

Arctura Awarded \$1.15M Grant from U.S. Dept. of Energy

The DOE SBIR Phase II award allows Arctura to develop and test a novel process to synthesize nitric acid using only air, water, and renewable electricity

South Kingstown, RI, September 14, 2023 [Arctura](#) announced today that it has won a \$1.15M grant from the U.S. Department of Energy (DOE) to advance a new “green nitric acid” technology.

Nitric acid is a valuable industrial chemical with many important applications, such as nitrogen fertilizers and explosives, as well as common derivative products like nylon and polyurethane. But most of today’s industrial nitric acid plants are powered by fossil fuels while simultaneously consuming natural gas as a hydrogen feedstock. As a result, the industry is one of the leading emitters of greenhouse gases (GHGs). In 2021, for example, nitric acid production was responsible for 108 million tons of CO₂-equivalent emissions globally (0.3% of the total global CO₂e emissions).

Arctura is developing a novel atmospheric plasma process to reduce the energy consumed and GHGs emitted in the production of nitric acid. The new process – which uses only air, water, and electricity – has the potential to significantly lower the cost of nitric acid production. Also, if the electricity is obtained from renewables like wind and solar farms, the new process would have zero GHG emissions. Integrating this technology with renewable assets will also help to balance grid demand during off-peak periods or reduce asset curtailment, providing an important service to the renewable energy plants.

“Electrification of energy-intensive processes like the production of nitric acid is one key to reducing greenhouse gas emissions,” said Arctura’s Founder and CEO, Neal Fine. “This SBIR funding will give us an opportunity to disrupt a \$24 billion market. And, importantly, the new product will help to combat climate change by reducing emissions and by providing a needed ancillary service for utility-scale wind and solar farms. These objectives are central to our Company’s core mission.”

The Phase II DOE award, titled “Development of An Atmospheric Plasma Generator for Nitrogen Fixation in Air,” will be used to develop and test a prototype product.

About Arctura, Inc.

Arctura was founded in 2015 by Neal E. Fine, Ph.D. to develop and market technologies and products that improve sustainability and renewable energy. In addition to green nitric acid, the company is also in the process of commercializing the ArcGuide® blade coating for enhanced lightning protection for wind turbines and the eXSeek™ wind farm optimization tool. Each of these technologies is being developed and tested using grants from the Federally-funded SBIR program.