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General Comment

See attached file(s)

Attachments

Legacy Global Initiative Texas by Jana Boyd RFI 2025 National AI R and D Strategic Plan

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Public Comment in Response to the RFI: Development of a 2025 National Artificial Intelligence Research and Development Strategic Plan

Introduction and Strategic Context

Legacy Global Initiative (Legacy), a Dallas-based consulting company, operates as a strategic facilitator of groundbreaking projects spanning diverse sectors including energy, artificial intelligence (AI), healthcare, Innovation in materials, deep space, and biotechnology. Legacy actively collaborates with specialized technology partners to deploy proprietary innovations, notably advanced gas mixtures that substantially enhance oil recovery efficiency in abandoned and orphaned brownfield sites throughout Texas and Oklahoma, achieving productivity increases of up to 50%. Additionally, as an official distributor in the MENA region and Europe, Legacy champions projects employing novel permeable materials designed to improve infrastructure resilience by mitigating flooding, minimizing freeze-thaw damage, reducing urban heat island effects, and decreasing reliance on municipal water systems.

On October 28, 2024, Legacy contributed to the launch of a landmark collaborative initiative between EMSteel and Masdar in Abu Dhabi, UAE, pioneering clean steel production utilizing green hydrogen generated by American-manufactured Ohmium electrolyzers. Ms. Jana Boyd, Legacy's Chief Strategy Officer, frequently represents the organization as a keynote speaker on UAE's largest professional stages and participates as an influential delegate at numerous prestigious GCC and UAE events, including AI Retreat, AI Week, Abu Dhabi Finance Week, Abu Dhabi Business Week, ADIPEC, Middle East Investor Summit, AIM Congress Abu Dhabi, AIM Summit Dubai, Make it in the Emirates, Abu Dhabi Sustainability Week, Green Hydrogen Summit, COP28, and many others. These high-profile engagements underscore Legacy's continuous dedication to fostering international collaboration, strategic diplomacy, and pioneering advancements in energy and AI innovation, and align with President Trump's Executive Order 14179.

Directive Deficiencies and Visionary R&D Recommendations

Legacy identifies several high-impact R&D areas to propel U.S. AI leadership and international competitiveness:

- **AI Optimization of Legacy Energy Assets:**

Current inefficiencies in recovering resources from legacy brownfields significantly impact domestic energy resilience. Legacy proposes using AI-driven subsurface digital twins to optimize proprietary gas injection strategies, dynamically adjusting operations to geological feedback, thereby enhancing extraction rates and asset utilization. Federal funding is crucial here due to the foundational nature of such innovations and substantial public benefit from improved energy independence. An Advanced Research Projects Agency-Energy (ARPA-E) supported initiative would be ideal for fast-tracked implementation.

- **AI-Ready Critical Infrastructure Directive:**

The 2023 strategic framework lacks explicit directives mandating AI integration across federal infrastructure planning. We propose instituting a requirement for critical infrastructure sectors - including energy, water, telecommunications, and transportation - to develop and submit comprehensive AI modernization blueprints by 2026. These sector-specific roadmaps would be supported by DARPA-inspired R&D funding mechanisms, ensuring rapid innovation and deployment. Additionally, we advocate establishing an inter-agency accelerator program - "AI for Infrastructure Resilience" - jointly managed by the Department of Energy (DOE), the Department of Homeland Security (DHS), and the Department of Transportation (DOT). Such an initiative directly aligns with EO 14179's emphasis on AI deployment and national preparedness.

Fusion of AI with Domestic Manufacturing Reshoring:

A notable omission in the 2023 AI Strategic Plan is the integration of AI technologies with efforts to reshore critical industrial manufacturing, particularly in

semiconductors, batteries, and rare earth elements. To address this gap, we recommend substantial federal investment into AI-enabled predictive maintenance, generative design, and automated process optimization within advanced domestic manufacturing facilities. Implementing these technologies can significantly enhance manufacturing productivity and resilience. We propose establishing dedicated “AI Made in America” testbeds anchored by the National AI Research Resource (NAIRR) in key industrial hubs, specifically Texas, Ohio, and Arizona. This initiative will strategically align AI deployment with broader national goals of economic and energy dominance articulated in the President Trump administration's agenda.

- **Trusted AI Supply Chains: National AI Components Registry:**

Ensuring the security and reliability of AI supply chains remains inadequately addressed in existing strategic plans. To mitigate risks associated with foreign interference, we propose the creation of a "National AI Components Registry." This registry would provide comprehensive validation for AI model components, encompassing data sources, computational hardware, algorithms, and cloud infrastructure endpoints. It would incorporate robust provenance verification, cybersecurity assessments, and modular auditability standards. This recommendation is critically important, aligning with the transparency and national security priorities outlined in EO 14179.

AI-Driven Energy Command Systems (DOE–DOD–Texas Pilot):

While the 2023 document recognizes the importance of grid optimization, it lacks actionable, integrated operational use cases. We recommend dedicated federal funding to develop advanced, real-time AI command systems specifically designed for hybrid renewable-nuclear energy hubs. These systems would be tested in dual-use environments, leveraging existing grid infrastructure such as Texas’s ERCOT and selected Department of Defense (DOD) bases in the Gulf of America region.

This initiative aligns directly with the strategic framework established under the Stargate Project in Abilene, Texas - an ambitious AI and compute infrastructure initiative launched in 2025 to position the United States as a global AI powerhouse. By integrating energy command AI systems into the Stargate ecosystem, the U.S. can demonstrate how large-scale AI infrastructure can directly support national security, energy resilience, and climate adaptation goals. Together, these platforms would not only operationalize EO 14179's mandate for real-world deployment but also provide a replicable model for allied countries seeking to align energy strategy with AI leadership.

Geopolitical AI Strategy Testbed: Gulf–Texas AI Alliance:

To effectively advance global AI leadership and secure strategic international partnerships, the U.S. should establish a pioneering bilateral AI Testbed between Texas and Abu Dhabi (UAE). This testbed would prioritize joint research and development in clean energy technologies, logistics optimization, and advanced AI applications, including fusion-energy AI twins. Leveraging the UAE's strong commitment and existing infrastructure in AI, this initiative positions the U.S. to maintain and expand its global AI leadership through practical, collaborative innovation and deployment.

Geopolitical AI Strategy Testbed: Gulf–Texas AI Alliance and Expanded Asia-Pacific Engagement

To effectively advance global AI leadership and secure strategic international partnerships, the United States proposed to establish a pioneering bilateral AI testbed between Texas and Abu Dhabi (UAE). This testbed would prioritize joint research and development in clean energy technologies, advanced logistics optimization, and high-value AI applications such as fusion-energy digital twins. With the UAE's demonstrated commitment to frontier technologies, AI governance, and green infrastructure, it remains one of the most strategically aligned and implementation-ready partners for the United States in building shared AI deployment ecosystems.

In parallel, this Arabian Gulf - Texas Alliance should serve as a scalable model for extending collaboration to other high-capability governments in the Asia-Pacific region. Countries such as Japan, Australia, Singapore, South Korea, Indonesia, India, Malaysia, Thailand, the Philippines, and Vietnam each represent strategic geopolitical and technological nodes. These expanded engagements would deepen regional ties and reinforce the United States' strategic position in maintaining leadership over trusted AI standards, resilient digital infrastructure, and dual-use innovation corridors across allied regions, while curbing China's rapid expansion of AI capacity and cross-border technology initiatives.

Together, these efforts would position the United States and its partners to define the next era of AI deployment - with Abu Dhabi anchoring the Gulf front and select Asia-Pacific capitals supporting parallel deployments through secure, interoperable models that align with EO 14179 and broader national interests.

- **National AI Deployment Corps:**

Addressing the critical need for practical deployment strategies beyond current workforce education and training, we propose the creation of a National AI Deployment Corps. Modeled after successful initiatives such as AmeriCorps and DARPA service programs, these Corps would strategically place highly skilled AI engineers and ethicists within local governments, utilities, and industries, particularly focusing on rural and underserved communities. This initiative will directly translate AI research into tangible community-level impacts, fulfilling the Executive Order's directive for accelerated and practical deployment.

- **AI Federal Missions Challenge (Public Prize + R&D Sandbox)**

To stimulate innovative solutions and public-private partnerships, we propose the establishment of an annual Federal AI Missions Challenge. This competition would focus on priority sectors such as clean energy, veterans' health, secure elections, and resilient supply chains, awarding substantial public prizes totaling \$100 million annually.

Additionally, NAIRR would host AI sandbox environments containing federal datasets, facilitating rapid development, testing, and deployment of innovative AI solutions.

- **Generative AI for Infrastructure Materials:**

Urban environments increasingly face severe flooding, infrastructure degradation from freeze-thaw cycles, and excessive heat retention. Legacy recommends deploying generative AI models to rapidly discover and refine permeable, sustainable materials optimized for municipal applications. This initiative addresses critical urban resilience and water conservation needs, necessitating government support for coordination across municipalities, research institutions, and material suppliers. Deployment could be expedited via NAIRR-hosted public challenges.

- **Federated Digital Twins for Hydrogen Infrastructure:**

Data fragmentation currently obstructs effective management of international hydrogen supply chains. Legacy proposes a federated AI-based digital twin network linking U.S. Gulf Coast hydrogen hubs with Emirati hydrogen projects, harmonizing data sets for predictive analytics and market optimization. Government action here is indispensable, given the international coordination required. This effort could best advance through a DOE–NSF–UAE Ministry of Energy tri-national pilot zone.

U.S.–UAE Strategic Collaboration Platform

Legacy strongly advocates for the establishment of a bilateral AI-Energy innovation corridor between Texas and Abu Dhabi, leveraging the complementary strengths of both regions. Texas’s expertise in legacy energy operations and advanced materials pairs strategically with Abu Dhabi’s visionary renewable energy and hydrogen leadership. Legacy proposes the development of:

- An AI-powered Energy Security Testbed that leverages real-world variability in energy systems, enhancing resilience and efficiency.

- Standardized federated digital twin exchanges hosted on NAIRR, providing secure, interoperable data sharing between American and Emirati entities.
- Joint policy sandbox environments dedicated to hydrogen supply chains, advanced materials application, and clean industrial technologies, facilitating rapid innovation cycles and market readiness.

Workforce & Deployment Infrastructure

Legacy proposes the creation of a U.S. - UAE AI Deployment Corps, an innovative workforce initiative placing highly skilled AI professionals within active industrial projects across energy sectors, urban infrastructure developments, and critical supply chains. We recommend NSF support for bi-regional AI training pipelines, deeply integrated with industry consortia and leveraging NAIRR resources. Legacy stands ready to host, coordinate, and guide these programs, utilizing established networks in Dallas and trusted partnerships within UAE industry and academia.

Policy Recommendations and Call to Action

Legacy respectfully urges the federal government to:

- Fund a Texas-based DOE – NS - Legacy AI Energy Field Lab dedicated to real-world implementation of AI-enhanced legacy and renewable energy technologies.
- Initiate a tri-lateral R&D grant program, engaging U.S., UAE, and industry stakeholders, focusing on critical infrastructure, advanced materials, and energy sector AI solutions.
- Convene a high-level White House - UAE AI Energy Summit to synchronize international standards, foster technological diplomacy, and develop scalable workforce strategies.
- Recognize Legacy as a strategic partner, contributing actively to testbed developments, advisory boards, and bilateral AI-energy deployment initiatives.

Conclusion

The Legacy Global Initiative respectfully submits this response in full alignment with Executive Order 14179, signed by President Trump on January 23, 2025, which sets forth a

decisive national policy to remove barriers to American leadership in artificial intelligence. This submission offers concrete proposals to transform the 2025 National AI R&D Strategic Plan from a foundational research document into an implementation-first roadmap that directly serves U.S. economic competitiveness, national security, and global leadership in AI innovation.

Our central argument is clear: the federal government must lead on strategic AI deployment to attract near-term commercial investment for the gain of the long-term national advantage. Over the next 3 to 5 years, public-sector leadership will be critical in advancing AI infrastructure, high-risk technical research, international collaboration, and trusted standards.

We respectfully call on the Administration to prioritize the following actions:

- Fund real-time AI command systems for hybrid renewable–nuclear grids, anchored in the Stargate Project in Texas.
- Establish a National AI Components Registry to secure and audit the AI stack.
- Launch bilateral and multilateral AI testbeds starting with the Gulf–Texas AI Alliance and expanding into ten Asia-Pacific partners.
- Support a National AI Deployment Corps to place applied AI expertise into public infrastructure, energy, and local government environments.
- Initiate an annual AI Federal Missions Challenge with NAIRR-hosted R&D sandboxes and \$100M in public incentives.
- Advance AI for fusion control loops, programmable thermal batteries, and generative urban materials using high-risk, high-reward public funding.
- Formalize U.S.–UAE innovation corridors in hydrogen, digital twins, and industrial AI, reinforcing strategic AI diplomacy with values-aligned partners.

As the White House AI and Crypto Czar David Sacks, the Assistant to the President for Science and Technology Michael Kratsios, and the National Security Advisor Marco Rubio move forward in crafting the AI Action Plan, we urge OSTP to integrate these proposals as models of government-led AI leadership and international competitiveness.

Legacy stands ready to support implementation, serve advisory frameworks, and deploy high-trust AI systems alongside federal and allied partners. With a unique operational footprint

in both the United States and the UAE, we are well-positioned to help advance the next generation of AI that serves public good, secures critical infrastructure, and keeps America at the forefront of global technological progress.

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