameworks due to their measurable impact on resource efficiency, lifecycle emissions, material sustainability, and operational safety. Advanced battery systems that are fully recyclable, eliminate reliance on rare earth elements, incorporate chemistries that inherently mitigate thermal runaway risk, and deliver extended operating lifespans significantly reduce the environmental and economic costs associated with extraction, processing, disposal, and system failure. These attributes directly support U.S. objectives to reduce supply chain vulnerabilities, enhance infrastructure safety, lower lifecycle carbon intensity, and minimize long-term waste streams.

Domestic energy storage systems play a critical enabling role in next-generation AI data center infrastructure. Grid-scale and distributed battery storage improve power reliability, reduce peak demand pressures, support renewable energy integration, and enhance grid stability in regions hosting hyperscale computing. Deployment of domestically manufactured systems—either on-site or regionally—can further alleviate grid congestion and strengthen operational resilience for AI infrastructure clusters.

In addition to these infrastructure benefits, domestic battery manufacturing and deployment create high-value U.S. jobs, strengthen industrial capacity, and expand export opportunities, reducing exposure to geopolitical supply chain constraints.

The ETTAC recommends that advanced battery and energy storage technologies be explicitly designated as enabling infrastructure for next-generation data centers and incorporated into federal innovation, export promotion, manufacturing, and financing programs.

Encourage Clean Back-up Power

Data centers require large amounts of power to operate. Connecting prime power to a new data center can take anywhere from18 months to 5 years. Prior to the prime power connection, temporary diesel or natural gas turbine engines are used to provide electricity to operate the facility. Once prime power is delivered, and all emission permits are in place, emergency back-up power is still required, and this is provided via diesel or turbine engines in the event of primary power interruption. These emergency back-up engines may be as old as nonroad Tier 2 engines. The latest certified generator engines are meeting Tier 4 standards and in some regions of the country require aftertreatment to further reduce pollution to levels matched by on-road vehicles for over 15 years.

Because datacenters are often built near communities, they are raising concerns with the air quality in these communities where people live and work. Environmental technologies are commercially available to substantially reduce the emissions and air pollution from these temporary and back-up combustion sources that are an integral part of reliable energy supply for data centers.

The ETTAC recommends that the back-up power that is as clean or cleaner than the prime power delivered to the data centers be designated as enabling infrastructure for data centers and incorporated into federal export promotion, manufacturing and financing programs.

Embrace Novel Materials & Methods for Thermal Management

Our final recommendation in this letter shifts the focus from now and into the future. Looking into the 2030s, it is likely that computing power and its associated energy and heat demands will increase. The ETTAC believes the time is now to launch an R&D study into new and novel materials and manufacturing methods for thermal management. We recommend a program, potentially led by the DOE, focused on technologies that could increase thermal efficiency of materials at least 10X versus today's currently available technologies. Similar to the COOLERCHIPS program from 2023, we envision this fund be comprised of 10-20 awards to a mix of laboratories, academia, and commercial partners.

Leadership in advanced thermal materials could become a critical competitive advantage for U.S. companies supporting global AI infrastructure.

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Sources:

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