

OXICOOL[®]

DEVELOPMENT CENTER



DECEMBER 2022



OXICOOL
DEVELOPMENT CENTER

An optimized approach using OxiCool's existing resources and expertise to directly address the daunting **challenges of hardware build out and scale up**

FASTER

Having a standing team and infrastructure ready to engage quickly will give OxiCool priority access to the best opportunities

BETTER

Focusing on in-depth relationships and maturation through rapid iteration will make OxiCool the commercialization partner of choice

CHEAPER

Treating hardware engineering as a specialty and creating economies of scale with shared resources will reduce the cost of development

The Development Center model creates a **unique investment opportunity that mimics an early-stage ClimateTech fund** with upside exposure to a portfolio of emerging companies

INNOVATION PIPELINE

Proactively building relationships with leading researchers and creating an upfront technical due diligence process will ensure the right opportunities at the right time

EQUITY APPROACH

Primary "development work for equity" model supplemented with grant funds will align incentives with innovators and offer broad upside potential to OxiCool investors

DIVERSIFIED RISK

Employing an inherent risk-reduction strategy and transitioning mature tech to established players will be a superior way to profit from historic tailwinds in decarbonization

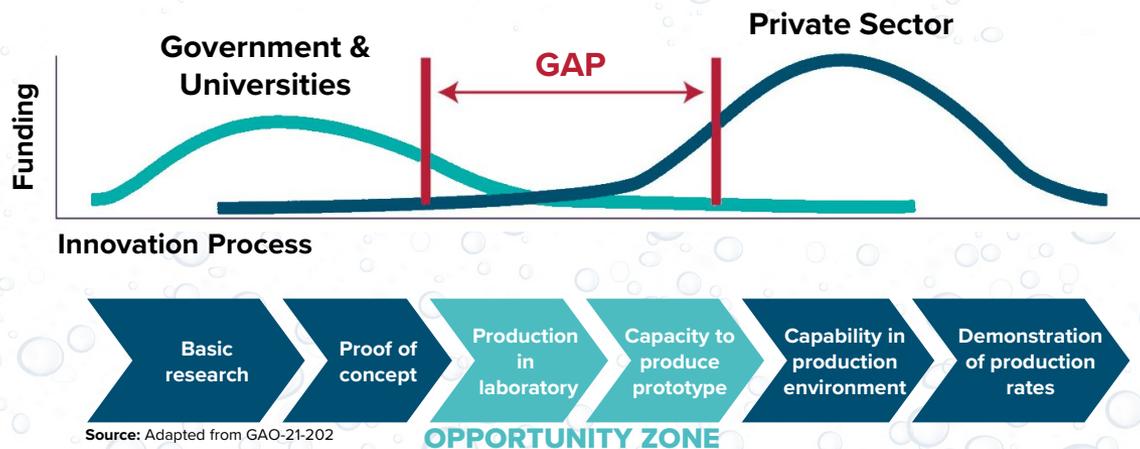
MANY PROMISING TECHNOLOGIES THAT COULD MAKE AN IMPACT IN THE FIGHT AGAINST CLIMATE CHANGE NEVER MAKE IT OUT OF THE LAB

UNIVERSITY & GOVERNMENT LABS
WORLD CLASS RESEARCH TALENT AND FACILITIES
BUT
HISTORY OF POOR RESULTS IN COMMERCIALIZATION

ESTABLISHED MANUFACTURERS
TREMENDOUS SCALE AND RESOURCES AVAILABLE
BUT
INNOVATION EFFECTIVENESS LIMITED BY BUREAUCRACY

START-UP COMPANIES
NIMBLE STRUCTURES AND NOVEL APPROACHES
BUT
INSUFFICIENT EARLY-STAGE FUNDING FOR HARDWARE

The current approaches to Lab-to-Market hardware commercialization are **capital intensive, time consuming, excessively individualized and failure prone**



A properly equipped development team specialized in early product iteration and build out can **transform the hardware innovation ecosystem**

PAIN POINT

OPPORTUNITY

Expensive and lengthy development cycles to bring new hardware solutions to market



Economies of scale by using shared facilities and resources to spread the cost burden

Technical breakthroughs coming from specialists who lack hardware experience



Pair founders with an experienced hardware team for a productivity multiplier effect

High failure rate even after achieving successful Proof of Concept demonstration



Leverage commonality in tech maturation process to create scalable model to de-risk

Rigid contract development process does not match uncertain needs of early-stage tech



Create flexible partnership terms to align incentives and follow rapid iteration approach



OxiCool is using **existing infrastructure and the learned expertise** from our own technology scale up to create a ClimateTech Development Center of Excellence

MODERN FACILITY

50,000 SF BUILDING
LOCATED IN THE GREATER
PHILADELPHIA AREA WITH
SPARE HIGH-BAY AND
OFFICE SPACE

FLEXIBLE EQUIPMENT

FULL RANGE OF
SHEETMETAL FAB
MACHINERY WITH
SPECIALTY ULTRA HIGH
VACUUM TOOLS

ENGINEERING FOCUS

DEMONSTRATED HISTORY
OF TURNING NEW IDEAS
INTO PHYSICAL
ASSEMBLIES IN AN
ACCELERATED FASHION

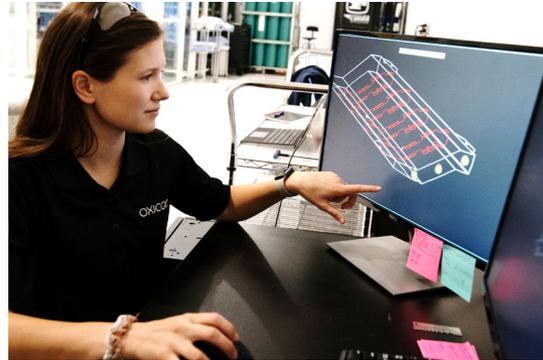
MANUFACTURING CAPABLE

ABILITY TO PROTOTYPE IN
NEAR PRODUCTION
QUALITY AND ACHIEVE
LOW RATE INITIAL
PRODUCTION IN HOUSE



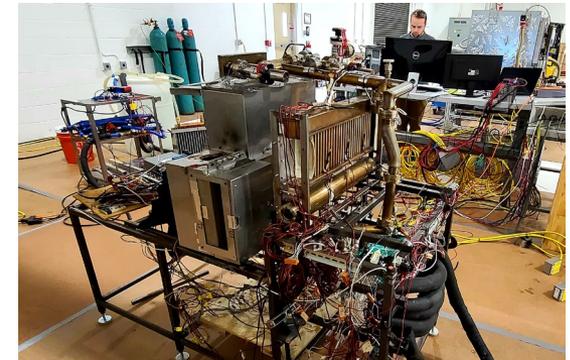
FULL SUITE SHEETMETAL FAB

The Development Center features the latest in sheetmetal fabrication technology from blanking to bending to welding. Equipment includes a fiber laser/turret punch combination machine, two CNC press brakes and a robotic fiber laser welder for maximum flexibility in part realization.



IN-HOUSE CAD/CAM CAPABILITY

Grounded in engineering best practices, OxiCool can perform clean-sheet system & subsystem design and turn ideas into physical prototypes in an accelerated manner. The team has demonstrated its ability to quickly iterate new concepts through cross-functional efforts.



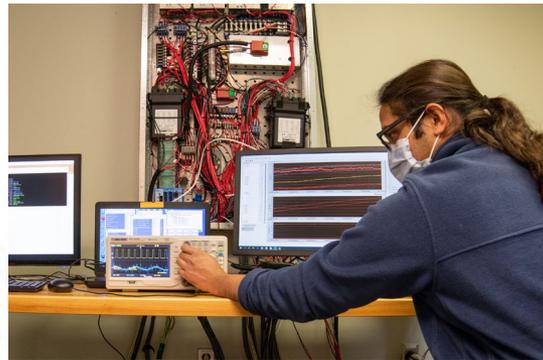
THERMAL TESTING & EVALUATION

Building upon years of creating custom test procedures to quantify performance to key metrics, the team can accurately evaluate prototypes in an accelerated fashion. The facility has a dedicated area for thermal testing with extensive data acquisition & analysis tools.



ULTRA-HIGH VACUUM (UHV)

With a core tech that requires extreme cleanliness to meet specs, OxiCool has developed an expertise in vacuum systems. The facility has an ISO 7-rated modular cleanroom, custom cleaning equipment, a range of vacuum pumps and helium leak detection capability.



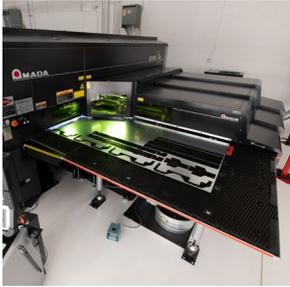
CONTROLS DESIGN & INTEGRATION

To build complex systems that can function semi- and fully autonomously, OxiCool maintains in-house controls resources. The team has designed custom hardware & software architectures that integrate off-the-shelf components into functioning products.



ROBOTIC AUTOMATION

In addition to the flexibility afforded by the modern factory equipment, the facility can achieve medium rate production requirements with minimal labor hours. A robotic press brake with automated tool changer and laser welder with shuttle tables increase potential throughput.



Amada C1AJ Punch/Fiber Laser Combo

2kW fiber laser, 22-ton 44 station turret punch, material up to 5' x 10' x ¼"



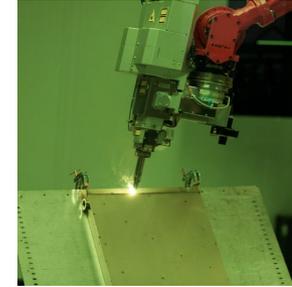
Amada HM1003 Hydraulic Press Brake

CNC controlled, 110-ton, 10' bed



Amada HG1003 ARs Robotic Press Brake

6-axis robot, automatic tool changer, 110-ton, 10' bed



Amada FLW Robotic Laser Welder

6-axis robot mounted 4kW fiber laser, 2 shuttle tables with 2-axis each



Baron Blakeslee Serec Vapor Degreaser

Vacuum closed loop precision cleaning of parts up to 26" x 21" x 16" per load



Orbitalum OM180SW Orbital Welder

Fully automated GTAW orbital welder, tube diameters 1/8" OD to 1 ½" OD

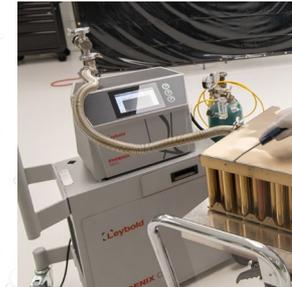


Manual MIG and TIG Welding



ISO 7 Modular Cleanroom

24'x36' footprint with gowning area and 3'x3' pass-through



Ultra High Vacuum Equipment

Including pumps, helium leak detectors, chambers, measurement equipment



Precision Quincy Truck Oven

800F maximum temperature with 3'x3'x5' chamber

TRUCKCOOL ENGINEERING VALIDATION BUILD

Upon the commissioning of OxiCool's facility in late 2018, significant work remained to turn a hand-built prototype of its TruckCool no-idle AC into a production-intent Engineering Validation unit for customer testing.

Over seven months, the team **honed its skills in hardware maturation through physical prototyping and completed four subsequently improved product builds.** The TruckCool unit contained 500+ internally designed and fabricated sheetmetal parts integrated with dozens of supplier components in a structurally-sound, self-contained unit meeting automotive standards.



Original hand-built TruckCool prototype



Interim factory build undergoing internal testing

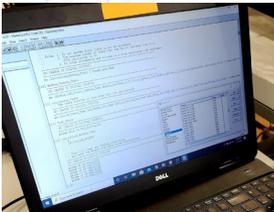


Functioning TruckCool system after customer testing, with exterior panels removed

TRUCKCOOL AUTOMATED CONTROLS RECOVERY



Integrated sleeper HVAC control module



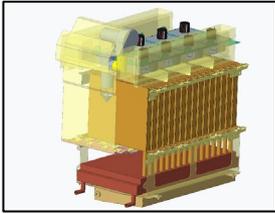
Controls programming for automated functionality



Partial view of completed control system in Engineering Validation unit

With the deadline for a testing milestone at the customer's facility rapidly approaching, OxiCool learned the vendor designing an integrated controller would not be able to support requirements. Starting from scratch, the team proceeded to use off-the-shelf components to build a **robust, fully autonomous control system with less than a three-month turnaround.** The effort required establishing communication protocols between a multitude of components, creating workarounds based on part availability, writing a proprietary control logic and validating functionality through calibration sequences.

HOMECOOL FIRST PROTOTYPE DESIGN & BUILD



Design genesis with CAD modeling



HomeCool system on display at CES® Unveiled



First HomeCool prototype completing final internal checks, exterior panels removed

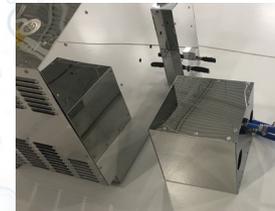
The idea of applying OxiCool’s technology for a residential AC use case was nothing more than a spreadsheet study when the decision to pivot was made in late 2019. Going for a publicity splash at CES® 2020 left the team with **three months to go from a clean-sheet design concept review to a functioning prototype** delivered to Las Vegas. Despite never having created a system at this scale, OxiCool leveraged its flexible factory equipment and learnings from TruckCool builds to create & execute an accelerated project plan that resulted in an operational unit ready for public debut.

NOVEL AIR HANDLER RAPID DEMONSTRATION

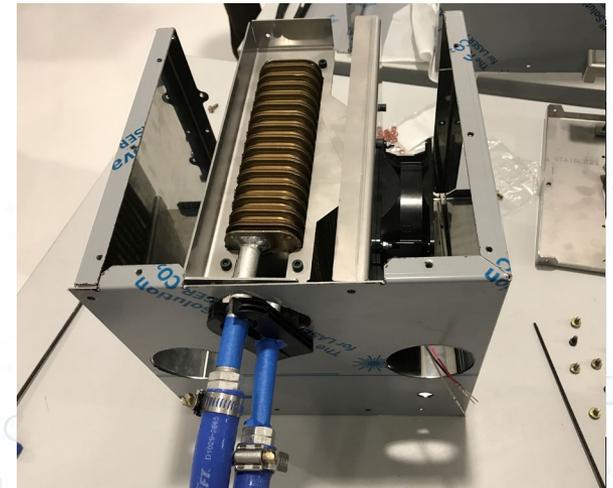
A “shower thought” for a new air handler design occurred days before TruckCool was due to ship for customer testing. In the **span of 48 hours, the team was able to turn the idea into a production-quality assembly**. The concept was first validated by testing a cardboard mockup connected to a spare chiller and showed promising results. CAD efforts began shortly thereafter, followed by a sequence of built iterations. This resulted in a robust, packaged assembly that was delivered with the core TruckCool chassis module to be evaluated as part of the comprehensive test program.



Proof of concept mock-up to validate idea



Completed air handler ready for customer testing



Assembly and refinement of new air handler concept under way in factory area

There is **white space to create a scalable approach** that extends beyond physical prototyping and comprehensively nurtures new ideas through to fruition

IDENTIFY & VET

Establish a pipeline of opportunities via networking with university & national labs, early-stage startups and follow a technical due diligence process to validate innovation promise and resource fit

PARTNER & BUILD

Carve out a niche as the ideal partner for post-Proof of Concept build out and use flexibility as a competitive advantage in establishing in-depth relationships with a handful of startups

TEST & ITERATE

Recognizing that many technical failures manifest later in product maturation, leverage in-house capabilities to work closely with founding teams in rapidly building, internally testing and iterating

DEMONSTRATE & REFINE

Harden systems as needed for field trials with continuous feedback loops and upon successful demonstrations, use flexible equipment to achieve Low Rate Initial Production

PROVE & TRANSITION

Hand off validated projects to established players for Go To Market and scale while repeating intake process to bring new ideas through the OxiCool build out and de-risk model

OxiCool is interested in exploring creative partnerships with likeminded innovators to find mutually beneficial opportunities that fast-track product development

JOINT VENTURES

We are open to teaming with individuals and entities to turn their inventions and prototypes into functioning systems to establish commercial potential. This could be an ideal engagement with a lab spin-off to jointly seek public or private funding and build out a company.

HARDWARE INCUBATOR

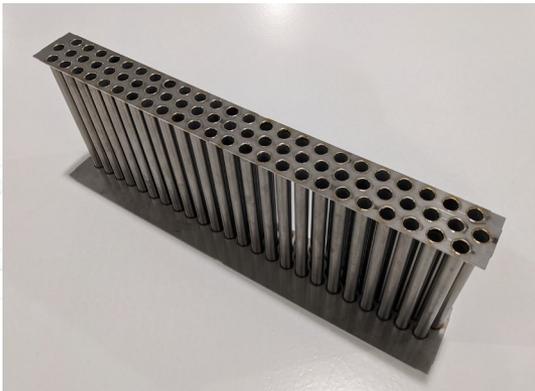
An existing team can collocate to OxiCool's facility to take advantage of our equipment and know-how, with the level of support provided tailored to each group's unique situation. Spare office and high-bay space are available as part of an arrangement of this type.

CONTRACT DEVELOPMENT ENGINEERING

OxiCool will consider development work packages of all sizes. As a start-up, we are comfortable with open-ended deliverables and could offer a flexible contract structure (potentially including equity compensation) that sidesteps the bureaucracy of larger players in the contract dev world.

BUILD TO PRINT FABRICATION

With open equipment capacity, OxiCool can deliver custom sheetmetal parts & assemblies on a rapid basis. We can accept 3D CAD files or work together to turn sketches into completed parts. The facility is capable of meeting production quality standards with no post-processing.



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Appendix

ADDITIONAL INFORMATION



OCTOBER 2022

The forthcoming public and private global investment in decarbonization is an historic opportunity, yet the **market is not prepared to build out emerging solutions**

ANNUAL GLOBAL
INVESTMENT NEEDED TO
REACH NET ZERO BY 2050

\$4
TRILLION

(International Energy Agency Estimate)

US FEDERAL FUNDING TO
SUPPORT CLIMATE AND
CLEAN ENERGY

\$369
BILLION

(Inflation Reduction Act)

DOE FUNDING FOR CLEAN
ENERGY TECHNOLOGY
DEMONSTRATIONS

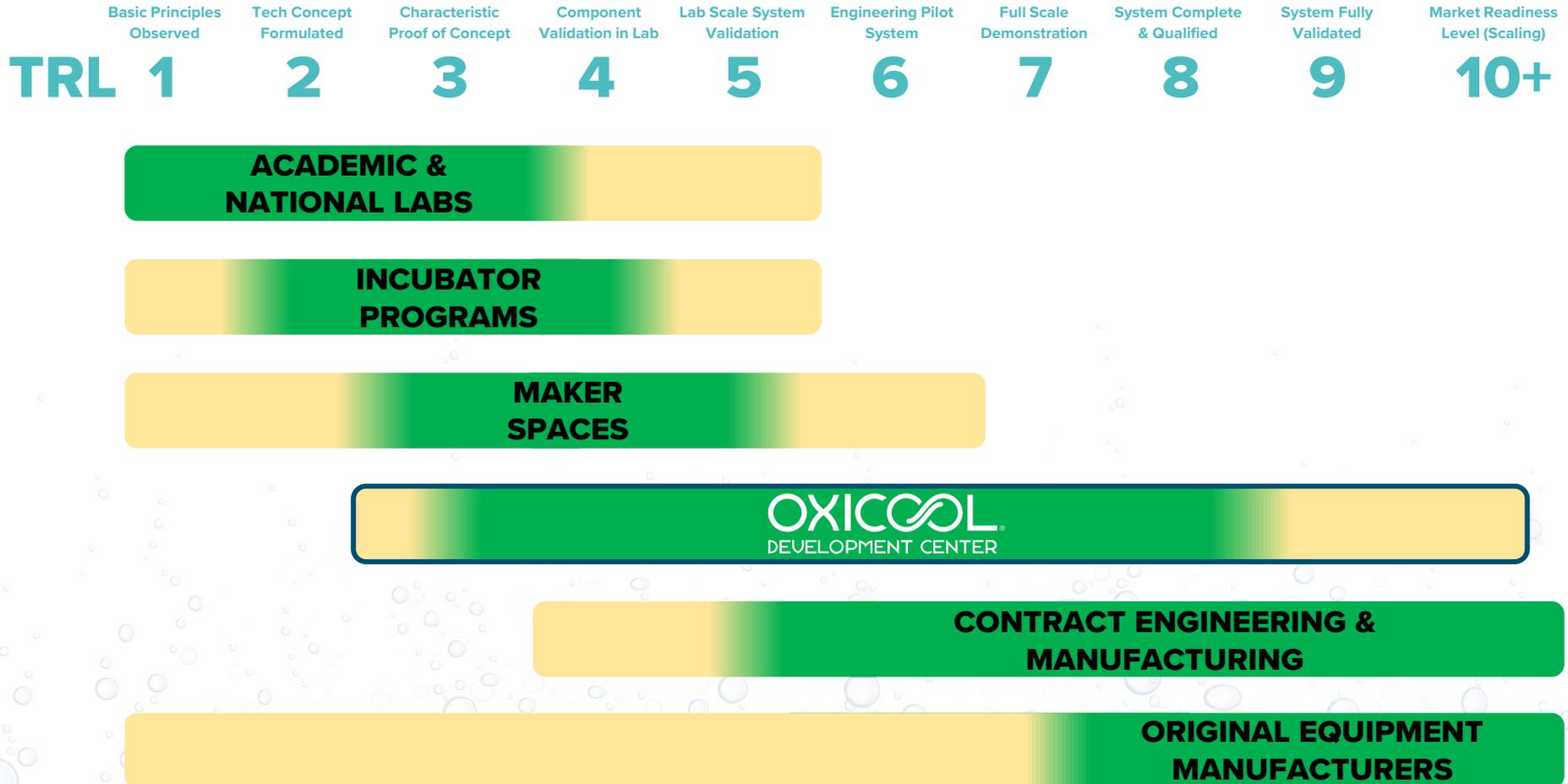
\$62
BILLION

(Bipartisan Infrastructure Law)

“Every sector will be transformed by new, sustainable technology. Engineers and scientists are working around the clock on how to decarbonize cement, steel, and plastics; shipping, trucking, and aviation; agriculture, energy, and construction. **I believe the decarbonizing of the global economy is going to create the greatest investment opportunity of our lifetime. [] The next 1,000 unicorns won't be search engines or social media companies, they'll be sustainable, scalable innovators** – startups that help the world decarbonize and make the energy transition affordable for all consumers.”

-LARRY FINK, BLACKROCK CEO

Current solutions are **not optimized for the challenges occurring in the middle** of the Technical Readiness Level (TRL) progression for hardware maturation



OxiCool is working to **immediately validate its value proposition with existing resources** while creating an ambitious plan to enhance capabilities and scale

VALIDATING MODEL

Execute early Proof of Concept projects and secure partners and seed capital to expand team

REALIZED VISION

Capital projects to extend range of capabilities and operate PA facility at full utilization



2022

2023

2024

2025

PROVING VALUE

Begin relationships with natural fit “portfolio companies” and obtain funding for 2024 expansion

SCALE & EXPAND

Establish industry benchmark process for hardware build out with replicable model

Leveraging lessons learned in maturing our own tech, the OxiCool team has the **right foundation to be an ideal partner** in helping others bring their tech to market



GARY EZEKIAN
President & CEO

Decade of experience as a Boeing manufacturing leader, having held cross-functional roles in engineering & ops



BRANDON WILCOX
Chief Operating Officer

OxiCool's second employee and de facto co-founder with a well-rounded technical skillset and sharp operations focus



DAVID BALDACCI
Board Member

Bestselling author with 150 million+ copies in print and manager of a diversified family office investment fund



DAVID BROOME
Board Member

Founder and Chairman of TransForce, the leading staffing & recruiting firm for the transportation industry



DAVE SCHOCH
Board Member

Ford Motor Co. executive leader (retired) with top global roles including President of Asia Pacific & CEO of Ford China

RIGHT EXPERIENCE

Strong engineering focus with technical bench strength in key areas needed to turn concepts into realized systems

RIGHT RESOURCES

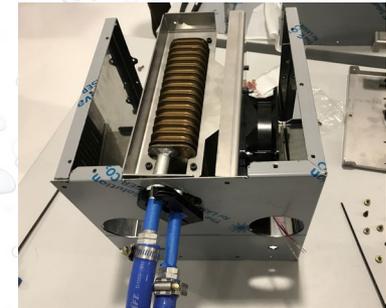
Modern facility with suite of flexible equipment that allows iteration in near production quality plus specialized capabilities

RIGHT CULTURE

Mission-driven startup mentality, comfortable with ambiguity but with the experience to solve hardware challenges

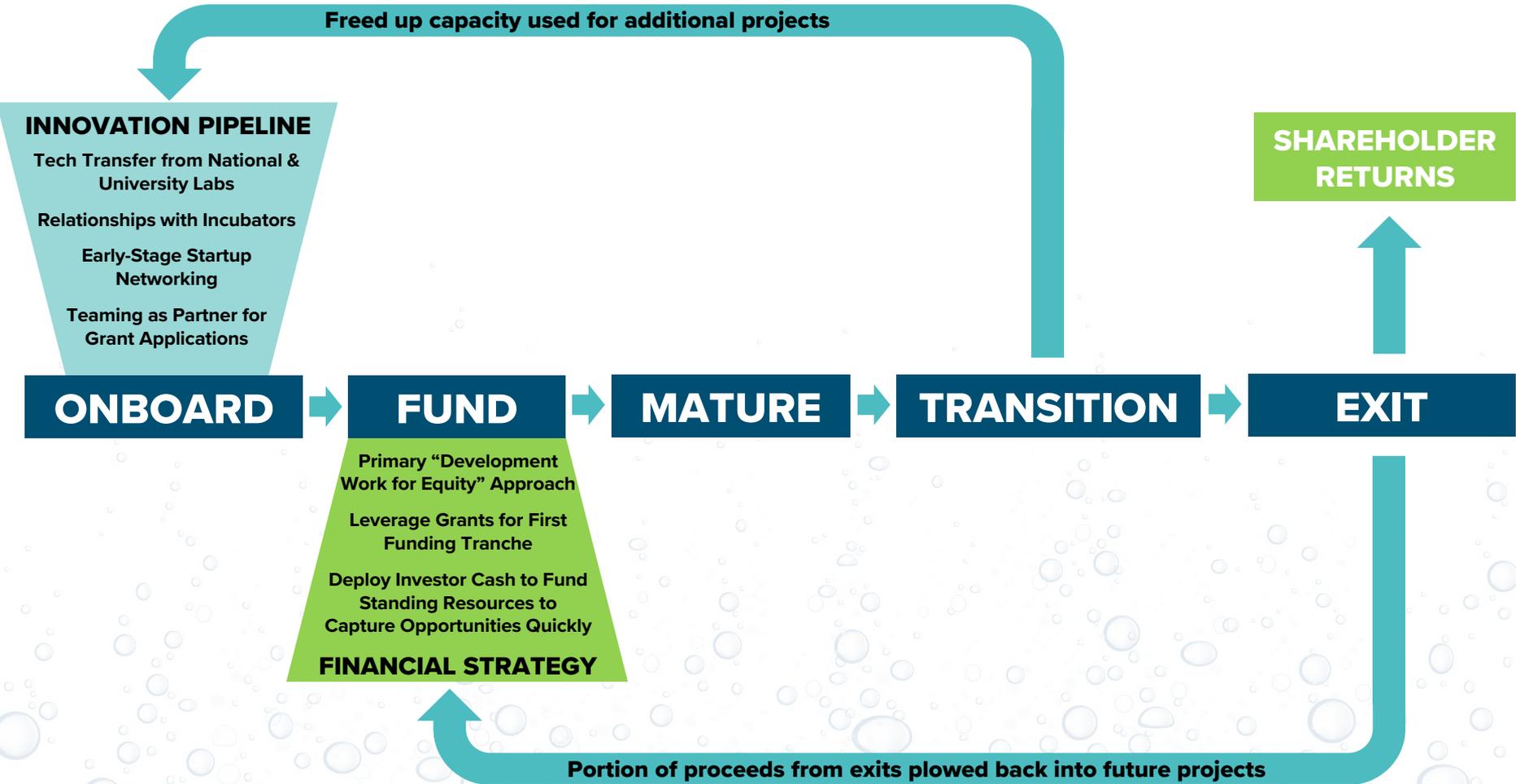


Hand-built prototype (L) matured to production-intent customer test unit (R)



Novel air handler concept (L) transitioned to robust demo system (R) in 48 hours

The Development Center can function as an **early-stage ClimateTech pseudo-fund with an inherent risk-reduction strategy** and diversification of technical risk



OxiCool is seeking supporters to help **execute the vision of a comprehensive, financially lucrative hardware development center** to fill the gap in the innovation ecosystem

INVESTORS

- Raising \$2MM in seed funding via convertible note to cover 2023 runway
- Exploring collaboration with a ClimateTech VC to enhance value proposition

CLIENTS

- Matchmaking to find near-term Proof of Concept development projects
- Building pipeline of opportunities from universities, labs and incubators

PARTNERS

- Soliciting US government support through Department of Energy, etc.
- Forming new Advisory Board to enhance expertise across key domains