



January 31, 2022

**US Department of Energy Request for Information: DE-FOA-0002660
Deployment and Demonstration Opportunities for Carbon Reduction and Removal Technologies**

The Gas Turbine Association (GTA) is a membership organization established in 1995 as the *Unified Voice of the Gas Turbine Industry*. GTA's mission is to communicate the message that gas turbines are, and will continue to be, a vital component of power generation in the United States of America and around the globe. The GTA is comprised of the major gas turbine manufacturers, researchers, and service providers in the energy market, with US gas power generation equipment exports of \$12BB per year, providing more than 200,000 high paying jobs across the country. As the world transitions towards a net-zero carbon energy future, gas turbine technology will be essential for under-pinning and securing a sustainable, clean, efficient, and reliable generation mix. Today, gas turbines produce approximately one-third of our nation's electricity and power a large proportion of our nation's pipeline infrastructure.

The future of the global energy system relies upon dispatchable power.

Dispatchable power is the cornerstone of the net zero grid. It provides resiliency above and beyond peak demand, ensuring supply even during extreme weather events or demand spikes. As the global energy system pivots further toward broad-based electrification of transportation, industrial and other segments of the economy to support decarbonization of our society's use of energy, ensuring a robustly resilient electrical production and distribution system has never been more important. The gas turbine is the most flexible, responsive, and reliable form of dispatchable power. Gas turbines are performing this firming role today, enabling the recent dramatic growth of renewables.

Gas turbines can be decarbonized today via pre and/or post combustion carbon capture. Both approaches increase the cost of operation. Post-combustion carbon capture in particular is an appealing approach to dramatically reduce CO₂ emissions in the near term, as it has been demonstrated in a few different use cases to date. Recent research highlights that post combustion carbon capture, on average, can reduce plant power output by 15%¹ due to the power requirements of auxiliary units needed to conduct carbon capture activities. This operating debit is critical since energy assets are dispatched based on their cost. Without structural changes to the dispatch order, applying post combustion carbon capture on a gas turbine power plant would effectively reduce that asset's operating hours, thereby endangering the grid stability that gas turbines enable. Pursuing advances in turbine designs simultaneously with carbon capture technologies not only will decrease operational costs but also decrease capital costs and reduce the potential for "stranded assets" in coming years.

GTA is excited about this Request for Information. The US Government is uniquely positioned to both address the dispatch criteria and to accelerate the retrofittable technology enhancements that must be developed and deployed across the installed fleet. Near-term gas turbine technology R&D investments are particularly attractive when considered in tandem with Point Source Carbon Capture solutions. A gas

¹ Current and Future Technologies for Natural Gas Combined Cycle Power Plants, DOE/NETL-341/061013



turbine “performance package” that improves gas-fired power plant efficiency is not only cost neutral when compared to the cost of adding carbon capture, it can make carbon capture solutions more attractive by reducing overall operating costs for the integrated carbon capture system. R&D funding focused on improving turbine efficiency is needed to offset the performance decreases and increased costs of operation associated with implementing carbon capture technologies. Investing in improved gas turbine technologies in parallel with these commercial carbon capture implementations should reduce total business risk. Supporting real-world demonstrations of these technologies is one way of addressing customer first-mover concerns.

In line with the Biden Administration’s priorities, implementing lowest cost carbon capture solutions would provide resilient, clean, affordable power with advanced decarbonized gas turbine technology. Furthermore, reducing the cost of capture drives adoption which preserves existing jobs and communities while creating new jobs to modernize these vital assets. The gas turbine community looks forward to working with partners across academia, government and industry in developing world class technology to ensure net zero CO₂ emissions in US power generation and lead the world in affordable clean power.

Technical Area 1: Point-Source Carbon Capture Technologies and Integrated Capture and Storage Projects

The Gas Turbine Association is keenly interested in seeing projects related to Point Source Carbon Capture that coordinate with the operations of a Natural Gas Combined Cycle (NGCC) power facility included as part of the demonstration projects funded by the proposed Bipartisan Infrastructure Framework funding for carbon capture projects.

These types of natural gas-fired installations are the backbone of the nation’s dispatchable power generation fleet, and indeed, across the world. Projects that can provide point-source mitigation for large and small gas turbine models will assist in decarbonizing one of our nation’s most important sources of dispatchable power and improve the resilience of our overall electric distribution system through its transition.

Technical Area 6: Opportunities for Carbon Conversion Technologies and Grant Program

The Gas Turbine Association wishes to highlight that there are efforts on producing synthetic aviation fuel for aviation gas turbines from captured CO₂ and green H₂. These types of CO₂ utilization will also create markets for captured CO₂ (could be a high-value market for carbon captured in projects under Technical Area 1, for example) and offer the potential to offset some of the costs of carbon capture.



Sincerely,

A handwritten signature in black ink, appearing to read "Salvatore A. DellaVilla Jr.".

Salvatore A. DellaVilla Jr.
GTA Managing Director &
CEO, Strategic Power Systems, Inc.

A handwritten signature in black ink, appearing to read "Karen A. Thole".

Karen A Thole, PhD.
Distinguished Professor of Mechanical Engineering,
Pennsylvania State University &
GTA Government Relations Chair

A handwritten signature in black ink, appearing to read "Michael Aller".

Michael Aller
Technical Affairs Consultant
Gas Turbine Association (GTA)

Gas Turbine Association Membership

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