NEWS RELEASE

# Advent Technologies' Methanol Fuel Cell Supplies Highly Efficient Heating and Cooling in New CHP Offering

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Advent is solving stationary electric and thermal power generation demands in remote areas with its Serene methanol-powered hydrogen fuel cell system

BOSTON--(BUSINESS WIRE)-- Advent Technologies Holdings, Inc. (NASDAQ: ADN) (Advent or the Company) released today the mobile SereneCHP (combined heat and power) 5kW system. SereneCHP allows users to mix and match heat and power output by powering a heat pump, which significantly increases efficiency. The SereneCHP system can supply up to 13 thermal kW of heat or 10.5kW of cooling. The unit meets the immediate needs of logistics centres, mission-critical and defence operations, housing, and critical infrastructure in remote grid areas.

Left: The SereneU reaches 5kW of electrical power output. It is the core system in the SereneCHP. Right: The SereneCHP portable system can be hooked-up to a heat exchanger and heat pump to boost heat output to 13kW thermal and/or cooling to 10.5kW. (Photo: Business Wire)

"Advent's SereneCHP solution is a game changer for organizations and businesses in remote areas or challenging grid locations that need heat, cooling, and power today. We are listening to the world's demands and adapting our technology to support the global move to decarbonize with solutions that bring us one step closer to our net zero future," noted Dr. Vasilis Gregoriou, Advent Technologies CEO and Executive Chairman of the Board.

The SereneCHP uses readily available methanol as the hydrogen source for the fuel cell package that includes Advent's SereneU 5kW unit, batteries, an inverter, and, a fuel tank. The SereneCHP operates with add-on components such as heat exchangers and heat pumps, and can add even more thermal capacity beyond the heat

pump by harnessing the fuel cell's heat exhaust. The SereneCHP's key advantage is its flexibility - when heat is unused, then more electrical power becomes available, and vice versa.

The SereneCHP's interchangeable energy solutions have multiple combinations, depending on the customer's geographical requirements. For example, combined heat and power uses an add-on heat exchanger to provide 3kW of heat and 3.5kW of electrical power without a heat pump. This is ideal to power up small- and medium-sized buildings in rural areas or in challenging grid environments. Another option is usage primarily for heat, with optional power generation. For example, a heat pump powered by Serene fuel cells produces 8kW of heat and 1.5kW of electrical power. For cooling, the fuel cell allows for 10.5kW of cooling – ideal for back-up in off-grid and intermittent grid areas.

Advent's new fourth generation product can work autonomously 24 hours a day to provide a primary source of energy, essentially replacing the need for diesel generators or being hybridized with other renewable energy sources. By virtue of its significant CO2 reductions, the SereneCHP enables users to move closer to their net zero goals. Furthermore, SereneCHP enables people living in areas with limited infrastructure to have access to clean heat (and/or cooling) and electricity. The SereneCHP can be quickly deployed with readily available and easily portable liquid fuels and biofuels such as methanol and biomethanol.

Relying on Advent's patented HT-PEM technology, the SereneCHP has the following advantages:

- Autonomous operation via an automatic start and stop charge, allowing for fast deployment for urgent needs;
- Mobility by being light and easily portable;
- Performance in extreme conditions of ambient temperature -20°C to 50°C, as well as in dense air pollution and heavy humidity;
- Fuel flexibility with the ability to use methanol and biomethanol today, and hydrogen/eFuels in the future;
- Eco-friendly by lowering CO2 emissions by 80%-100%, and eliminating nitrogen oxides (NOx)/sulfur oxides (SOx) emissions and particulate matter;
- Low noise at <50 dB(A) vs. 85 dB(A) of a diesel generator;
- Low operational costs with a 30%-80% fuel savings versus diesel and far lower maintenance requirements.

## About Advent's Serene

Advent's line of Serene solutions includes the core SereneU unit, which is a 5kWfourth generation methanol-powered hydrogen fuel cell that can be configured and/or stacked to meet energy needs up to 250kW. The SereneU is based on Advent Technologies' proprietary membrane electrode assembly (MEA) and high-temperature proton electrode membrane (HT-PEM), which together not only allow for higher efficiency and performance in extreme temperatures, but also for a lower total cost of ownership and reduced start-up time, while offering fuel flexibility.

For more information, visit **www.serene.advent.energy**.

## About Advent Technologies Holdings, Inc.

Advent Technologies Holdings, Inc. is a U.S. corporation that develops, manufactures, and assembles complete fuel cell systems as well as supplying customers with critical components for fuel cells in the renewable energy sector. Advent is headquartered in Boston, Massachusetts, with offices in California, Greece, Denmark, Germany, and the Philippines. With more than 150 patents issued, pending, and/or licensed for fuel cell technology, Advent holds the IP for next-generation HT-PEM that enables various fuels to function at high temperatures and under extreme conditions – offering a flexible fuel option for the automotive, aviation, defense, oil and gas, marine, and power generation sectors. For more information, visit **www.advent.energy**.

## Cautionary Note Regarding Forward-Looking Statements

This press release includes forward-looking statements. These forward-looking statements generally can be identified by the use of words such as “anticipate,” “expect,” “plan,” “could,” “may,” “will,” “believe,” “estimate,” “forecast,” “goal,” “project,” and other words of similar meaning. Each forward-looking statement contained in this press release is subject to risks and uncertainties that could cause actual results to differ materially from those expressed or implied by such statement. Applicable risks and uncertainties include, among others, the Company’s ability to maintain the listing of the Company’s common stock on Nasdaq; future financial performance; public securities’ potential liquidity and trading; impact from the outcome of any known and unknown litigation; ability to forecast and maintain an adequate rate of revenue growth and appropriately plan its expenses; expectations regarding future expenditures; future mix of revenue and effect on gross margins; attraction and retention of qualified directors, officers, employees and key personnel; ability to compete effectively in a competitive industry; ability to protect and enhance Advent’s corporate reputation and brand; expectations concerning its relationships and actions with technology partners and other third parties; impact from future regulatory, judicial and legislative changes to the industry; ability to locate and acquire complementary technologies or services and integrate those into the Company’s business; future arrangements with, or investments in, other entities or associations; and intense competition and competitive pressure from other companies worldwide in the industries in which the Company will operate; and the risks identified under the heading “Risk Factors” in Advent’s Annual Report on Form 10-K filed with the Securities and Exchange Commission (“SEC”) on March 31, 2022, as well as the other information filed with the SEC. Investors are cautioned not to place considerable reliance on the forward-looking statements contained in this press release. You are encouraged to read Advent’s filings with the SEC, available at **www.sec.gov**, for a discussion of these and other risks and uncertainties. The forward-looking statements in this press release speak only as of the date of this document, and the Company undertakes no obligation to update or revise any of these statements. Advent’s business is subject to substantial risks and uncertainties, including those referenced

above. Investors, potential investors, and others should give careful consideration to these risks and uncertainties.

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