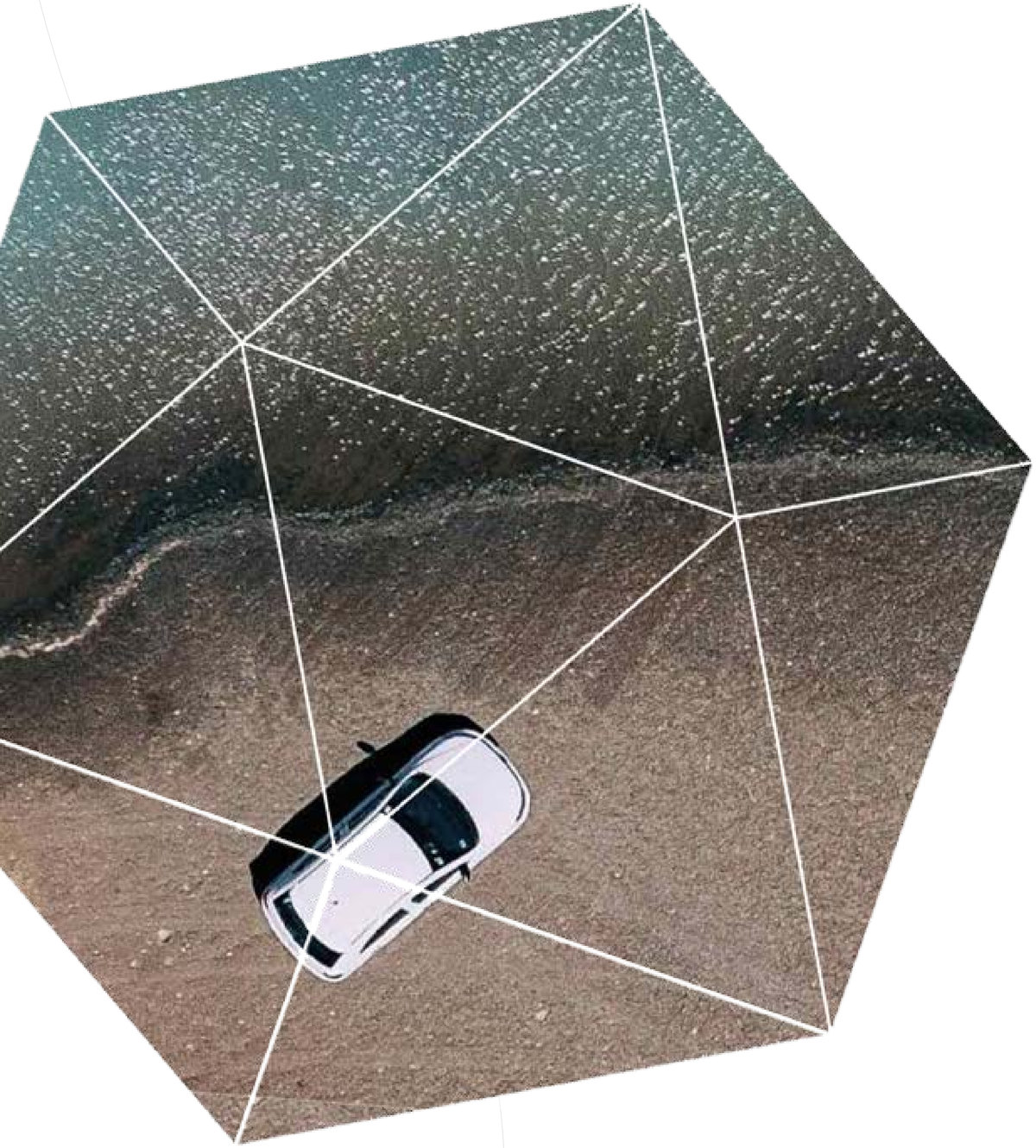


ADVENT

Presentation

September 2021

NEXT-GENERATION

HT-PEM FUEL CELL TECHNOLOGY

"ANY FUEL. ANYWHERE."

ABOUT ADVENT TECHNOLOGIES HOLDINGS, INC.

NEXT-GENERATION **HT-PEM** FUEL CELL TECHNOLOGY

- 190 patents issued, licensed, or pending
- Strategic Partner of the U.S. Department of Energy (DoE). Joint development with Los Alamos National Lab, Brookhaven National Laboratory, National Renewable Energy Laboratory exclusive award of the L'Innovator Program

MARKET-READY (Total Addressable Market: $72+ billion)

- Thousands of systems sold to Defense, Off-Grid, Remote Power Markets in recent years
- Opportunity for Heavy-Duty Automotive, Aviation, Marine

GLOBAL MANDATE TO DECARBONIZE

- Decarbonization is a key priority by governments and industries across the globe
- The U.S. is working towards a 50-52% reduction from 2005 levels in economy-wide net greenhouse gas pollution in 2030.
- The EU Hydrogen Strategy aims for 6GW of renewable hydrogen electrolyzers in the EU by 2024 and 40GW by 2030.

STRONG BALANCE SHEET

- Public listing **(NASDAQ: ADN)** entry in February 2021
- $116 million of cash on the balance sheet (June 2021). No debt

HIGH-GROWTH PROFILE

- Strong pipeline. Manufacturing in the U.S., Denmark & Germany
- Target revenues of $250+ million by 2025
- Target Gross Margins of 30%

Experienced Leadership Team

Proven track record of technological development and commercialization

Vasilis Gregoriou*

Chairman & CEO

- 30+ years of operational and strategy experience in the U.S. and Europe
- World-renowned renewable energy expert
- Extensive experience in product development and company management
- MBA, Northeastern University
- Ph.D. in Physical Chemistry, Duke

Emory De Castro*

CTO

- 35+ years of technology commercialization
- 25+ years in fuel cells
- Volume manufacturing expert
- DoE Manufacturing Award
- BASF Fuel Cell Inc.
- PEMEAS Inc., and De Nora N.A.
- E-TEK
- B.S. in Chemistry, Duke University
- Ph.D. in Chemistry, University of Cincinnati

Kevin Brackman

CFO

- 25 years of finance experience
- Myers Industries
- Ingersoll-Rand
- Chiquita Brands International
- American Institute of Certified Public Accountants
- B.S. Accounting & Finance, Miami University

Chris Kaskavelis

CMO

- 20+ years as a C-Suite Officer in Tech/Marketing (founded start-up to AIM & Nasdaq IPOs)
- B.S. in Electrical Engineering and B.A. in Business Economics, Brown University
- Ph.D. in Supply Chain Management and M.Sc. in Manufacturing Engineering, Boston University

Jim Coffey

General Counsel & COO

- 30+ years experience in corporate and securities law, M&A, VC, corporate finance and IP law
- Long track record working with companies in the clean energy and technology sectors, with specific experience in the fuel cell industry
- B.A., Providence College
- J.D., New England School of Law
- LL.M. in Corporate Law, New York University

*Indicates member of Board of Directors following the Business Combination. Additional Board of Director members include Katherine Fleming, Anggelos Skutaris, Katrina Fritz and Lawrence Clark.

ADVENT EXECUTES ON BUSINESS PLAN POST NASDAQ ENTRY

Advent has approximately **190 patents issued, licensed, or pending** and has accessed its own and the 3rd party global HT-PEM investment of partners to create the leading next-generation fuel cell technology provider.

Boston and Charlestown, MA, USA

San Francisco Bay Area, USA

Aalborg, Denmark

Achern, Germany

Patras and Athens, Greece

170+ Employees

38 Successful R&D Programs

700+ Combined Technical Years of Experience

190 Patents Issued, Licensed, or Pending

*This number includes part-time employees and contractors.

1960s
- First LT-PEM fuel cells

2006
- Advent HT-PEM Gen 1

2012
- R&D with NASA, ESA, DoE

2013
- Advent-BASF HT-PEM Gen 2

2018
- DoE selects Advent for L'Innovator Joint Dev. Program

2019
- SAFRAN & ESS expand program contracts

2021
- Advent enters NASDAQ ("ADN") Raises $158 million

2021 Q1
- UltraCell Acquisition

2021 Q2
- New Boston & Europe production facilities under construction
- UltraCell expands DoD contract
- HT-PEM Gen 3 launch with LANL

2021 Q3
- Mobility next-gen Fuel Cell under development
- Acquisition Serenergy A/S (Denmark) and fischer eco solutions GmbH (Germany)

DoE · NASA · ESA · BASF · LOS ALAMOS · NREL · BROOKHAVEN · ESS · SAFRAN · NASDAQ · UltraCell HIGH POWER MICRO FUEL CELLS™ A Bren-Tronics Company

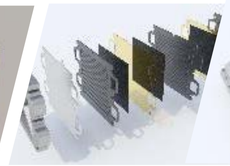


Exhibit 2: Global hydrogen projects across the value chain

Source :https://www.pv-magazine.com/2021/02/18/global-hydrogen-project-pipeline-expected-to-exceed-300-billion-by-2030/

ADVENT FUEL CELL TECHNOLOGY "ANY FUEL. ANYWHERE."

ANY FUEL

HYDROGEN

- Fuel for most heavy-duty mobility & industrial markets

METHANOL

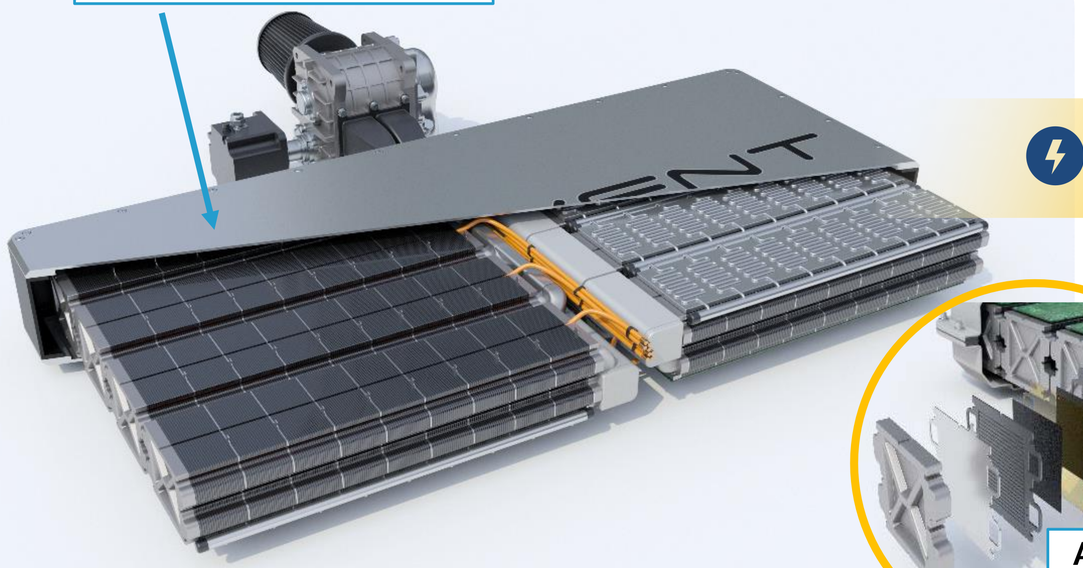
- Option for off-grid & portable
- Interim low-cost option for mobility

MARKET NOW

e-FUELS (H2 carriers)

- Low-cost hydrogen at minimal infrastructure cost
- e-Methanol, DME, LOHC

MARKET IN NEAR FUTURE



ANYWHERE

MARKETS

Defense

ELECTRICITY

Off-Grid

Heavy-Duty Automotive

Aviation

Combined Heat & Power

Marine

MARKET & COMPETITIVE LANDSCAPE: ADVENT POSITIONING

Path to mobility market through JVs & Joint Development Agreements

Increasing interest for large-scale systems

COMPETITION:	LI-ION	LOW-TEMPERATURE PEM	SOFC/MCFC

ENERGY:	GRID POWER	H_2 (PURE)	H_2 (PURE, REFORMED, LOHC), METHANOL, E-FUELS, NATURAL GAS)

ADVENT

TECHNOLOGY

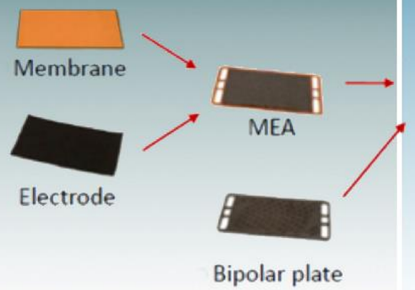
ADVENT THE PATH TO LOW-COST FUEL CELL SYSTEMS

MATERIALS INNOVATION

New MEA with U.S. Department of Energy (DoE)

Power Density 1w/ cm2
Maximum Lifetime

Roll-to-roll material fabrication



SCALE

High-volume manufacturing Germany

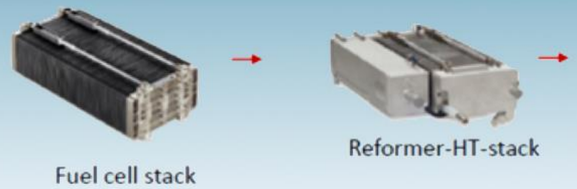
ENGINEERING INNOVATION:

Next-generation Digitronics Design

STANDARDIZATION

Reformer changes from H2 to Methanol to Natural Gas to Zero Carbon e-Fuels

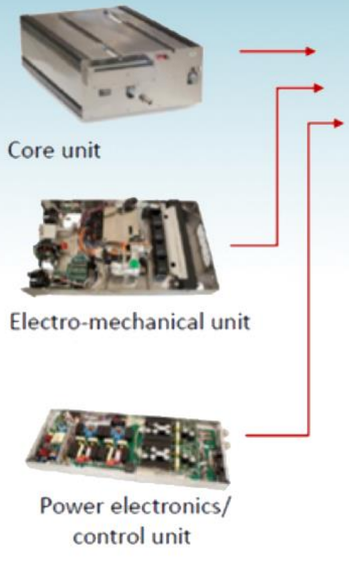
Same Stack & MEA
Low TCO with fuel flexibility



END PRODUCTS

Already shipping products in off-grid, defense & portable power market

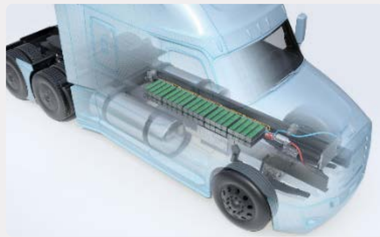
Strategic Partnerships for end-products in mobility



TELECOM

DEFENSE

HEAVY-DUTY TRUCKS



REDUCE TCO: $/kWH

- Increasing lifetime
- Reducing materials & production cost/kW
- Platinum (Pt) recycling/ financing
- Fuel-flexibility: fuel cost & infrastructure, immediate market

ADVENT

APPLICATIONS

OFF-GRID POWER: TELECOM TOWER POWER METHANOL FUEL CELL SYSTEMS (5-15kW)

01 PROVEN

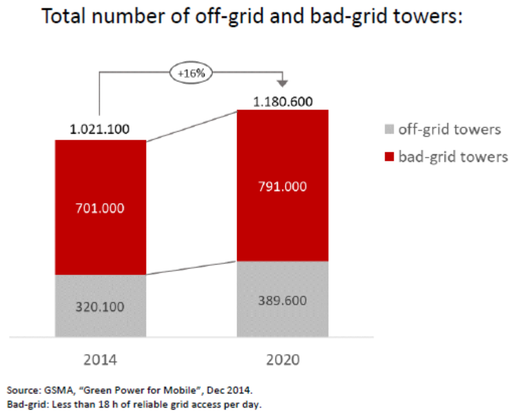
- SerEnergy has deployed hundreds of systems deployed to telecom tower operators around the world
- Remote monitoring and self-maintaining systems
- Operate at extreme conditions

Business Case:

Smart Communications deploys SerEnergy fuel cells across its Philippine telco network

02 DEPLOYABLE

- Power generation in off/bad-grid sites for critical infrastructure, telecom, construction sites
- Self-contained cabinet systems with 1-3 5kW fuel cells



03 CLEAN ENERGY

- Fuel cells do not produce particulate pollutants or unburned hydrocarbons. They emit less carbon dioxide than other, less efficient technologies. With the use of e-Fuels, this creates a path to effectively zero-emissions energy.

Acquisition of SerEnergy & fischer eco solutions fuel cell businesses closed on September 1, 2021

- 92 additional highly-skilled R&D, manufacturing and sales professionals
- HT-PEM focused with proven production capabilities in Denmark & Germany
- Acceleration with business in Asia and Northern Europe markets

OFF-GRID POWER FOR CRITICAL INFRASTRUCTURE: U.S. AND CANADA O&G OPPORTUNITIES

01 ANY FUEL

Uses Methanol

- Fuel cells will use industrial-grade methanol already available at the site
- 10x less greenhouse gas emitted vs. traditional combustion generators
- Zero nitrogen oxides, sulfur oxides and particulate emissions

02 ANYWHERE

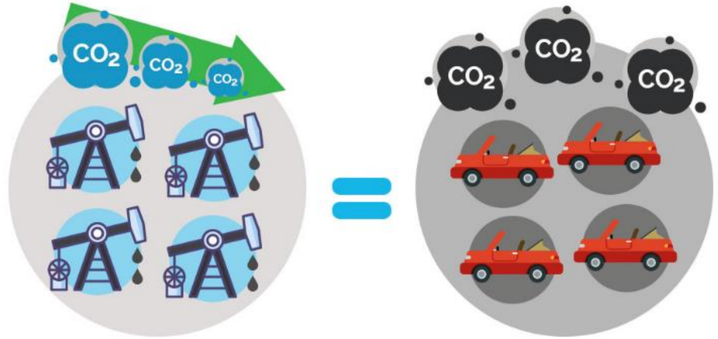
Rugged and Reliable

- Unlike renewables, fuel cells work in almost any climate, geography and weather condition
- Designed to meet critical power requirements without interruption
- Does not fail in extreme conditions, can operate at low temperatures down to at least -40ºC
- Fuel Cells can deliver power to well sites 24/7/365

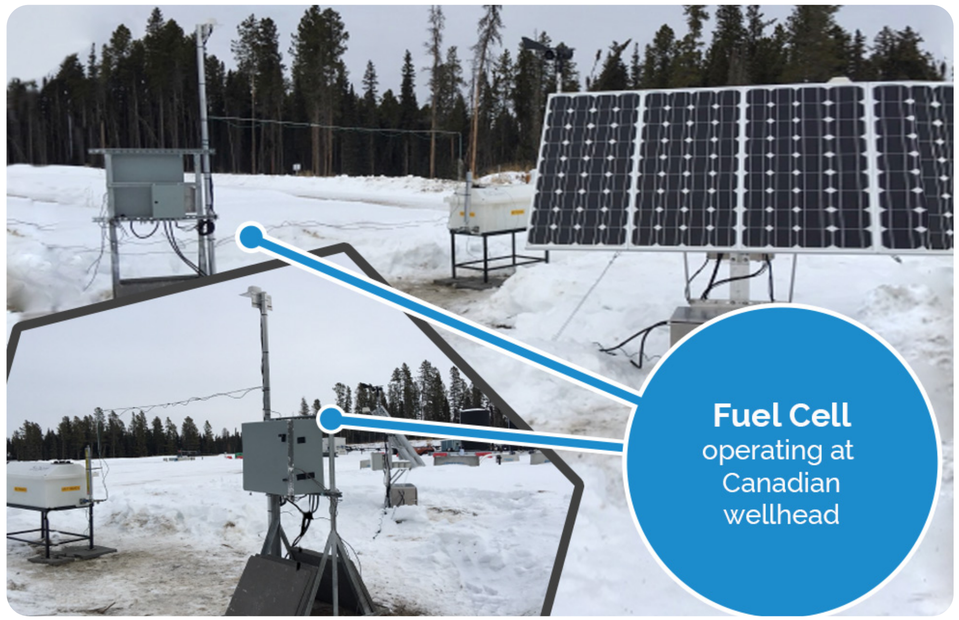
03 GOAL: METHANE EMISSIONS TO ZERO

Reduce O&G well site methane emissions (up to 40 Mt CO_2e per year)

- Fuel cells powering 185,000 oil and gas wellheads in Canada and the U.S. will reduce methane emissions (up to 40 million tons of CO_2e per year), which is equivalent to the carbon footprint of more than 8 million passenger cars
- **The implementation of the** *solution can contribute to rapid decarbonization of the Oil & Gas industry by mitigating the methane emissions problem.*



185,000 oil and gas wellheads = 8 million passenger cars



04 PROVEN

- Executed agreements to trial **10 50W systems** in Alberta with oil & gas majors
- Initial deployment in Canada anticipated in Q3 2021
- Projection: Mass deployment by 2023

- SHELL
- REPSOL
- HUSKY
- CENOVUS ENERGY
- NAL RESOURCES
- BELLATRIX
- MODERN RESOURCES
- CALSCAN SOLUTIONS

DEFENSE INDUSTRY: WEARABLE FUEL CELL FOR OFF-GRID POWER

01 PROVEN

- Portable Power: Military grade, 55W-1kW battery
- USA made and DoD deployed portable fuel cell
- Operates at -20ºC-+55ºC

02 PORTABLE

3x-25x
lower weight
compared to batteries

VS

3 Gallons of Methanol (approximately 20 lbs)

121 lbs of batteries

03 MOBILITY

- Can use methanol (contained in some windshield washer fluid) as fuel
- Transported at a much lower cost than single-source fuel, for example, hydrogen
- Major advantage from logistics/ operations perspective
- Based on Advent's "Any Fuel" MEA

NEXT MARKETS

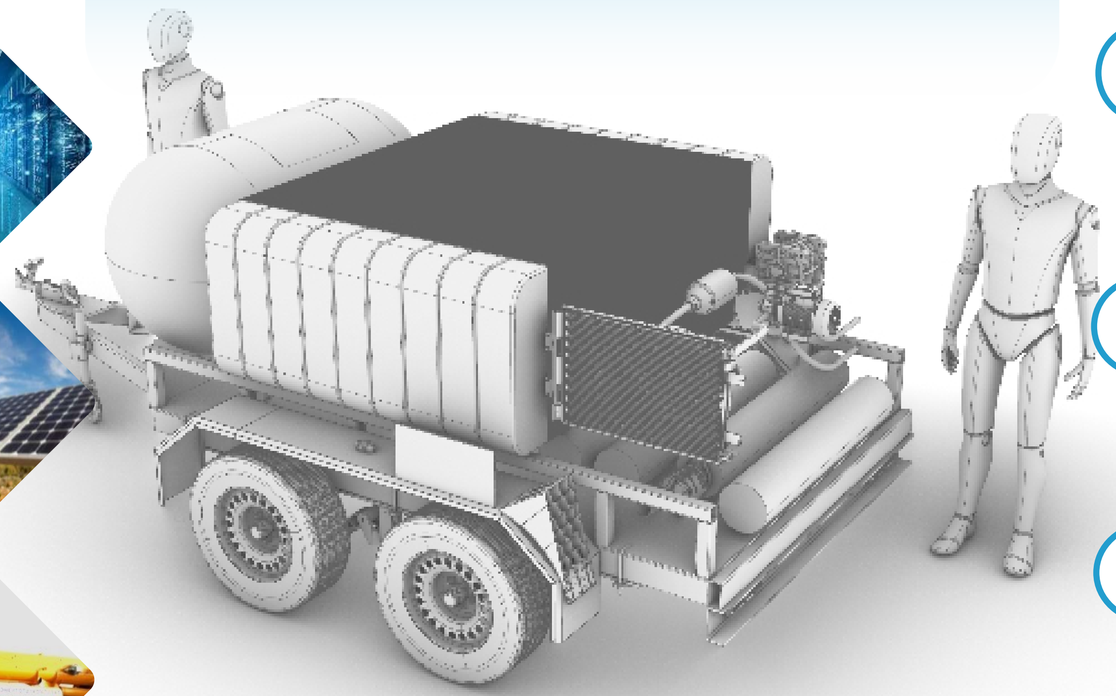
- Security
- Surveillance
- Emergency Response
- UAVs
- Recreation

LARGE-SCALE SYSTEMS: INDUSTRIAL (P2X & CHP MARKETS)

MW-level Systems

- **Power to Hydrogen:** to balance grid by producing heat & power from stored hydrogen
- **Datacenters:** reliable, high-quality power
- **Off-Grid Power:** For large-scale off-grid power needs
- **Mining Industry:** Vehicle recharging and remote power needs

1 MW FUEL CELL SYSTEM BY ADVENT



01 FUEL-FLEXIBLE

- Supports methanol or natural gas and hydrogen if/when available.

02 OFF-GRID

- No grid, no hydrogen network, makes HT-PEM attractive solution

03 GREEN SOLUTION

- Facilitate path to zero-emissions for large-scale and grid level systems

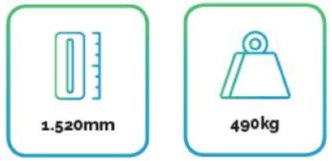
04 LARGE-SCALE

- MW specific product design for low-cost of manufacturing and long lifetime

COMBINED HEAT & POWER: UNITS FOR HOME AND COMMERCIAL APPLICATIONS

Advent Technologies has been nominated by the Greek Ministry of Development and Investment to be part of the first wave of Important Projects of Common European Interest ("IPCEI") on Hydrogen. Advent will also be spearheading the Green HiPo project as part of the overall, joint "White Dragon" project.

HiPo **Station 3-5kW**



Private

Suitable for different types of buildings

- Single-family homes
- Multi-family homes

Commercial

Suitable for small-scale commercial buildings, Businesses and more:

- Restaurants
- Hotels
- Office buildings
  - Workshops
  - Stores
  - Medical Centers
  - Banks

APPLICATION	Electrical power and heat for family homes, companies, public and commercial buildings
OPERATING MODE	All year (~8,700hrs)
MONITORING	Available via web enabled device
FUEL	Hydrogen, Natural gas, LPG, Methanol, e-fuels and any hydrogen carriers
FUEL CELL TYPE	HT PEM Fuel Cell (3-5kW)
OVERALL EFFICIENCY	90%
ELECTRICALEFFICIENCY	40%
THERMAL POWER	Up to 5kW
ELECTRICAL ENERGY GENERATED/YEAR	26,000kWhr
THERMAL ENERGY GENERATED/YEAR	44,000kWhr
WEIGHT	490kg
HEIGHT X WIDTH X DEPTH	1,520mm x 860mm x 610mm
SERVICE	12 months (air filter, water purification)

01 FUEL-FLEXIBLE

- Can start deployment in natural gas network and eventually support H2 input or other fuels without new investment

02 THE RIGHT TEMPERATURE

- LT-PEM doesn't provide quality heat, and Solid Oxide Fuel Cell (SOFC) is too hot (600+°C)

03 MODULAR

- Can scale up to bigger units by adding systems in parallel

04 COST

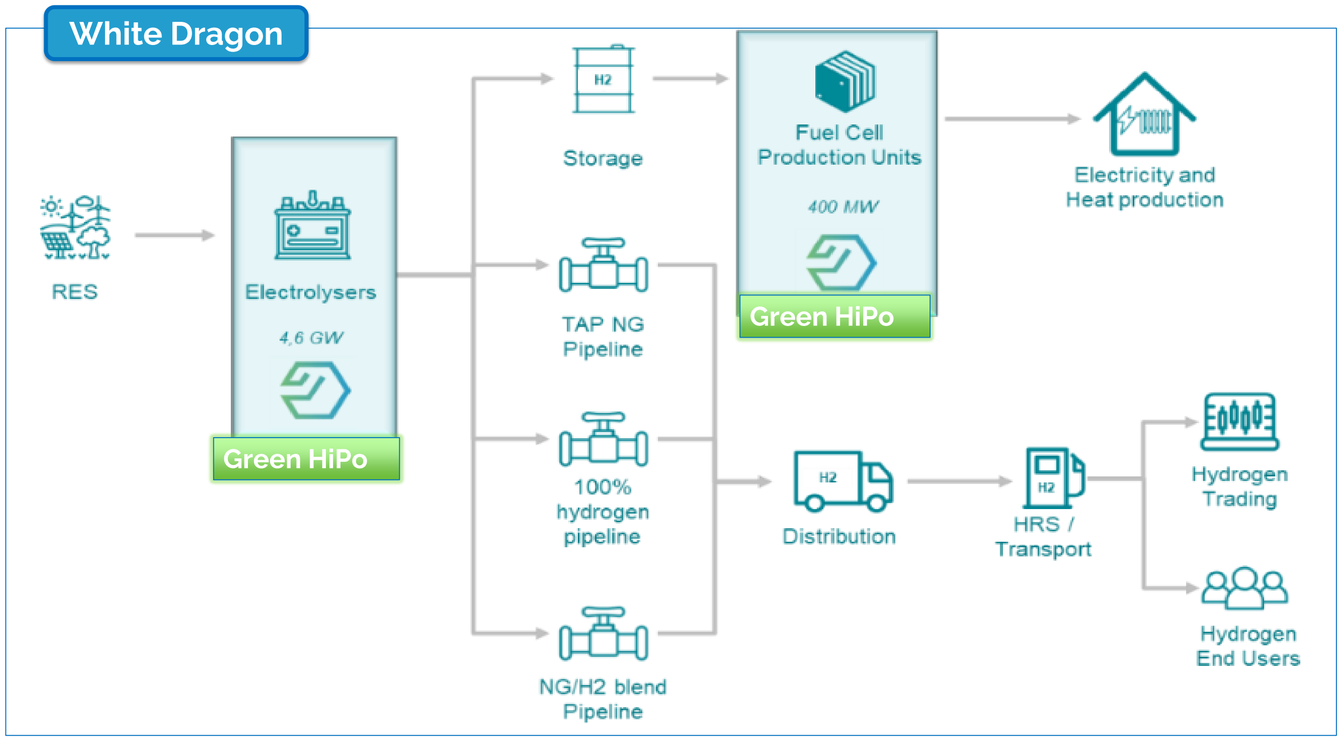
- Lower cost to manufacture than SOFC, simpler supply chain

COMBINED HEAT & POWER: WHITE DRAGON

Advent Technologies Projects White Dragon & Green HiPo (4.65GW Green Hydrogen & 400MW Fuel Cells), approved by Greek Government and submitted to the European Union

White Dragon is the flagship decarbonization project for Greece and one of the top-10 projects by size across Europe for green hydrogen production and storage (Power to Gas). Developed by a consortium of Greek companies for development between 2022 and 2029, it consists of:

1. GW-scale variable renewable energy/electricity
2. Hydrogen production & storage (electrolyzers used for green h2 production, and high-temperature fuel cells for energy storage, electricity grid stabilization, and district heating locally)
3. Hydrogen and natural gas blending for pipeline transportation



Advent's two Greek Important Projects of Common European Interest ("IPCEI") have been approved by a joint decision by the Greek Minister of Development and Investments, Mr. Adonis Georgiadis, and the Greek Minister of Environment, Energy, and Climate Change, Mr. Kostas Skrekas, and now await EU approval.

White Dragon (Decarbonization & Solar Power to Gas Project)	
Duration	2022-2029 (first phase)
Green H2 production Power2Gas:	250,000 tons / year
Green H2 for other uses:	58,000 to 71,000 tons / year

COMBINED HEAT & POWER: GREEN HiPo

Advent Technologies Projects Green HiPo approved by Greek Government and submitted to the European Union to establish manufacturing capacity for 4.65GW Green Hydrogen Electrolyzers & 400MW Fuel Cells

- The Green HiPo project concerns the development, design, and manufacturing of HT-PEM fuel cells for the production of heat and power.
- It is a complementary project to White Dragon and will produce the fuel cells that will power White Dragon's green energy plan.
- The project will contribute to the economic development of the region by providing approximately 1,400 jobs in innovative sustainable technology.
- The facility will initially manufacture fuel cells of 15kW/units, gradually reaching 120kW, and then 1MW scale single units before finally becoming a multi-MW platform.

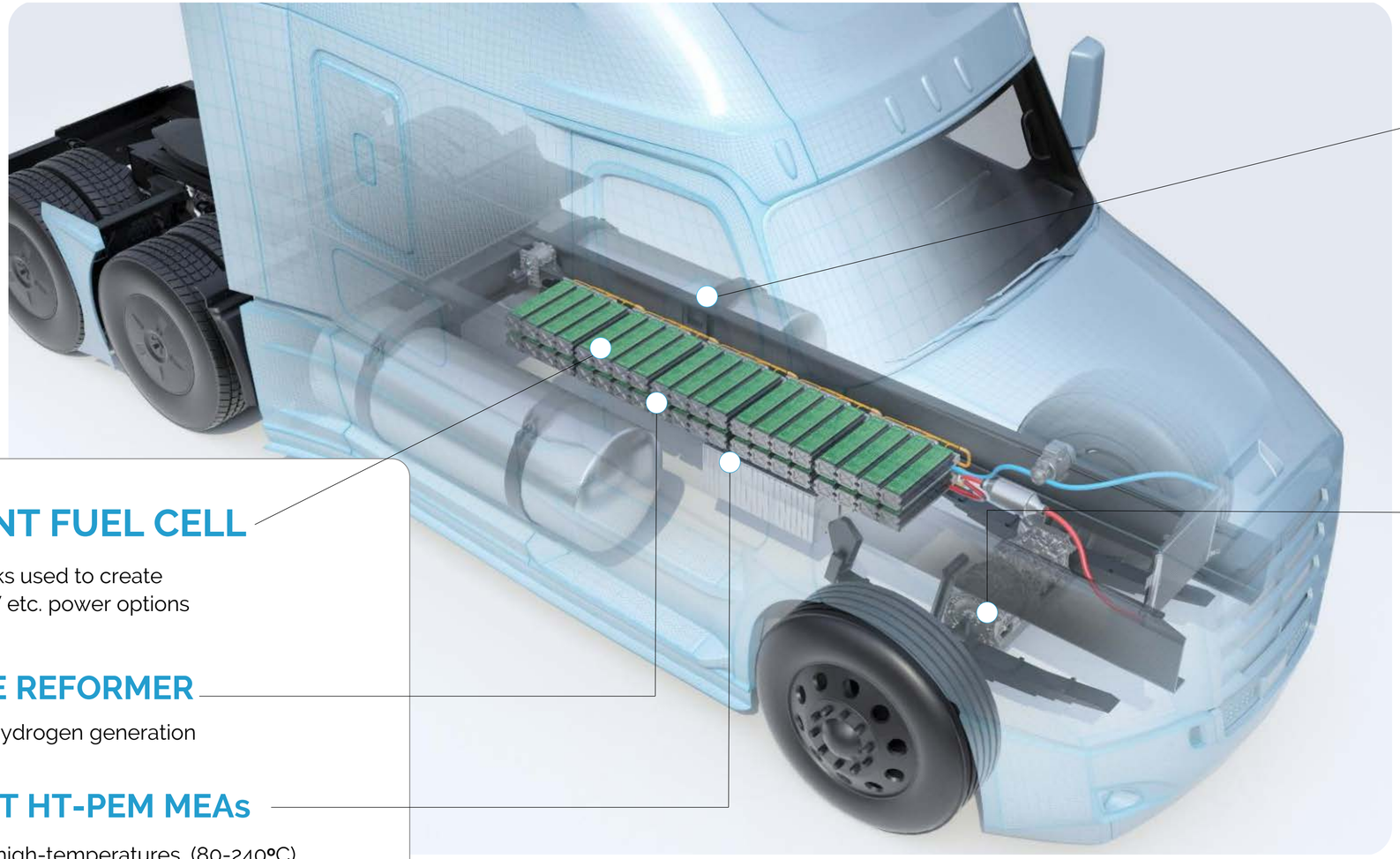
Why Advent's Fuel Cells

Advent's HT-PEM fuel cells are well-suited for heat and power applications:

- They operate at the 160-200°C range and can produce quality heat, in addition to electricity.
- Combined efficiency of fuel cells to 85 percent.
- They operate with natural gas, a natural gas-hydrogen blend, and eventually with green hydrogen.

GREEN HiPo	
Duration	2022-2029 (first phase)
Project	Scope: Manufacturing of Fuel Cells & Electrolyzers Northern Greece to support White Dragon project
Size	Fuel Cell Capacity: 400MW Electrolyzer Capacity: 4.65 GW (to be installed by Advent in the 7-year timeframe)

HEAVY-DUTY TRUCKS: ADVENT'S "ANY FUEL. ANYWHERE." TECHNOLOGY



ADVENT FUEL CELL

30kW stacks used to create
120, 240kW etc. power options

SIMPLE REFORMER

On-board hydrogen generation

ADVENT HT-PEM MEAs

Operate at high-temperatures, (80-240°C)
Based on proprietary materials
No need for water management

01 FUEL FLEXIBILITY

H2, H2 (LOHC) & e-Fuels
(methanol, natural gas)

02 COST

Simpler to design and manufacture
"Any Fuel. Anywhere." reduces TCO
(vs. LT-PEM)

03 LONG RANGE & FAST RECHARGE

Smaller lithium ion battery
Solves the limitations of pure EV trucks
Option to refuel with liquid fuels
Small Radiators

04 EFFICIENCY

Operates at "optimal" temperature
and high voltage
Reduces system complexity (balance
of plant)

AVIATION: COMMERCIAL FLIGHTS, DRONES, eVTOLs

01 RANGE / PAYLOAD

Compared with Batteries, e-Fuels or even H2, provide an attractive solution

- **PAYLOAD increases 2x+**
- **RANGE increases from minutes to hours**

Based on: Next-generation HT-PEM MEAs

Proprietary ultra-lightweight non-metal plates

02 EFFICIENCY

High temperature
Is key for flight efficiency

03 UTILIZATION

Refills in minutes vs. hours

04 MULTI-FUEL

H2 or dimethyl ether (DME) is an attractive fuel source

- ARPA-E: minimum of 2,000Wh/kg energy density is required for flight
- Jet fuel: 12,000Wh/kg,
- **H2: 40,000Wh/kg,**
- Methanol: 5,472Wh/kg,
- **DME: 7,889Wh/kg**
- Battery: 240Wh/kg

MARKETS

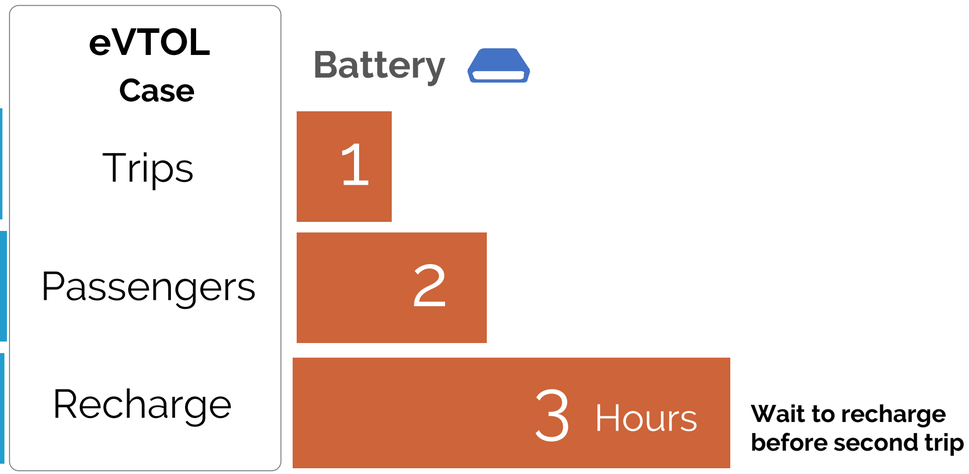
Surveillance Drones

Delivery Drones

eVTOLs

Airplanes

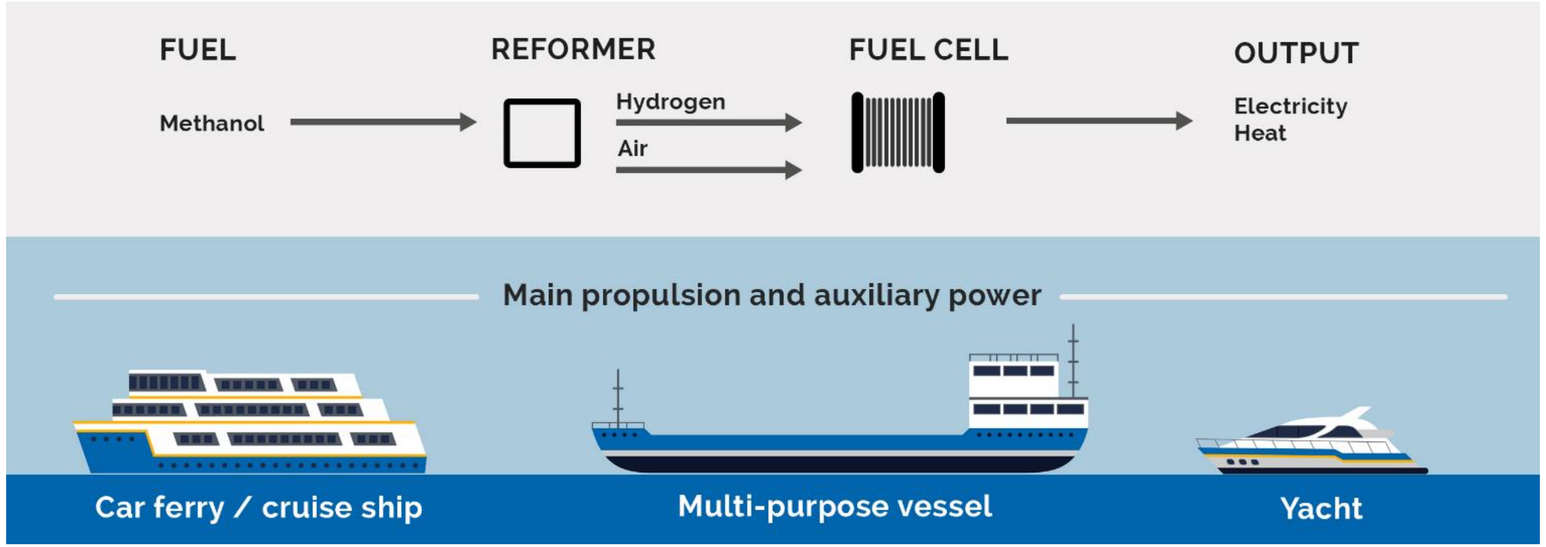
Projected trip from San Francisco to Palo Alto*



*Expected performance of a typical trip from San Francisco to Palo Alto in California of an eVTOL using the Advent Fuel Cell vs. using just a battery.

MARINE APPLICATIONS: ADVENT'S "ANY FUEL. ANYWHERE." TECHNOLOGY

Methanol is used by a Reformer to create **Hydrogen and Air** which enters the Fuel Cell and is converted to **Electricity** .



ADVENT FUEL CELL

30kW stacks used to create 120, 240kW etc. power options for auxiliary power and passenger accommodations

1MW Stacks used to create multi-MW for propulsion

ADVENT HT-PEM MEAs

Operate at high-temperatures, (80-240°C)
Based on proprietary chemistry
No need for water management

01 FUEL FLEXIBILITY

H2, H2(LOHC) & Methanol, natural gas

02 MODULAR POWER SYSTEM

Scalable for many load requirements and applications (e.g. propulsion system, auxiliary power)

03 LONG RANGE & FAST REFILL

Unlike a battery that needs charging, fuel cells run as long as there is hydrogen fuel. Thus, longer routes and larger vessels may be possible

04 HYBRID ARCHITECTURE

Batteries can work together with fuel cells (hybrid architectures of battery and fuel cell)

05 NO EMISSIONS

Fuel cell ship Vessels can freely access emission control zones