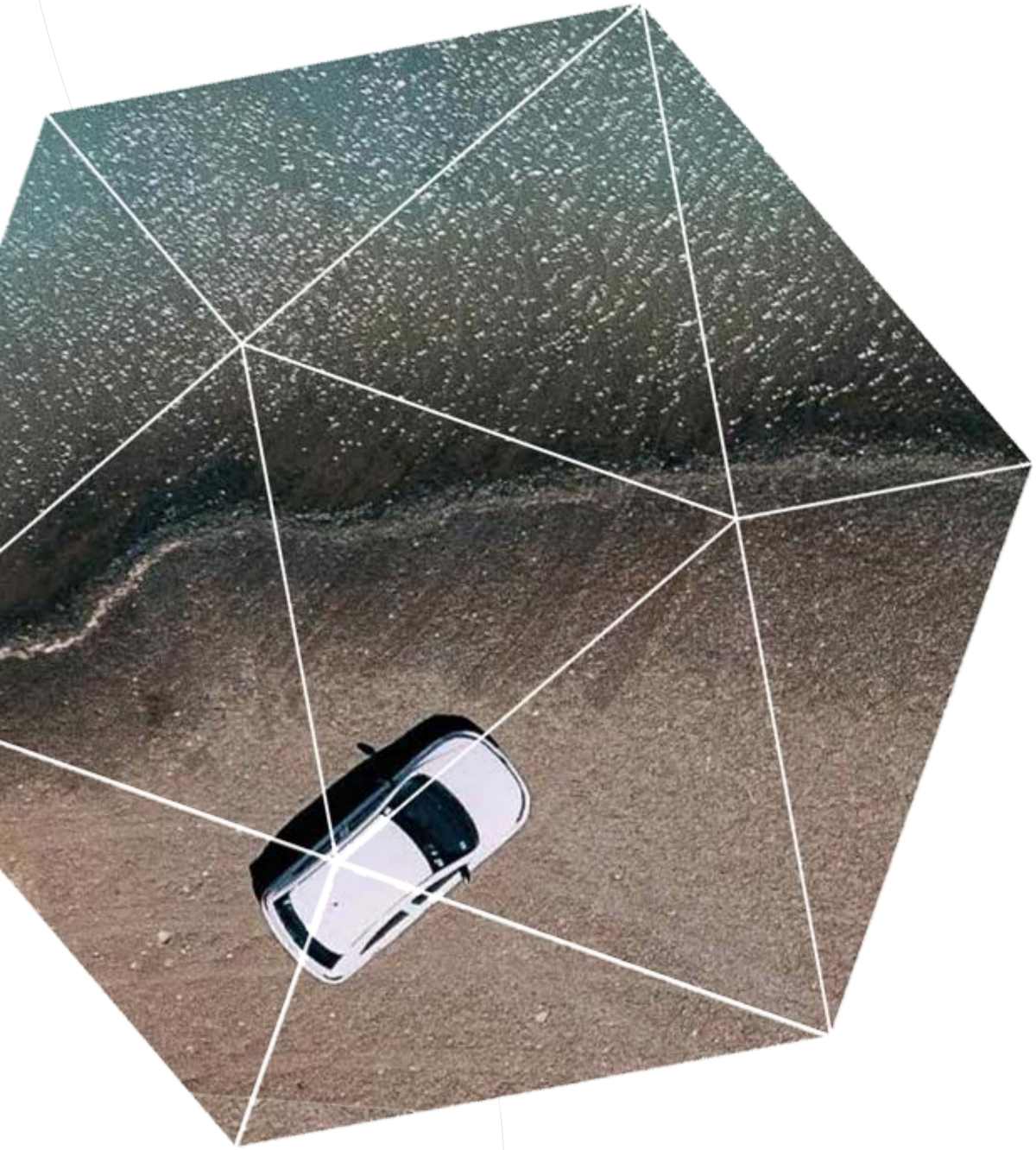

ADVENT

Presentation

September 2021

NEXT-GENERATION

HT-PEM FUEL CELL TECHNOLOGY

"ANY FUEL. ANYWHERE."

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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 FUEL CELL TECHNOLOGY "ANY FUEL. ANYWHERE."

ANY FUEL

HYDROGEN

- Fuel for most heavy-duty mobility & industrial markets

METHANOL

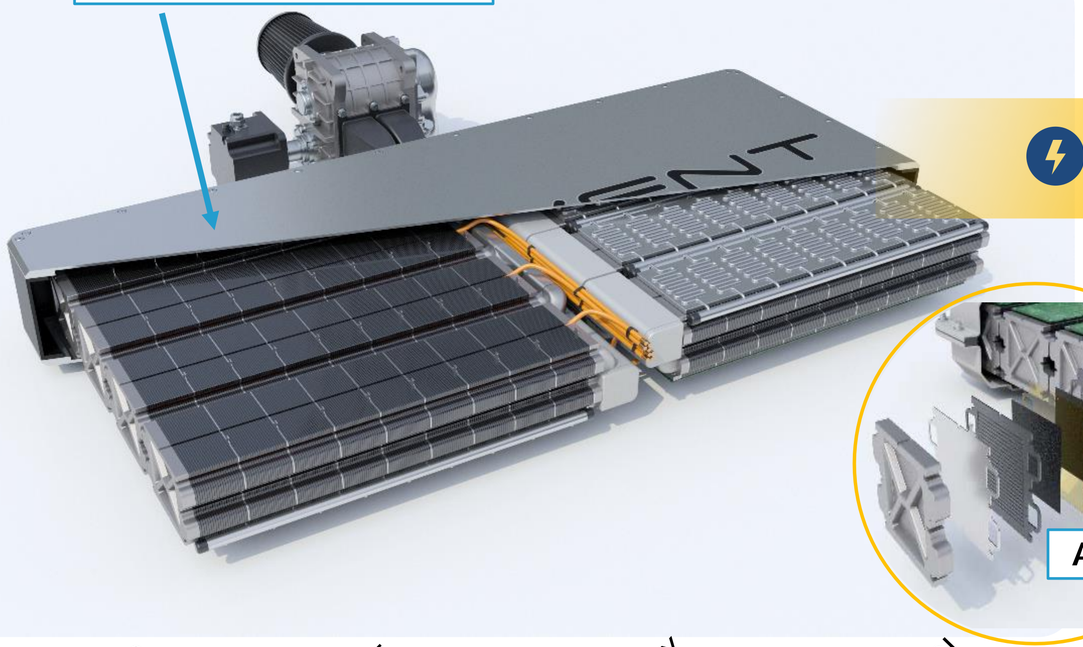
- Option for off-grid & portable
- Interim low-cost option for mobility

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

ADVENT HT-PEM: WHAT DOES IT MEAN FOR...

TECHNOLOGY

1. It can handle almost any low-carbon or zero-carbon fuel. Competitor LT-PEM fuel cells need pure hydrogen, which requires a large amount of spending on infrastructure.

2. Enables more efficient heat management (vs. LT-PEM), which is needed for aviation and heavy-duty automotive.

3. Can withstand extreme temperatures, pollution and humidity, leading to a longer lifetime and lower total cost of ownership (TCO) (vs. LT-PEM).

Advent develops and holds the IP on the core technology (MEA materials).

Actively developed with world-leaders in research innovation: NREL, LOS ALAMOS, BROOKHAVEN and U.S. DEPARTMENT OF ENERGY.

BUSINESS

1. Ships, Planes, Defense and Trucks expected to use e-Fuels.
2. Immediate market now with low-carbon methanol.
3. India, China and emerging markets need solutions with minimal infrastructure costs.

Advent Advantage

PROJECTED FUELS CONSUMED IN THE TRANSPORT SECTOR IN 2050

(EU model, consumption in MToe equivalent)

e-Fuels above includes mainly renewable e-liquid biofuels and in smaller %s biogas, e-gas and natural gas.
Analysis by the European Commission in the 393-page report "
A Clean Planet for all. A European long-term strategic vision for a prosperous, modern, competitive and climate neutral economy *" using the PRIMES-GAINS-GLOBIOM/FORECAST Model. Scenario Combo (resulting to 90% decarbonization by 2050, is shown in this picture, (chosen as a mid-case). The model includes all sectors and all CO2 not just energy combustion emissions. Figure 57 pg. 131 data used for this article. I used the COMBO scenario as the most appropriate mid-scenario.*
https://ec.europa.eu/clima/sites/clima/files/docs/pages/com_2018_733_analysis_in_support_en_0.pdf

OFF-GRID & PORTABLE POWER IS AN IMMEDIATE MARKET TO EXPLORE AND GROW

Power

Diesel generator replacement

Low Power, Long Autonomy

Batteries are not a desirable solution due to their size, weight, and need to recharge

Liquid hydrogen-bearing fuels are a more efficient option

15 kW

5 kW

250 W

50 W

Defense Portable Power	3x-25x weight advantage vs. batteries
Telecom Backup Power	1m+ off-grid towers, attractive for Asia, Africa, instead of diesel generators
Methane Reduction	Critical infrastructure remote power. Impact: equivalent to 8M cars' annual CO_2 via adoption at North American wellheads alone
Surveillance Security	long autonomy, quiet, lightweight

FUEL CELL: Off-Grid, Portable

Autonomy

ENERGY: Methanol, e-Fuels, & other liquid fuels are easy to transport and are an attractive solution for the off-grid and portable market

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 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

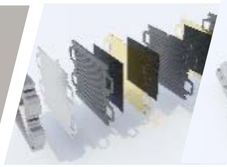
2021
- Advent enters NASDAQ ("ADN") Raises $158 million

2021 Q1
- UltraCell Acquisition
- New Boston & Europe production facilities under construction
- UltraCell expands DoD contract

2021 Q2
- HT-PEM Gen 3 launch with LANL
- Mobility next-gen Fuel Cell under development

2021 Q3
- 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



ADVENT

APPLICATIONS

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

01 PROVEN

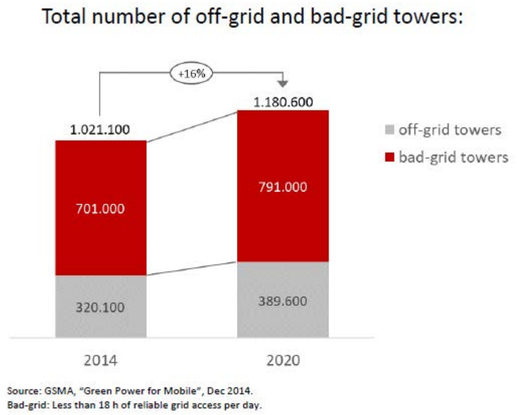
- SerEnergy has deployed hundreds of systems deployed to telecom tower operators around the world
- Remote monitoring and self-maintaining systems
- Operate at extreme conditions

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

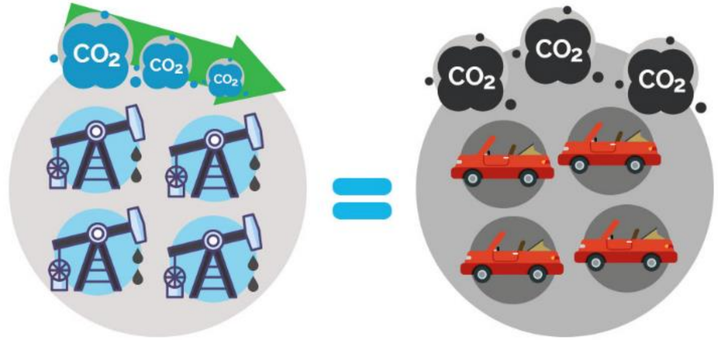
Rugged and Reliable

- 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 -40°C
- Fuel Cells can deliver power to well sites 24/7/365

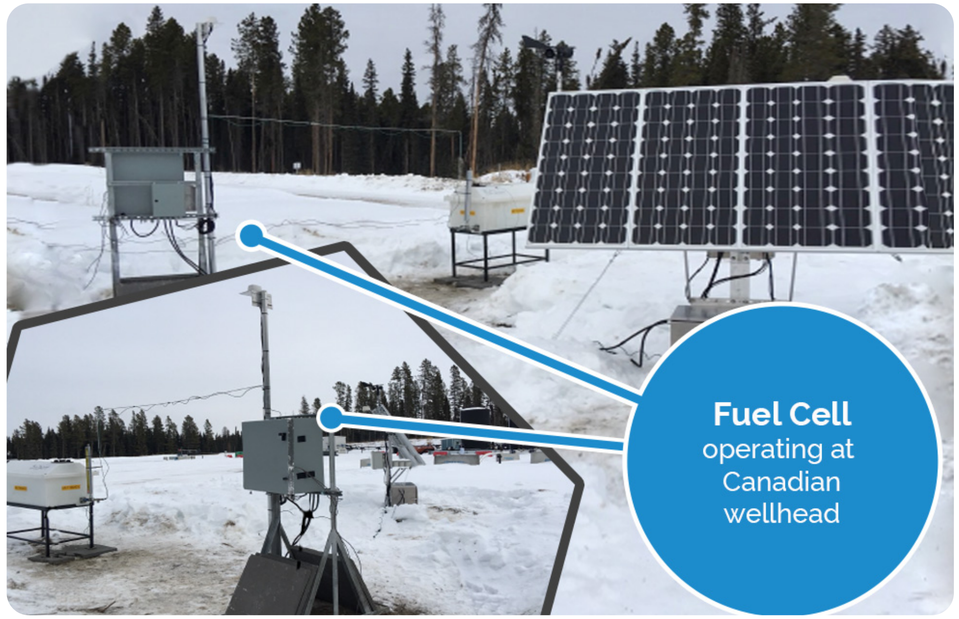
03 GOAL: METHANE EMISSIONS TO ZERO

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

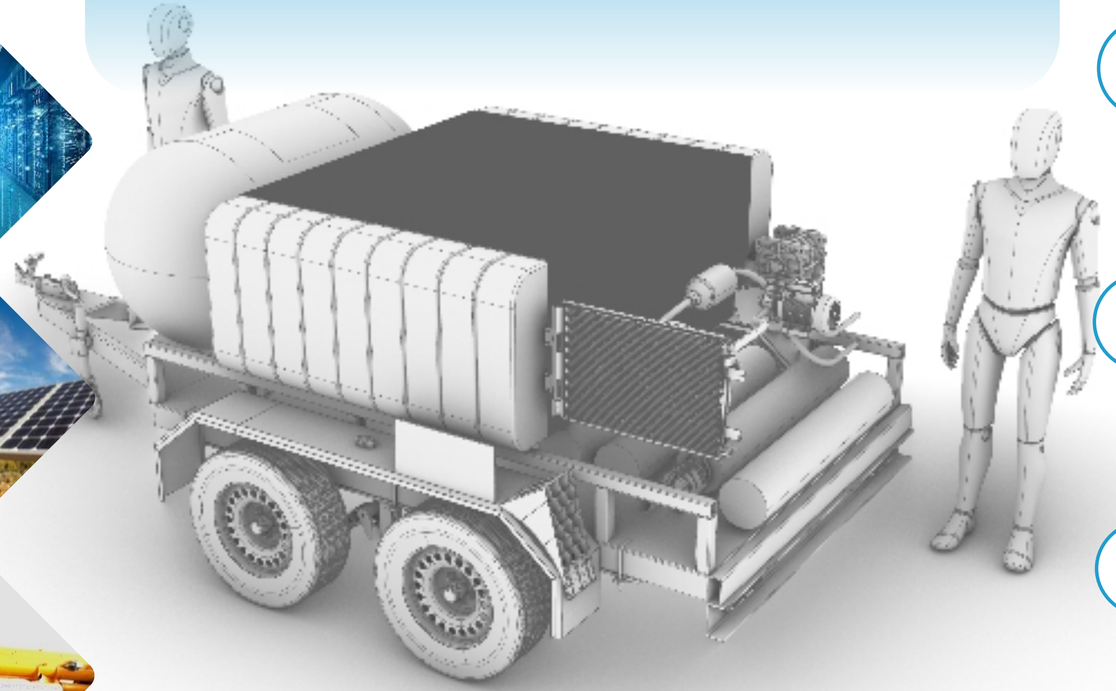
- Security
- Surveillance
- Emergency Response
- UAVs
- Recreation

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

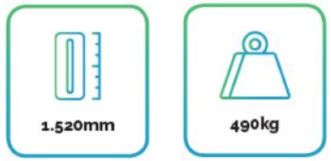
04 LARGE-SCALE

- 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%
ELECTRICAL EFFICIENCY	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

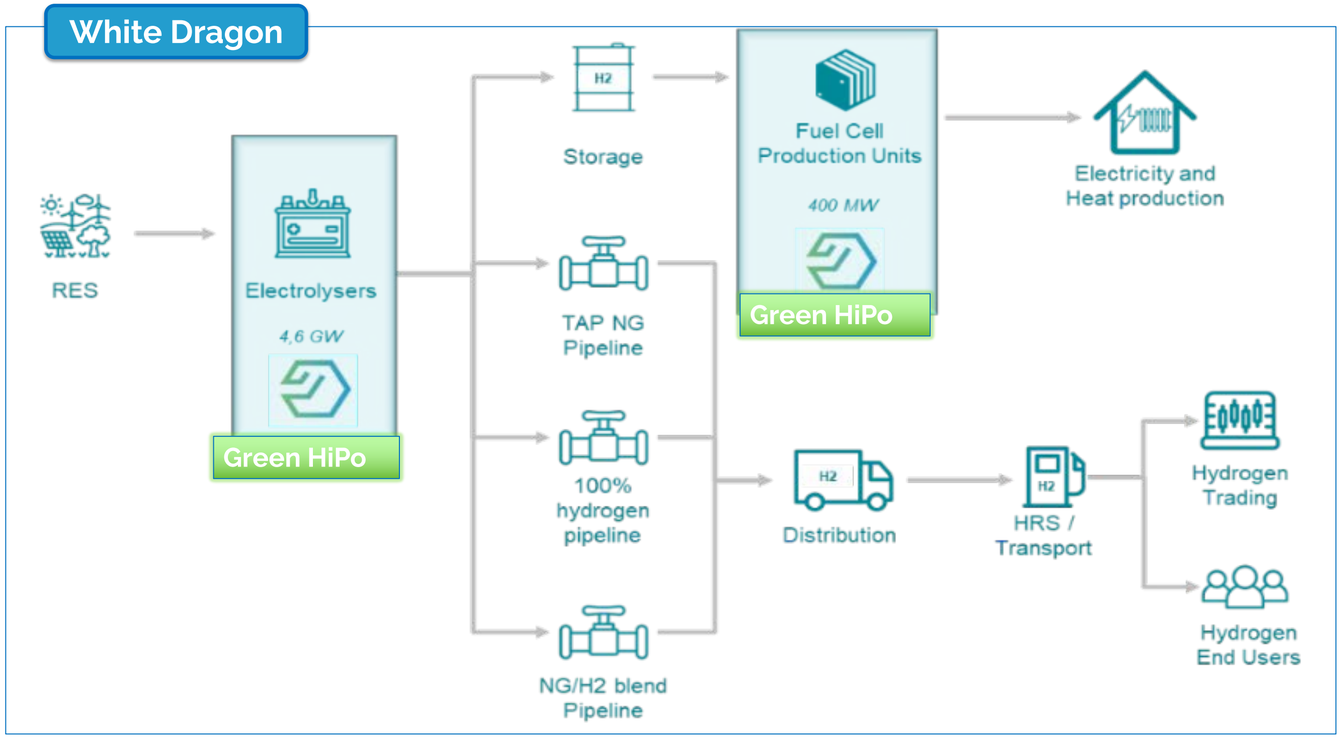
- Lower cost to manufacture than SOFC, simpler supply chain

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.

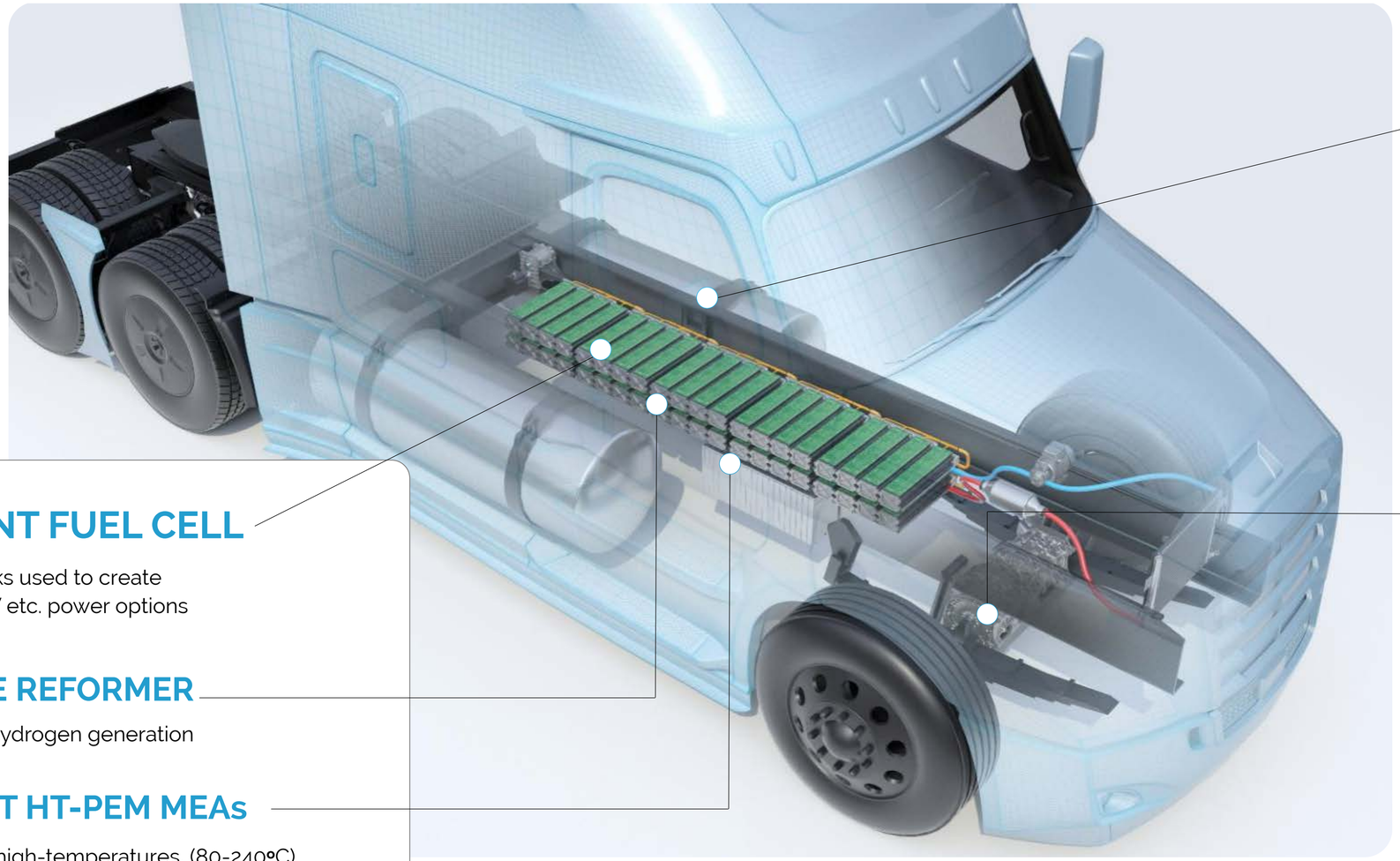
Why Advent's Fuel Cells

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*

Advent Fuel Cell	eVTOL Case	Battery
3	Trips	1
4	Passengers	2
10 Mins	Recharge	3 Hours

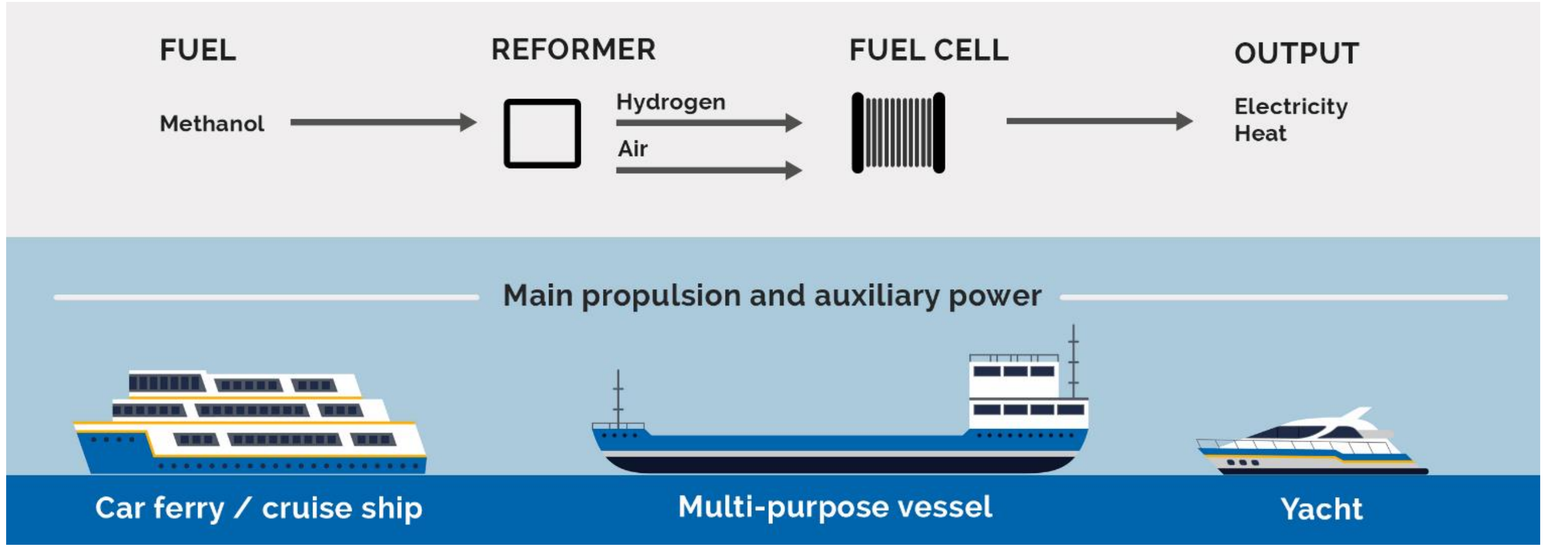
Refill 1 – 2 times a day

Wait to recharge before second trip

*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

ADVENT

TECHNOLOGY

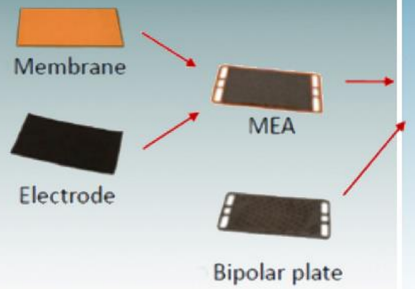
ADVENT THE PATH TO LOW-COST FUEL CELL SYSTEMS

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

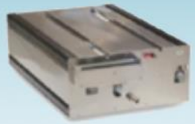

Fuel cell stack


Reformer-HT-stack

END PRODUCTS

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

Strategic Partnerships for end-products in mobility


Core unit


Electro-mechanical unit


Power electronics/ control unit

TELECOM

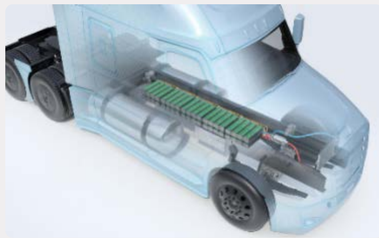

5kW module HT3-5000


Outdoor cabinet
2 X HT3-5000
fuel tank

DEFENSE


XX55™

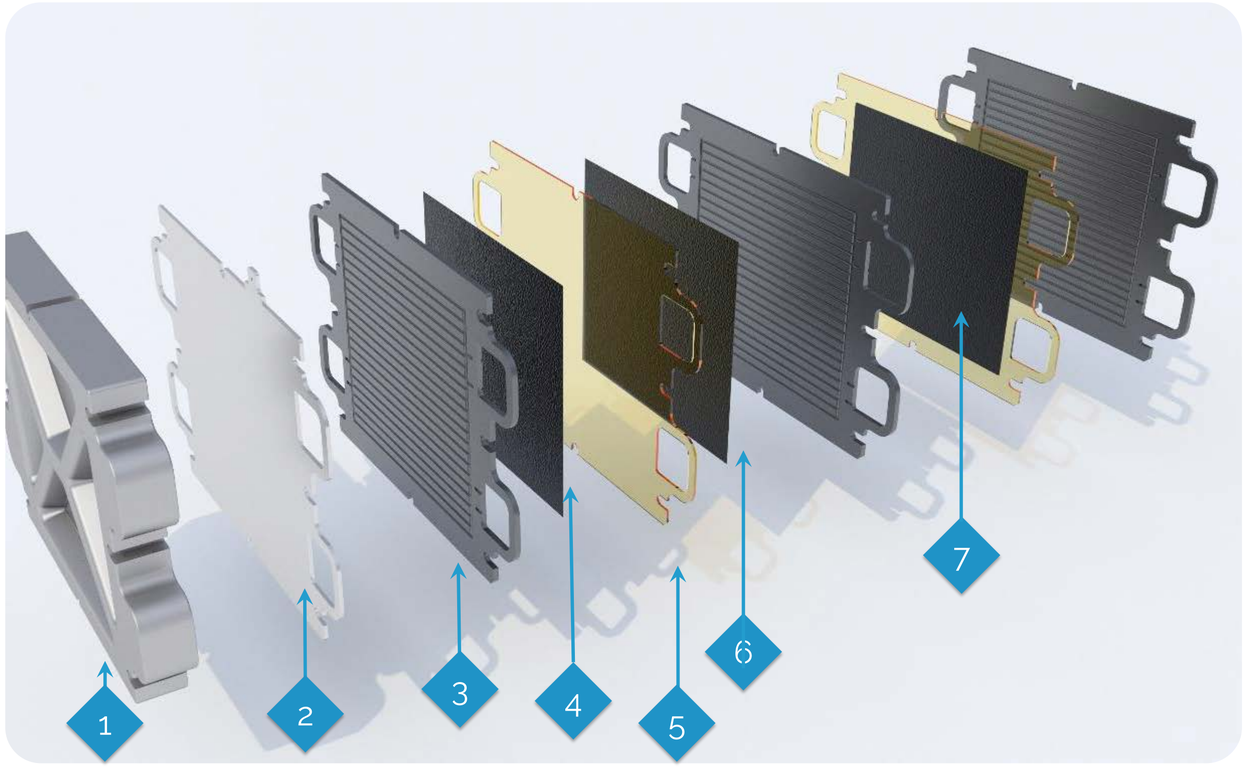
HEAVY-DUTY TRUCKS



REDUCE TCO: $/kWH

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

ADVENT INSIDE THE FUEL CELL STACK: MEA & MORE



The MEA is the "heart" of the Fuel Cell and it defines:

What fuels can be used, efficiency, power density

The design parameters for the rest of the components, including the balance of plant

The Total Cost of Ownership of the fuel cell system

Fuel Cell Stack Components

1. Lightweight Composite End Plate
2. Current Collector
3. High Performance Bipolar Plate (BIP) With Integral Thermal Management
4. Anode Gas Diffusion Electrode (GDE)
5. High Temperature Polymer Electrolyte Membrane (HT-PEM)
6. Cathode Gas Diffusion Electrode
7. Assembled HT-PEM Membrane Electrode Assembly (MEA)

MEA Cost Targets

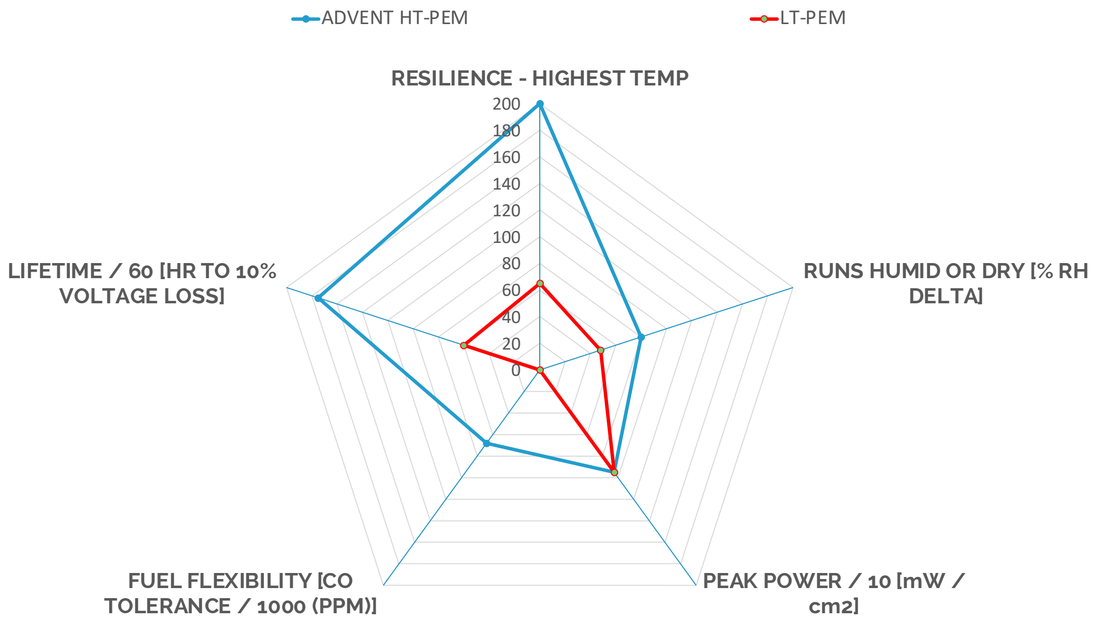
- **$80/kW** at mass scale
- Roll to Roll Manufacturing
- Ultra-low Platinum technology

Product Development Plan

- Develop & Scale-up MEA Production in-house (U.S.-based)
- Partner/license production of other components

ADVENT HT-PEM MEA TECHNOLOGY IS A GAME CHANGER

HT-PEM to LT-PEM Comparison



Technical Specs

Long lasting	Degradation is still a problem for fuel cells Advent triples lifetime (~10,000 vs. 3,500 hrs @ 10% power loss)
Fuel-Flexible	H_2 infrastructure installs fast with methanol or H_2 sources like biogas Impurities in regular hydrogen such as 10 ppm CO damage LT-PEM Our materials withstand > 2 % CO (4% at 200C) HT-PEM function despite air pollution conditions, unlike LT-PEM
Resilient	Environmental flexibility increases life and reduces cost Advent units work anywhere in the world LT-PEM does not run well hot or dry: < 50% RH and >30 °C ambient. Our technology runs from 0% RH (Nevada) to 100% (Florida) Advent runs -30 °C to +55 °C ambient temperature at FULL POWER
Sustained High Power	Similar to current tech (1,100 mW/cm2 peak power) without the extra weight and volume of complex cooling and water management
Cost Advantage	Roll-to-roll processing for automation integration Mated to catalyst technology that reduces platinum 8-10 fold Simpler system design and fuel flexibility drop TCO substantially

Actively developed with world-leaders in research: NREL, LOS ALAMOS, BROOKHAVEN and U.S. DEPARTMENT OF ENERGY

Competitive Advantage

Next-Generation Technology: LT-PEM developed in 1960s has reached its limits (75°C operation)

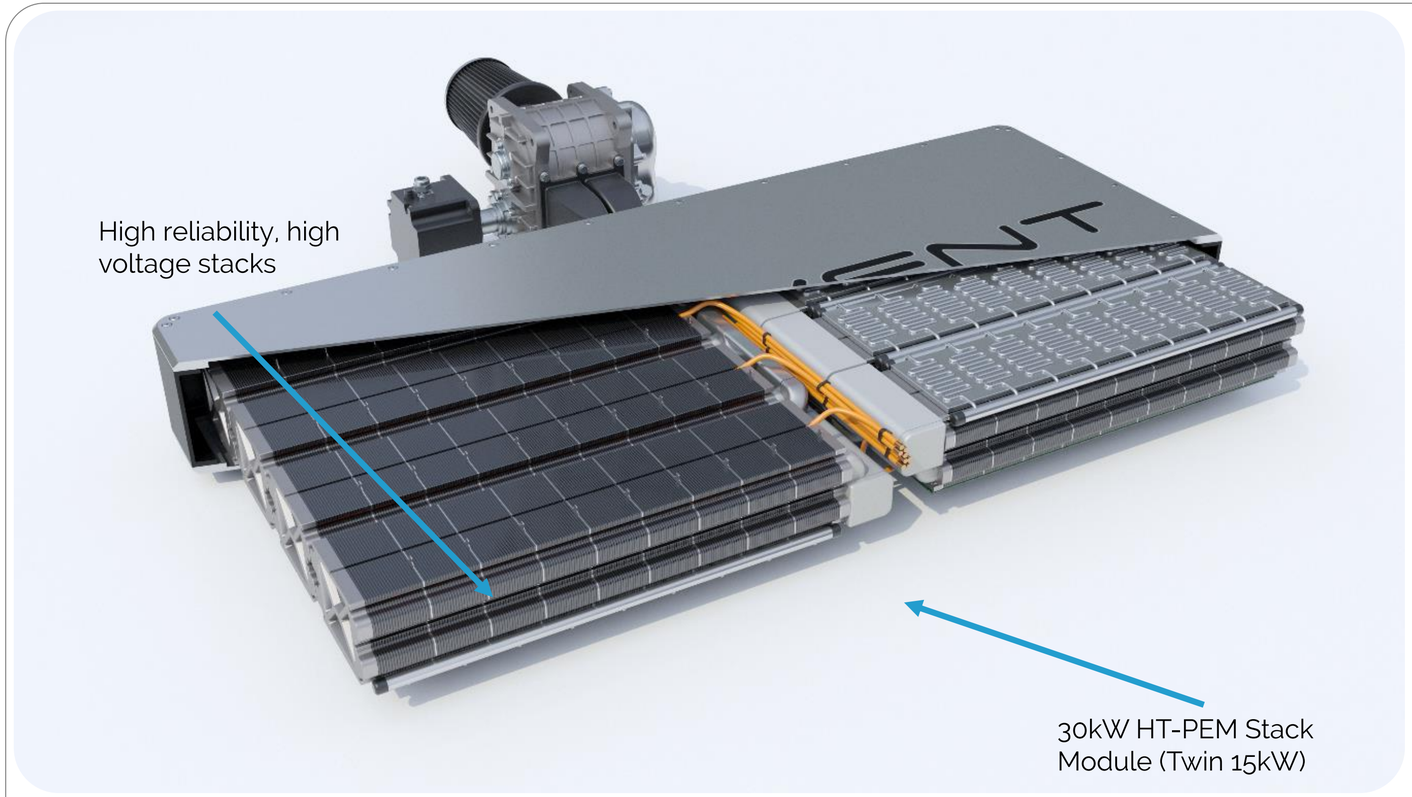
New Chemistry: LT-PEM is water-based while HT-PEM relies on a conductive plastic resilient to extreme temperatures. **No water management allows for a simpler design, longer lifetime and smaller balance of plant**

Great Potential: Beginning of lifecycle product with room for substantial further improvement

Target Product Roadmap

2021	2022	2023	2024
Prototype MEA	Optimized MEA	Pilot Production	Mass Production

ADVENT FUEL CELL STACK: NEXT-GENERATION TECHNOLOGY



Technical Specs

	targets of next-generation stack
Weight:	**<26kg 15kW Modules**
Stack Efficiency:	**54%**
Dimensions**:**	**55*55*8 cm** (L*W*H) **"skateboard" design**
Lifetime:	**10K-40K hours** (depending on application)
Operating Temperature:	**80°C to 240°C**
Startup Time:	**<180 secs**
Ambient Temperature:	**-38°C to 58°C**
Operating Voltage:	**300V modules (15kW)** Connect modules in series or parallel
Start/Stop:	**8,000 cycles (12 years)**
Consumption H2:	**13.49kWh/kg**
" e-Fuel/methanol:	**2.01kWh/kg**
Cooling Technology:	Heat-pipes (truck) Hydro-formed microchannel (flight)
Options:	Built-in fuel reformer

Cost Targets

System: **$250/kW** at mass scale
Operating Cost: < **$0.15/kWh** assuming $2/kg H_2

Competitive Advantage

Multifuel capability: H_2, H_2(LOHC), Methanol, e-Fuels, DME, Natural Gas

Lifetime: Micro-fuel cell architecture contributes to a long lifetime, max MTBF

Efficiency: High-Voltage Operation for maximum efficiency

Resilient: To extreme heat, cold, humidity, pollution, H2 impurities

Target Product Roadmap

2021	**2022**	**2023**	**2024**
Prototype Stack	Optimized Stack	Pilot Production	Mass Production

ADVENT

BUSINESS MODEL

REVENUE BREAKDOWN*

50%
SYSTEMS
Off-Grid
Telco Towers
Defense
Remote Power

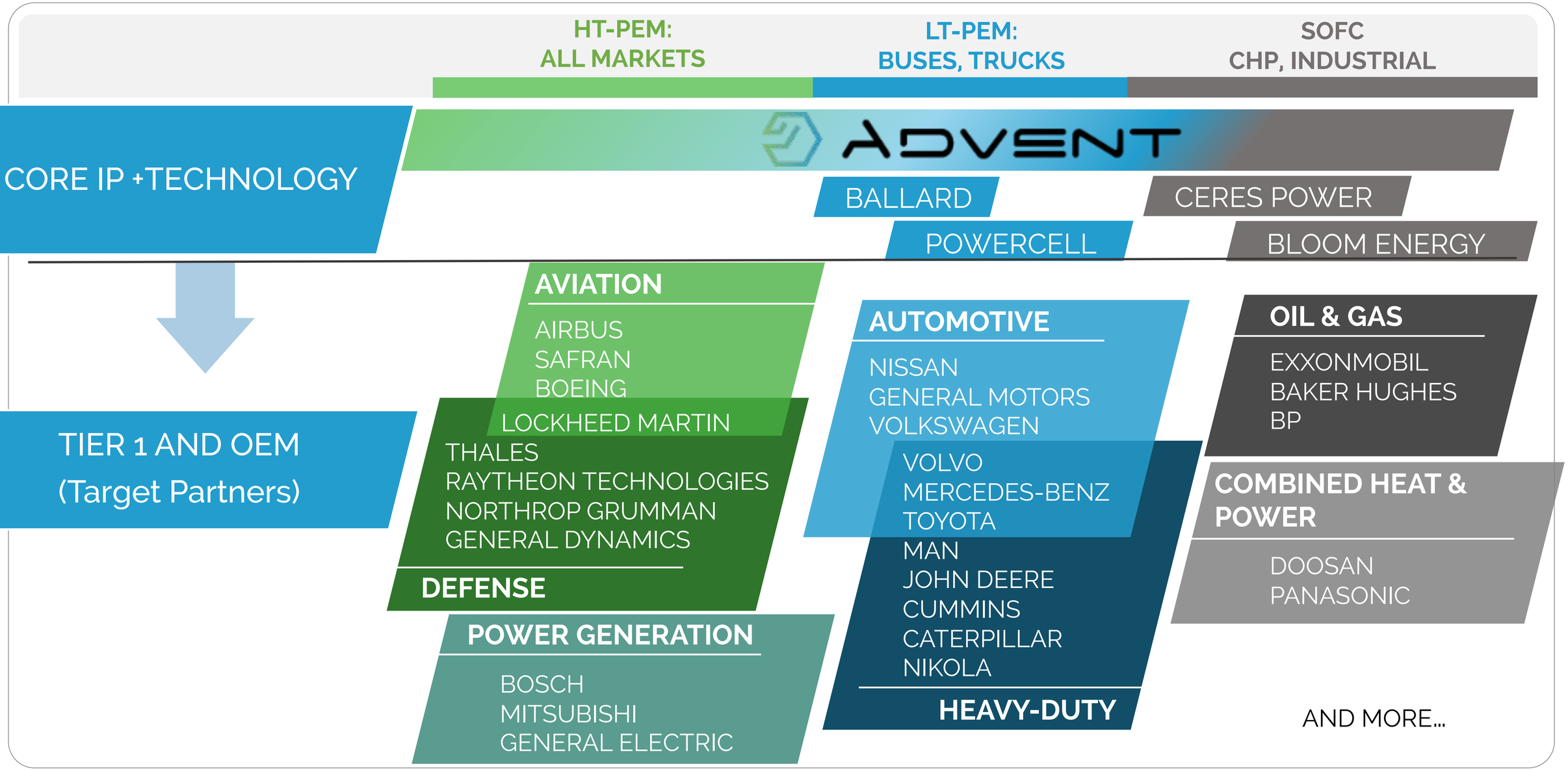
20%
MEAs

15%
ENGINEERING
& License Fees

15%
GRANTS
Support Engineering
& System cost/kW
directly

*Projected

BUSINESS MODEL: ADVENT INSIDE CORE IP + TECHNOLOGY



BUSINESS MODEL FOR JOINT DEVELOPMENT AGREEMENT WITH OEMs OR TIER 1s

Partners

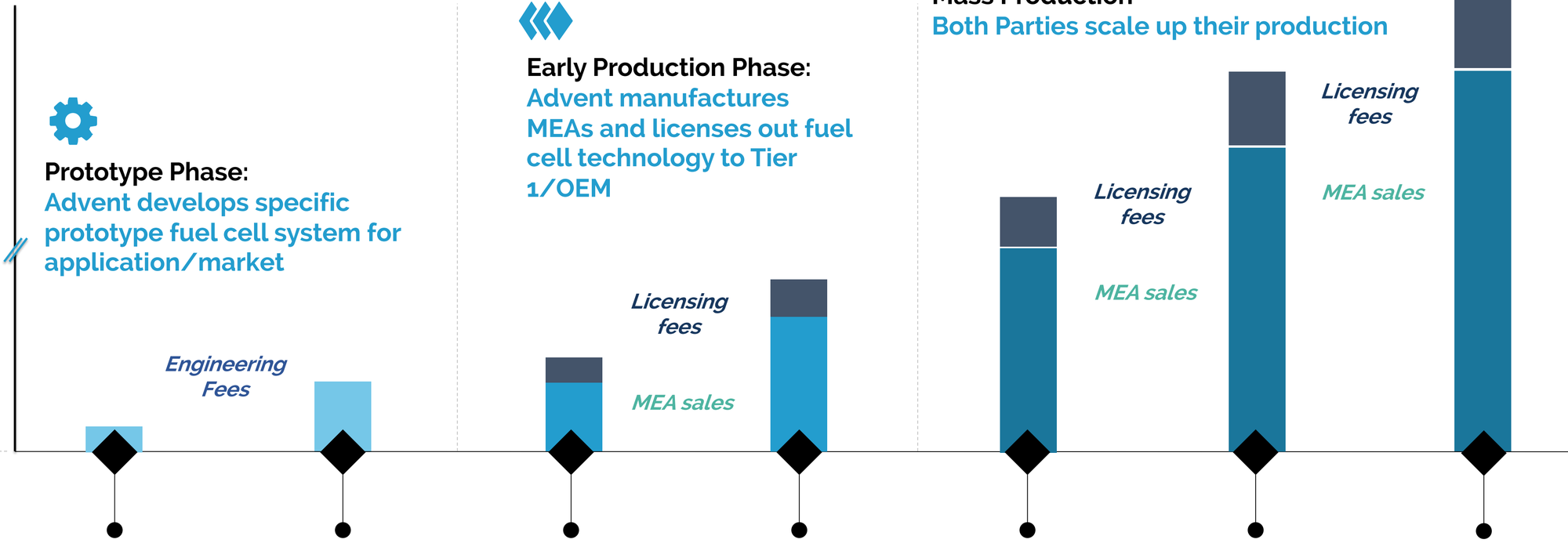
1. Advent:
Manufacturer of MEAs & development of fuel cell systems

2. Tier 1/OEM:
System manufacturing scale up and commercial expansion

Prototype Phase:
Advent develops specific prototype fuel cell system for application/market

Early Production Phase:
Advent manufactures MEAs and licenses out fuel cell technology to Tier 1/OEM

Mass Production
Both Parties scale up their production



OEM focuses on manufacturing & marketing preparation

Mass market scale-up – to 100k+ units

KEY METRICS

ADVENT

IS ON TRACK TO MEET ITS

2025 GOALS

$250 million
IN ANNUAL SALES

30+%
GROSS MARGIN

$50 million
ADJUSTED EBITDA

POTENTIAL GROWTH CATALYSTS

POTENTIAL CATALYSTS TO EXPEDITE GROWTH OVER THE NEXT 12 MONTHS

- Completion of the advanced manufacturing facility in Boston & Europe
- Continued progress on commercializing the DoE technology
- Collaboration/Joint Development Agreements (JDAs) with large, global players
- Product development activity around portable/off-grid, aviation and mobility
- Potential strategic transactions
- EU approval of and breaking ground on the White Dragon and Green HiPo Projects

ADVENT

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