NEWS RELEASE

Advent Technologies Announces Official Launch of Joint Collaboration With U.S. Department of Energy for Next-Generation Fuel Cell Technology

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Developing new breakthrough HT-PEM technology will bring low-cost fuel cell technology to the automotive, aviation, and marine markets

BOSTON--(BUSINESS WIRE)-- Advent Technologies Holdings, Inc. (NASDAQ: ADN) ("Advent"), an innovation-driven company in the fuel cell and hydrogen technology space, today announced that it has signed a joint development agreement (the "CRADA") with the US Department of Energy's (DOE), Los Alamos National Laboratory (LANL), Brookhaven National Laboratory (BNL) and the National Renewable Energy Laboratory (NREL). Under this CRADA, along with support from the DOE's Hydrogen and Fuel Cell Technologies Office (HFTO), Advent's team of scientists will work closely with its LANL, BNL, and NREL counterparts over the coming years in order to develop breakthrough materials that will help strengthen US manufacturing in the fuel cells sector and bring high-temperature proton exchange membrane (HT-PEM) fuel cells to the market. This project will also contribute to the acceleration of energy and transportation technologies that will enable a clean, zero-emissions energy future.

The aim of HT-PEM fuel cells is to fulfill the promise of "Any Fuel. Anywhere." They can allow ships to run on renewable methanol or ammonia, airplanes to run on dimethyl ether (DME) or hydrogen, and off-grid power generators to work with any green fuel that is easily transportable to remote locations. The ability to use any hydrogen-carrying fuel, in addition to pure hydrogen, is a major breakthrough in reducing the required infrastructure investments.

Dr. Emory De Castro, Advent's Chief Technology Officer, commented: "The developing world is where the battle of climate change will be won or lost, and a low-cost infrastructure is a must. Synthetic eFuels will be produced by

green hydrogen in the near future and thus be sustainable in such applications. HT-PEM technology allows for hydrogen fuel flexibility, while the competition is currently limited to very pure hydrogen that is compressed at 700bar. By forging this partnership, we are taking yet another step closer to realizing our clean energy future."

The signed CRADA formalizes Advent's role in this program, structures the joint development, and defines milestones and investment required to accelerate the technology scale-up. It also leverages state-of-the-art research facilities and talent at the DOE's LANL, BNL, and NREL sites, as well as Advent's expertise in fabricating polymers, membranes, catalysts, and electrodes. The effort encompasses scaling up the critical components of this next-generation membrane assembly: BNL catalysts, LANL membrane, electrode binder, and membrane electrode assembly (MEA) architecture. Advent's scientists and engineers will work side by side with the primary inventors to facilitate rapid process development.

"We are honored and excited to work with the best electrochemists in the world from the LANL, BNL, and NREL in developing the next standard of fuel cell technology," said Dr. Vasilis Gregoriou, Advent's Chief Executive Officer and Founder. "The mandate from the aerospace, marine, and heavy-duty automotive industry is clear: they want to move to high-temperature fuel cell technology, and we believe that we will be able to provide the best product at the best price. Our recent NASDAQ listing and round of fundraising will allow us to make this agreement the top priority of our product development effort. We expect to commercialize the technology in 2021, bring products to the market in early 2022, and scale it up at mass production in 2023."

HT-PEM fuel cell technology will allow heavy-duty and other hard-to-decarbonize applications to operate with high efficiency while using hydrogen and mitigating water management problems. The LANL MEA that Advent will commercialize is based on a novel chemistry. It does not rely on water as the conducting medium but instead on an engineering plastic, thus allowing for a wider range and high-temperatures for reliable operation (80oC to 240oC). The technology developers expect that overall fuel cell system design will be simplified drastically, resulting in reduced system costs. Early results indicate a longer lifetime even compared to Advent's current commercial products. In addition, the agreement with BNL will focus on commercializing ultra-low platinum electrode technology that can bring the platinum/kilowatts (kW) required number down 90% (a 10x improvement). Platinum is an essential precious metal that is used in mobility fuel cells, and the BNL technology has the potential to reduce costs along with supply chain and environmental problems. NREL will aid in developing manufacturing processes for these advanced materials.

About Advent Technologies Holdings, Inc.

Advent Technologies Holdings, Inc. is an innovation-driven company in the fuel cell and hydrogen technology space. Our vision is to accelerate electrification through advanced materials, components, and next-generation fuel cell technology. Our technology applies to electrification (fuel cells) and energy storage (flow batteries, hydrogen

production) markets, which we commercialize through partnerships with Tier1s, OEMs, and System Integrators. For more information on Advent Technologies Holdings, Inc., please visit the company's website at **https://www.advent.energy/**

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