

# SUSTAINABLY MEETING THE CHALLENGES OF WATER SECURITY AND COMFORT COOLING



Nasdaq: AIRJ  
<https://airjouletech.com>

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# AIRJOULE TECHNOLOGIES - COMPANY LEADERSHIP

EXPERIENCED TEAM WITH A STRONG TRACK RECORD



**Matt Jore**  
*Founder &  
CEO*

- Over 30 years of experience successfully founding and leading innovative product-based companies
- Founded Core Innovation, predecessor to Montana Technologies, LLC
- Previously founded Jore Corporation, a power tool and accessories manufacturer that exceeded ~\$50 million annual revenue
- Led Jore Corporation through a successful IPO



**Pat Eilers**  
*Executive  
Chairman*

- Founder & Managing Partner of Transition Equity Partners, LLC
- Over 24 years investing experience in energy transition; including renewables, energy efficiency, decarbonization infrastructure, and clean energy supply chain & services
- Previously Managing Director of the Energy & Power Private Equity practice at BlackRock
- Former Managing Director of Energy & Power practice, Madison Dearborn Partners, LLC



**Stephen  
Pang**  
CFO

- Over 20 years of capital markets experience, including buy-side, sell-side, and public company leadership
- Former Managing Director and Portfolio Manager at TortoiseEcofin Investments
- Previously CFO of multiple successful special purpose acquisition companies
- Former investment banker at Credit Suisse and Citigroup



**Chad  
MacDonald**  
CLO

- Former Senior Vice President and Deputy General Counsel at Permian Resources (NYSE: PR)
- Former Vice President and Associate General Counsel at Centennial Resource Development
- Experience advising public and private clients on M&A, private equity, and capital markets transactions at Latham & Watkins and Paul Hastings LLP.



**Bryan  
Barton**  
CCO

- Technology and innovation executive with expertise in scaling and commercializing new technologies
- Former Senior Director of Marketing at GE Vernova where he worked on the ventures team and launched startups powered by GE Research
- Previously Global Marketing Director at DuPont and Research Scientist at Dow Chemical Company
- Obtained B.S. and Ph.D. in Chemistry

# COMPANY OVERVIEW

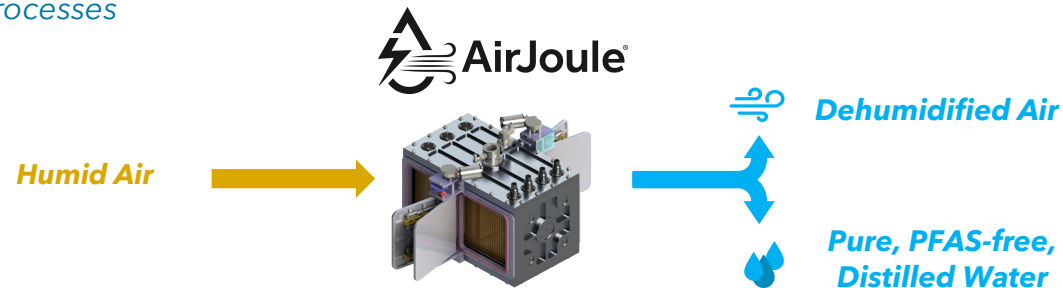
AIRJOULE TECHNOLOGIES IS A WATER HARVESTING TECHNOLOGY COMPANY

## Company Overview

Name (Ticker)	AirJoule Technologies Corporation (NASDAQ:AIRJ)
Year Founded	2019
Locations	Ronan, Montana and Newark, Delaware
Employees	38 <sup>(1)</sup>
Industry	Machinery and Supplies and Components
Market Cap.	\$420 million <sup>(2)</sup>

## Technology

AirJoule® utilizes a Metal Organic Framework (“MOF”) and a dual-chamber vacuum system to produce dehumidified air and pure, PFAS-free, distilled water from ambient air, which are key inputs for a variety of industrial processes



## Recent Developments

- **Q3 2024:** Established first international office in the United Arab Emirates
- **Q3 2024:** Announced MOUs with international customers to explore the deployment of AirJoule® to support water security in the UAE, to provide water for solar-powered hydrogen production, and to provide dehumidified air for direct air capture of carbon dioxide
- **Q2 2024:** Raised \$12 million from a private placement financing with existing and new investors
- **Q1 2024:** Completed de-SPAC transaction and raised more than \$50 million from Carrier, GE Vernova, and Rice Investment Group, among others

## Key Partnerships

AirJoule Technologies has partnerships with global industry leaders



1. Includes 15 full time employees (“FTEs”) at AirJoule Technologies and 23 FTEs at the AirJoule JV  
2. As of 11/20/2024

# INVESTMENT HIGHLIGHTS



TRANSFORMATIONAL TECHNOLOGY: **AirJoule** Low Cost of Energy and Water



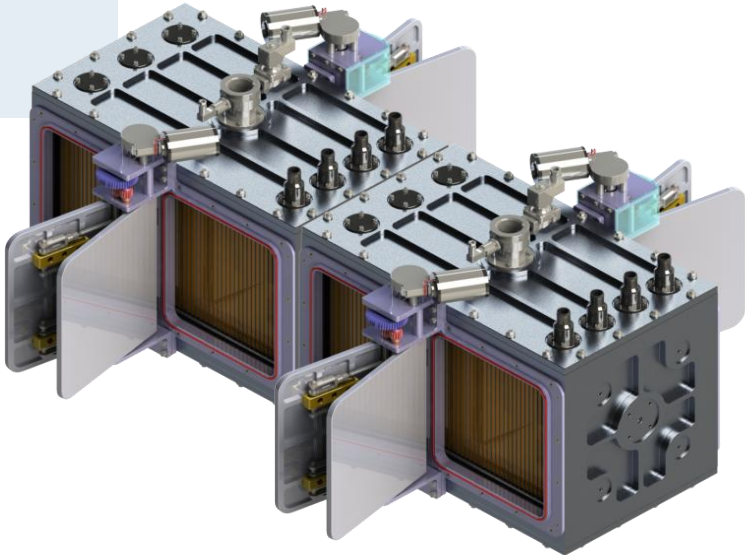
~\$450 BILLION ADDRESSABLE MARKET: Water Harvesting and Air Conditioning



GLOBAL PARTNERSHIPS IN PLACE: **BASF**  GE VERNOVA **CATL** 



CAPITAL EFFICIENT BUSINESS MODEL: Key Components "AirJoule Inside"



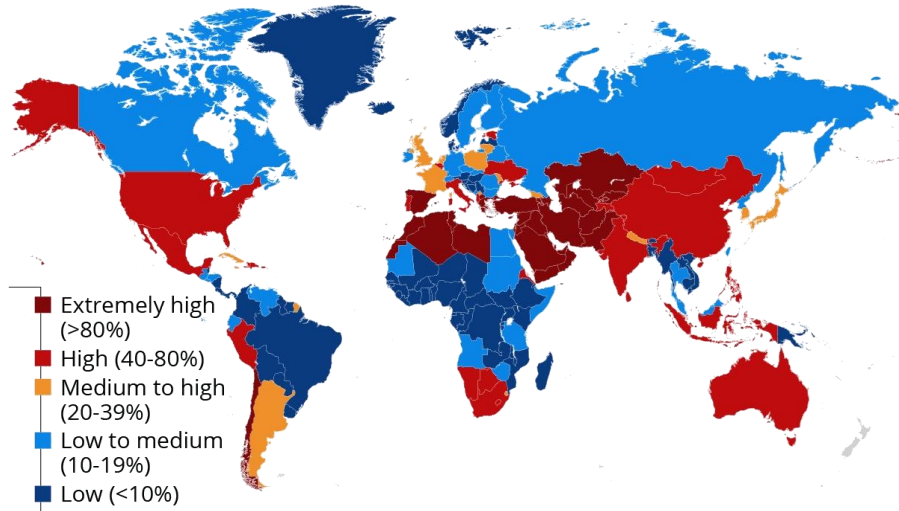
# SOLVING DEMAND FOR WATER SECURITY AND AIR CONDITIONING

AIRJOULE® ADDRESSES TWO OF THE WORLD'S MOST PROBLEMATIC ISSUES: WATER SECURITY AND AIR CONDITIONING

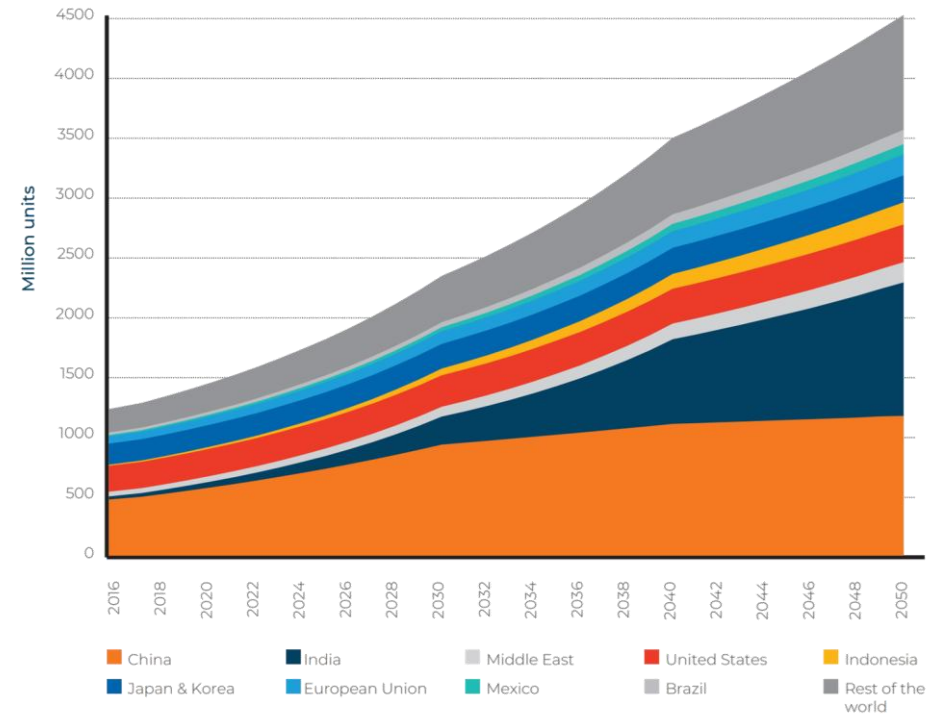
## Water Security<sup>(1)</sup>

### Where Water Stress is Expected to Be Highest by 2040

Projected ratio of water withdrawals to water supply (water stress level) in 2040



## Demand for Air Conditioning<sup>(2)</sup>



**AirJoule® technology has the potential to help address increasing water stress around the world, as well as mitigate the projected increases in electricity from rising demand for air conditioning**

# THE TECHNOLOGY BREAKTHROUGH

AIRJOULE® ENABLES COMMERCIALIZATION OF MOFs

## MOF Technology Highlights

**MOFs are highly adsorbent coatings, engineered to capture specific molecules (in this case, water vapor)**

- AirJoule Technologies has engineered a proprietary MOF coating (MTMOF1) that can hold more than half its weight in water vapor

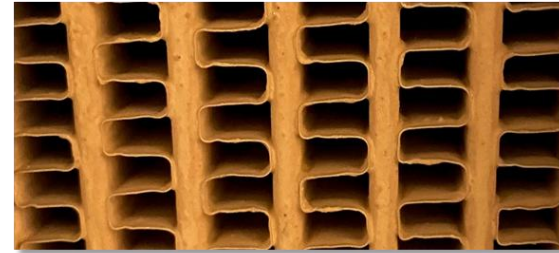
**Thermal constraints have limited the potential of MOFs in historical dehumidification efforts**

- Heat generated by adsorption cycle and additional heat required to desorb the MOF are problematic for cooling applications

**AirJoule® solves the energetics issue, resulting in an unprecedented reduction in energy consumption for dehumidification**

- Proprietary pressure swing system integrates adsorption and desorption functions, so the heat of adsorption can be used to assist desorption under vacuum, eliminating the need for additional energy

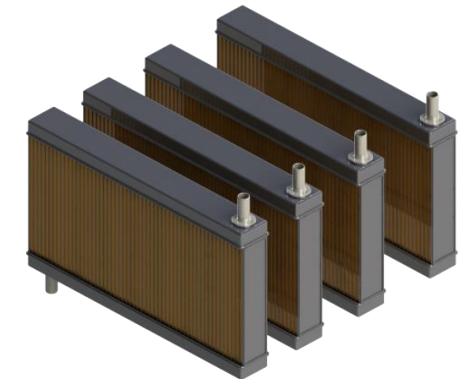
## MOF-Coated Contactor Design



- Proprietary cross-linked MOF coating reliably adheres to aluminum heat exchanger<sup>(1)</sup>
- Extraordinary surface area of MOF allows for very thin coating and high capacity of water vapor adsorption



- MOF-coated contactor is a microchannel heat exchanger coated with MOF
- MOF coating comes in contact with humid air and adsorbs water vapor



**AirJoule Technologies uses MOFs to improve efficiency of dehumidification process**

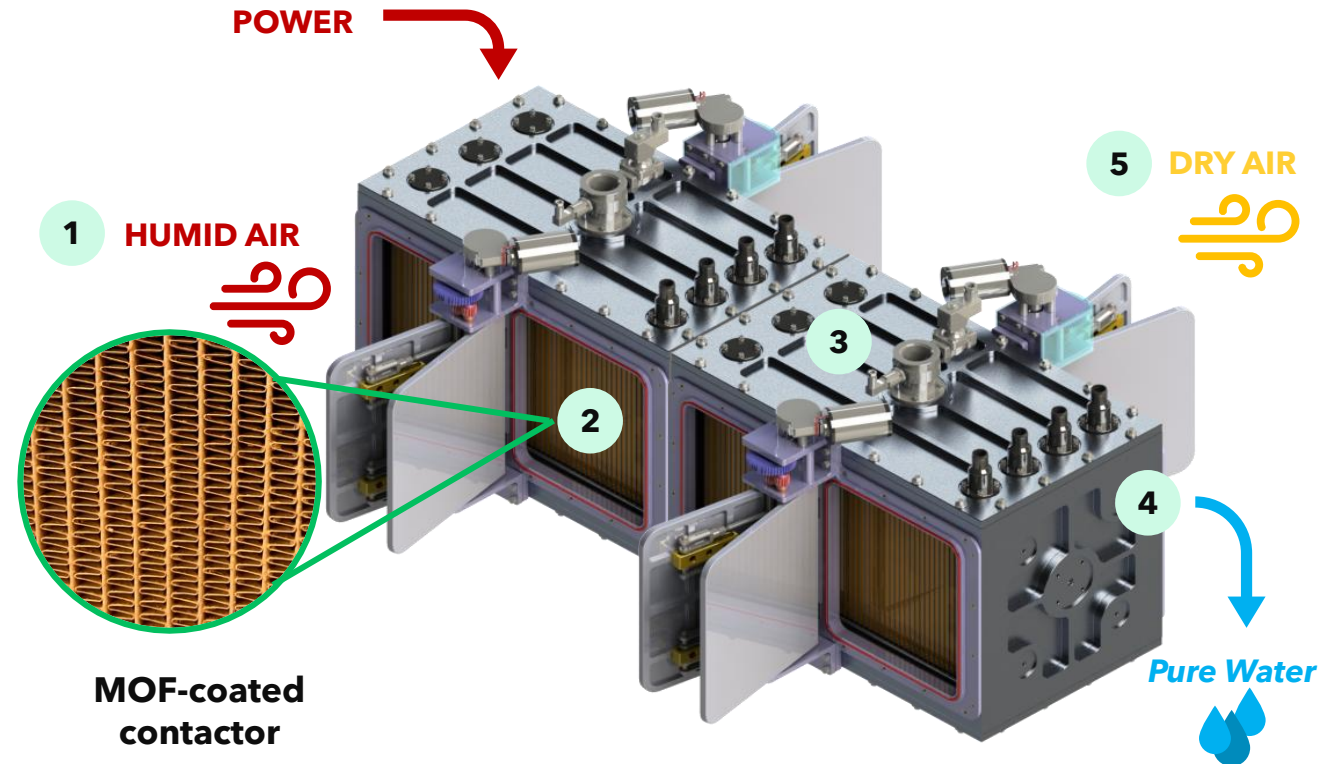
1. MOF coating process protected by trade secrets / patent applications

# THE AIRJOULE® PROCESS

## AirJoule® Process Description

- 1** Fans push air through MOF-coated contactor and water is adsorbed
- 2** Once MOF is saturated, doors close and chamber goes under vacuum
- 3** Under vacuum, water vapor is released
- 4** Going through condenser, vapor condenses into liquid
- 5** Adsorption and desorption cycles occur simultaneously in separate chambers, the heats are shared, and superior energetics are achieved

## AirJoule® Process Diagram






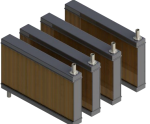
**AirJoule®'s proprietary technology efficiently dehumidifies ambient air, resulting in pure PFAS-free, distilled water**



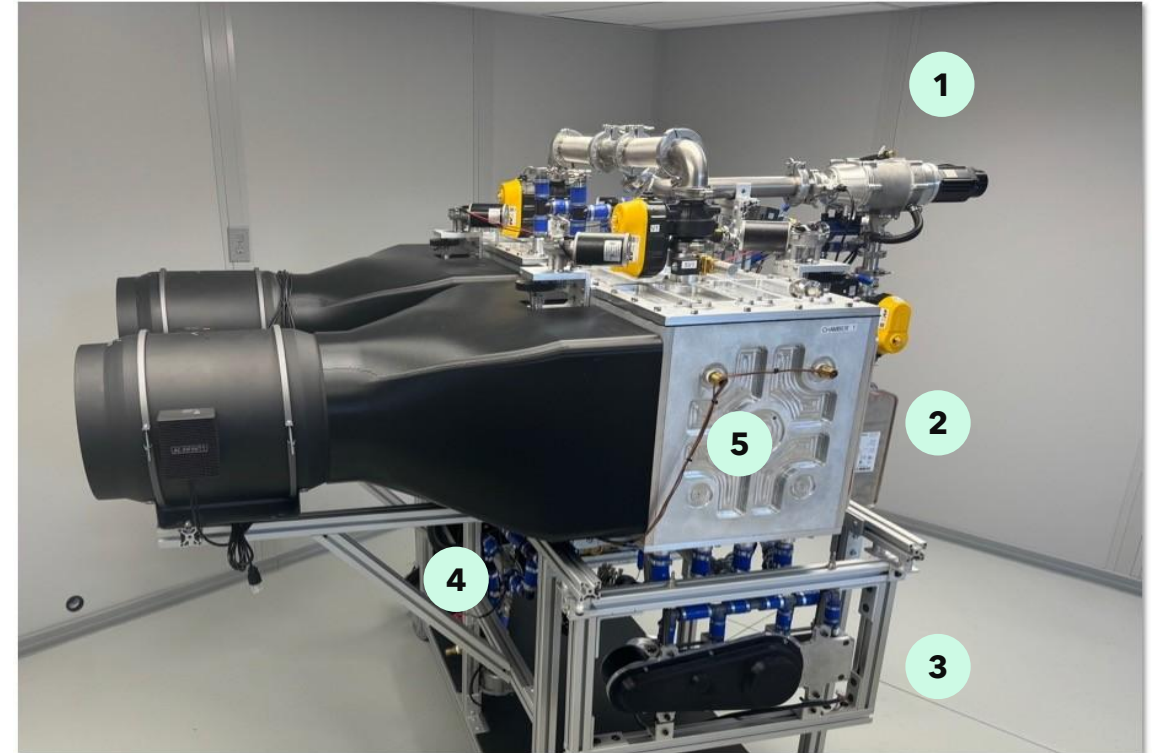
# THE AIRJOULE<sup>®</sup> TECHNOLOGY FUNDAMENTALS

AIRJOULE<sup>®</sup> TECHNOLOGY INCORPORATES MOF AND OTHER PROPRIETARY AIRJOULE TECHNOLOGIES COMPONENTS

## Key Components

- **VACUUM SWING COMPRESSOR**
  - Critical for maintaining vacuum operation
  - Utilizes majority of total AirJoule<sup>®</sup> power consumption
- **VACUUM CONDENSER**
  - Optimizes water vapor / liquid water density ratio under vacuum
  - Water vapor is condensed into pure water *inside* vacuum condenser
- **AIR PURGE PUMP**
  - Creates vacuum as it removes air from the desorption chamber
  - Oil-free design is critical for clean air purge
- **CONTROLLER and SOFTWARE**
  - Proprietary software and controller hardware optimizes vacuum recovery and thermal sharing between adsorption and desorption
- **MOF-COATED CONTACTORS**
  - Proprietary cross-linked MOF coating process
  - Comprises majority of total bill of materials for AirJoule<sup>®</sup>

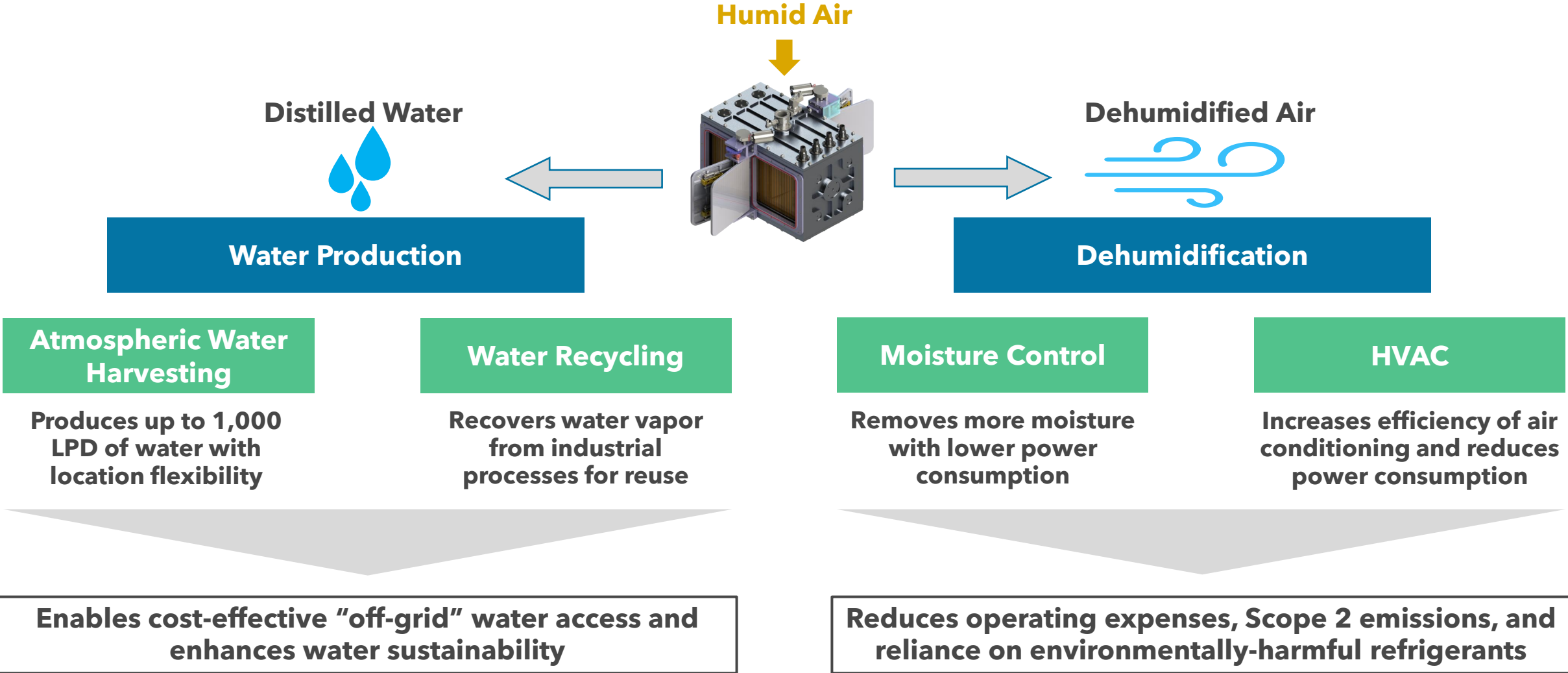
## Pre-Production Prototype



**AirJoule Technologies enjoys a multi-pronged moat due to IP protections around AirJoule<sup>®</sup>'s proprietary key components**

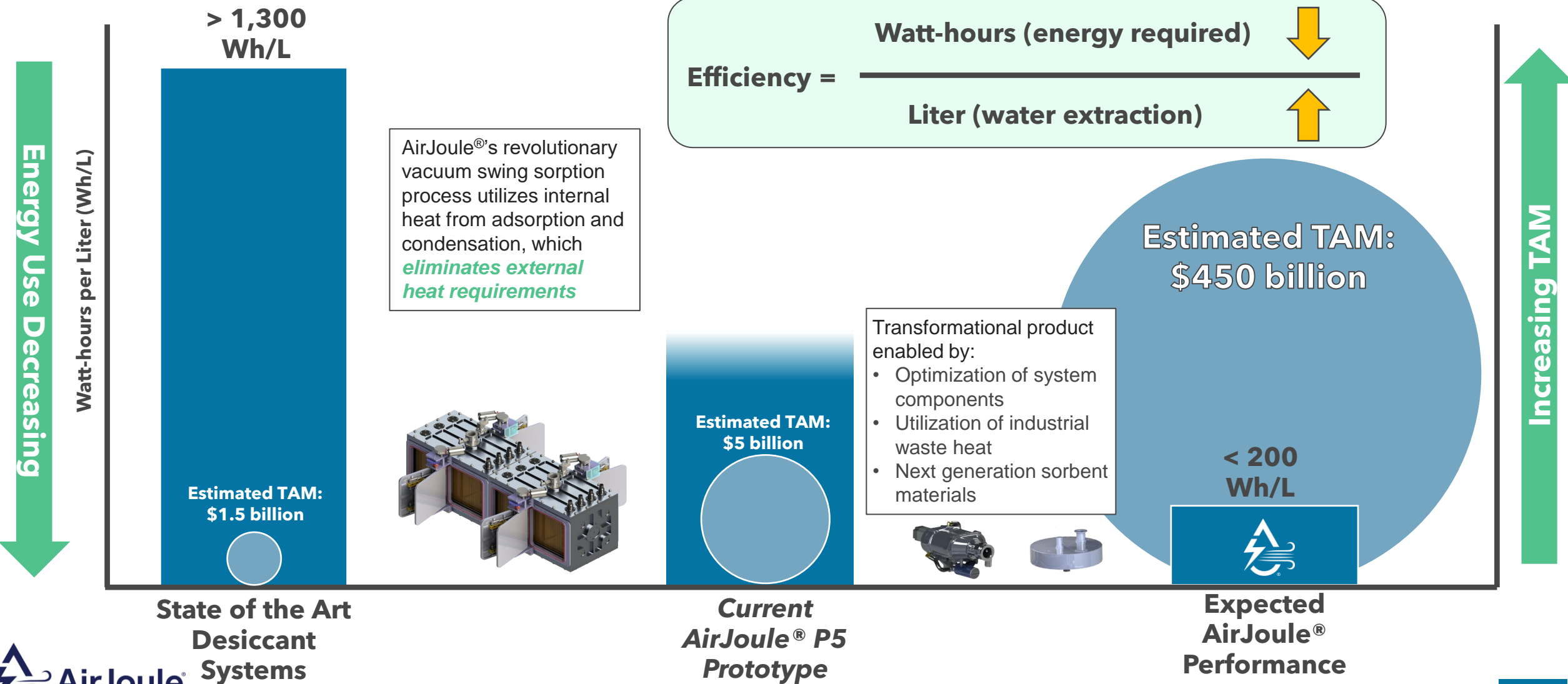
# AIRJOULE® TECHNOLOGY HAS MULTIPLE USE CASES

TRANSFORMATIONAL MOISTURE REMOVAL EFFICIENCY UNLOCKS ARRAY OF SOLUTIONS



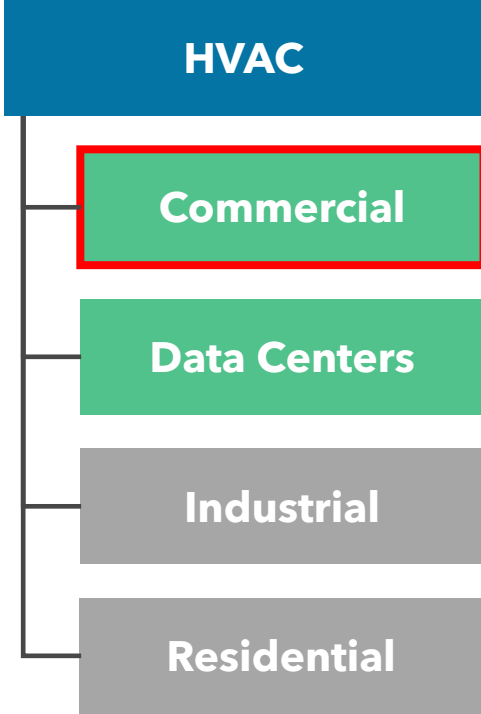
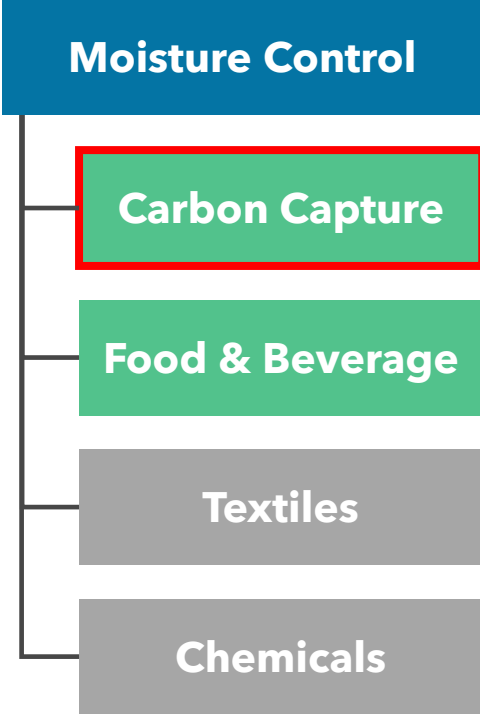
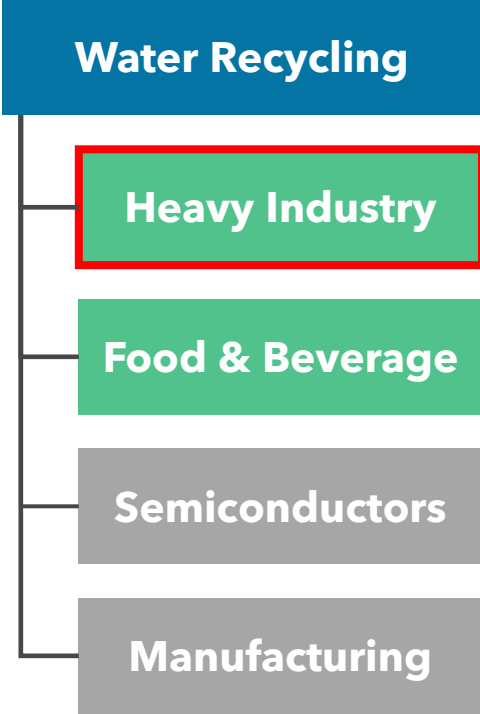
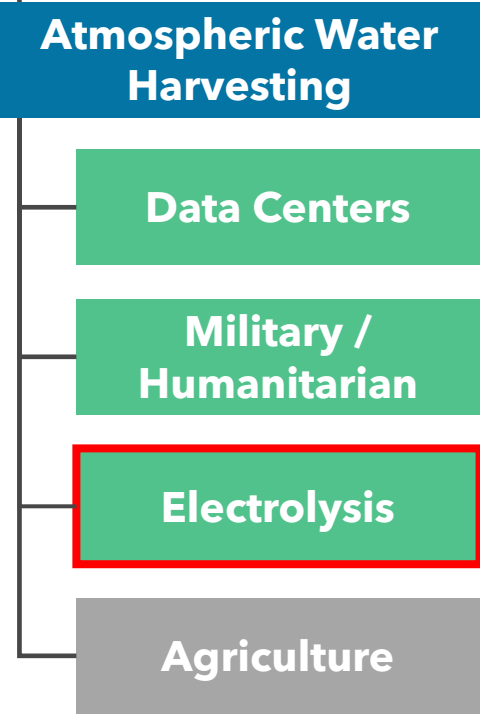
# UNLOCKING VAST MARKET OPPORTUNITIES

AIRJOULE® IS ON TRACK TO ACHIEVE SUB-200 WATT-HOURS PER LITER OF WATER EXTRACTION



# AIRJOULE® PRODUCT APPLICATIONS

TRANSFORMATIONAL MOISTURE REMOVAL EFFICIENCY UNLOCKS ARRAY OF SOLUTIONS



**Combined Total Addressable Markets for Atmospheric Water Harvesting and HVAC are estimated at ~\$450 billion with multiple applications in various sectors and geographies**

Announced MOU | Current Areas of Focus | Future Areas of Focus



# COMMERCIAL DEVELOPMENT ACTIVITY

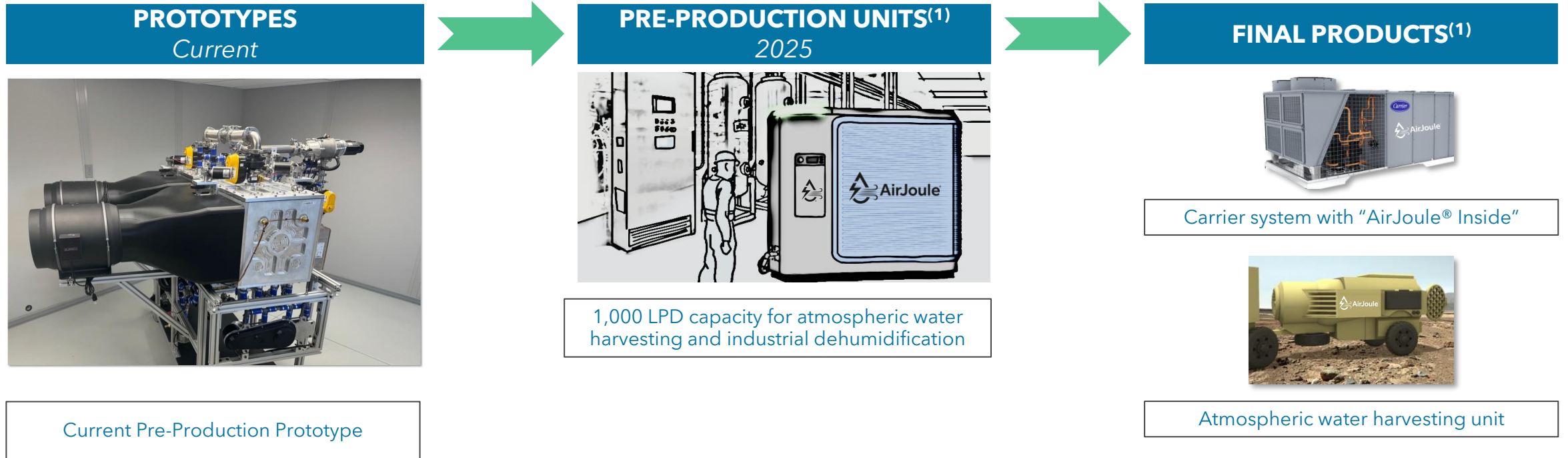
DEVELOPING STRONG CUSTOMER ENGAGEMENT WITH PATH TO MARKET ADOPTION AND COMMERCIAL SALES

Customer		Q1'24	Q2'24	Q3'24
<b>Tier 1 Food &amp; Beverage Manufacturer (USA)</b>	Industrial water recapture			Data Gathering
<b>Tier 1 Food &amp; Beverage Manufacturer (USA)</b>	Industrial dehumidification			White Paper Analysis
<b>Department of Defense (USA)</b>	Water harvesting for military			Field Testing & Validation Trials
<b>TenX (UAE)</b>	Water harvesting & water recapture			Memorandum of Understanding ("MOU")
<b>Climate Impact Corporation (Australia)</b>	Water harvesting for solar-powered hydrogen production			MOU
<b>Clairity (USA)</b>	Moisture control for CO <sub>2</sub> direct air capture			MOU
<b>Carrier (Americas)</b>	HVAC commercialization	Binding Term Sheet	Product Market Alignment	

# DEFINED PATHWAY TO COMMERCIALIZATION

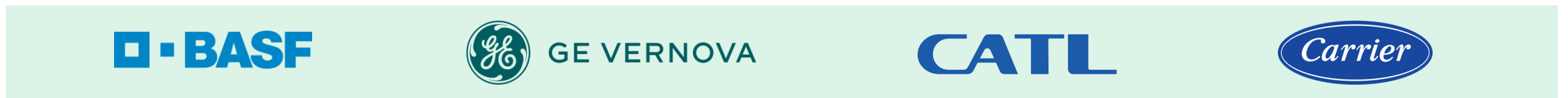
CUSTOMER DEMAND AND GLOBAL PARTNERSHIPS ENABLE COMMERCIALIZATION

## Pathway to Commercialization



Current Pre-Production Prototype

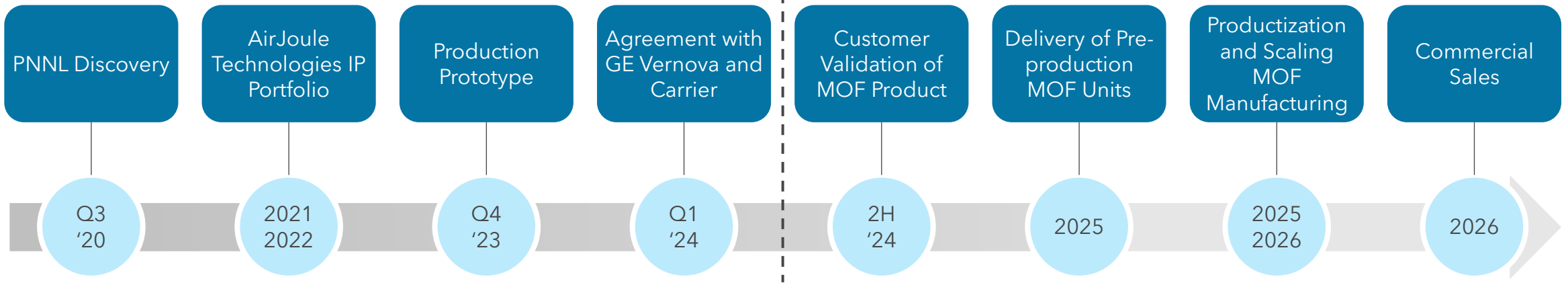
## Key Partnerships in Place



1. Illustrative renderings; final products may differ in appearance

# KEY MILESTONES AND PROGRESS

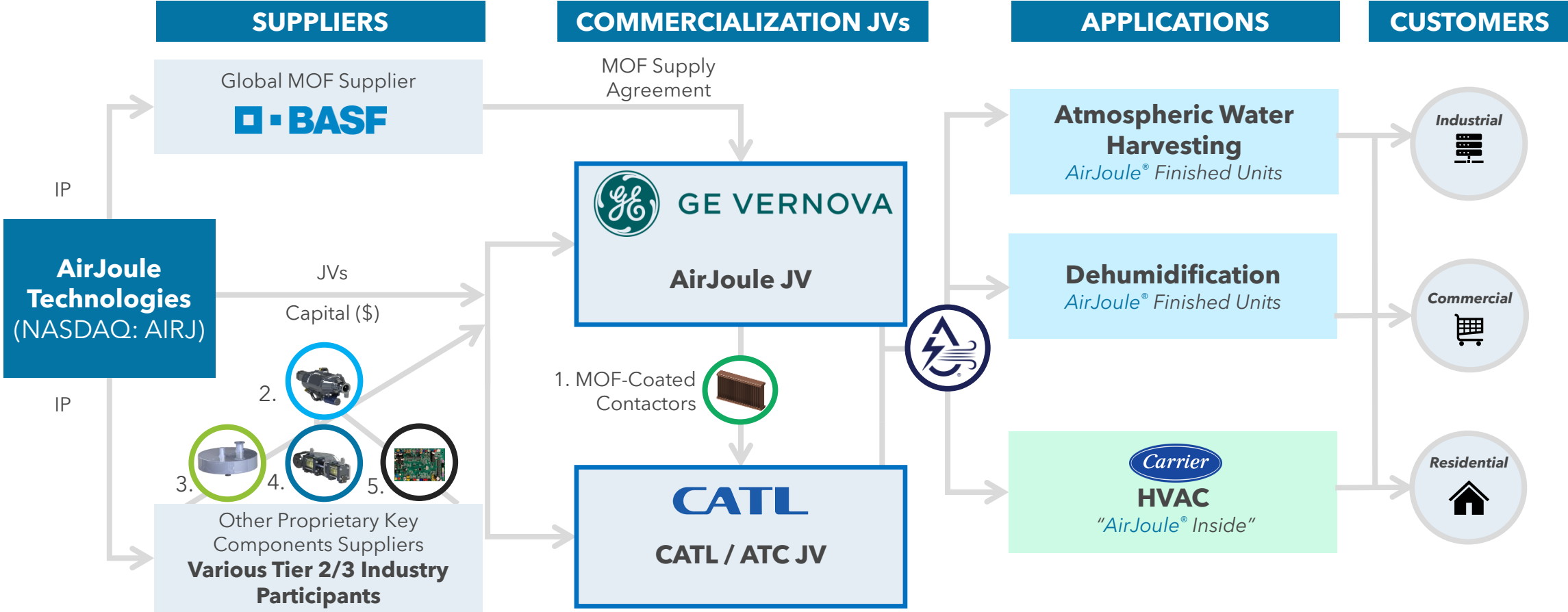
## Timeline of Accomplishments to Date and Anticipated Milestones



## Key Developments

- Commenced build out of initial MOF manufacturing facility in Newark, DE
- Engaging customers for hands-on demonstrations and pilot programs
- Ongoing productization and engineering efforts in coordination with Carrier and GE Vernova technical teams

# AIRJOULE® GLOBAL COMMERCIALIZATION ECOSYSTEM



**AirJoule Technologies' partnership network will accelerate manufacturing of materials and key components as well as provide product validation and commercialization**

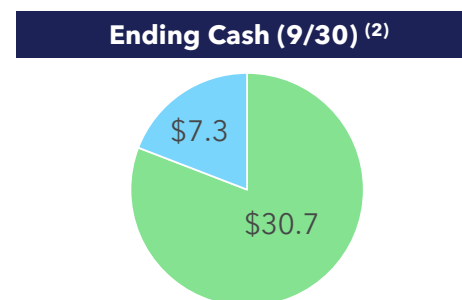
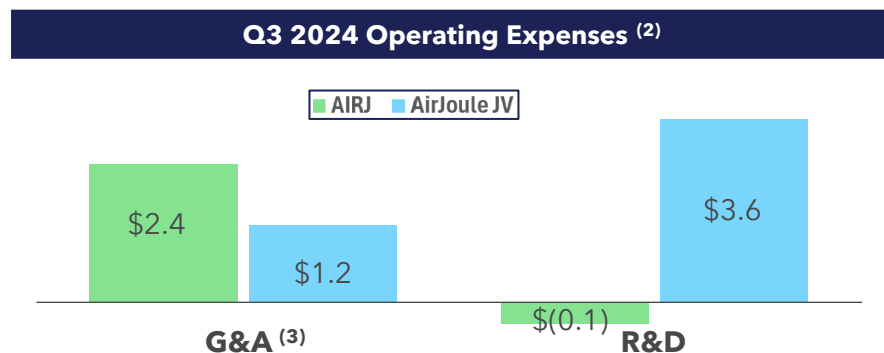


Proprietary Key Components: 1. MOF-Coated Contactor, 2. Vacuum Swing Compressor, 3. Vacuum Condenser, 4. Air Purge Pump, 5. Controller and Software



# FINANCIAL RESULTS (UNAUDITED)

\$ in millions	Q1 2024 <sup>(1)</sup>	Q2 2024	Q3 2024
Operating expenses, gross	\$(1.7)	\$(4.3)	\$(4.3)
SOW expense reduction	-	-	2.0
DeSPAC transaction expenses	(54.7)	-	-
Operating profit / (loss)	\$(56.4)	\$(4.3)	\$(2.4)
Other income	323.7	17.1	38.4
Loss from investment in AirJoule JV	(0.0)	(0.6)	(2.3)
Income tax benefit / (expense)	(85.7)	1.2	1.3
<b>Net income / (loss)</b>	<b>\$181.6</b>	<b>\$13.4</b>	<b>\$35.0</b>
Cash from operations	\$(6.4)	\$(11.2)	\$(3.9)
Cash from investing	(10.0)	(0.0)	(0.0)
Cash from financing	43.4	18.4	0.0
<b>Net cash flow</b>	<b>\$27.0</b>	<b>\$7.2</b>	<b>\$(3.9)</b>
<b>Ending cash balance</b>	<b>\$27.4</b>	<b>\$34.6</b>	<b>\$30.7</b>



## AIRJ

- Gross operating expenses in line with prior quarter
- Net operating expenses of \$2.4 million
  - Includes \$2.0 million in expense reduction from AirJoule JV pursuant to Statement of Work reimbursement
- Other income primarily includes:
  - \$31.8 million (non-cash) gain in the fair value of our earnout liabilities
  - \$8.2 million (non-cash) gain in the fair value of subject vesting shares
  - \$1.9 million (non-cash) loss in the fair value of true up shares liabilities
- Ended Q3 with \$30.7 million of cash on the balance sheet

## AirJoule JV <sup>(2)</sup>

- \$4.8 million of operating expenses
- Ended Q3 with \$7.3 million of cash



# Appendix A.

# Technology

# INTELLECTUAL PROPERTY / PATENTS

AIRJOULE TECHNOLOGIES HOLDS FOUNDATIONAL PATENTS RELATED TO ATMOSPHERIC LATENT ENERGY AND WATER HARVESTING, UNIQUELY POSITIONING THE COMPANY IN THE RAPIDLY DEVELOPING ATMOSPHERIC WATER HARVESTING SECTOR

## Patent Highlights

### In Q1 2021, the Company obtained an exclusive worldwide license from PNNL

- Issued Patent (11859863) in 2024 covers self-regenerating dehumidification technology (which includes heating, cooling, ventilation, dehumidification and conditioning of air)
- AirJoule Technologies also executed a strategic project partnership agreement with PNNL to further develop enhancements to this technology

### Secured two master patent PCT applications

- The Company has also filed patent applications in 44 countries for the Latent Energy and Water Harvesting System
- Latent Energy Harvesting System across 4 countries (U.S., China, India, Taiwan)

### Secured a portfolio of GE Advanced Research IP at AirJoule JV

- MOF-coating technology and process to enable resilient coatings
- Modification of MOF materials for improved performance

### Pending new provisional patent applications for enhancements





- Various operation processes, technologies, and improved components

## AirJoule® Patents

Title	Effective/Actual Filing Date	Patent/Publication/ Serial Number	Assignee
<b>Latent Energy And Water Harvesting System</b>	<ul style="list-style-type: none"> <li>▪ 10/1/2021</li> <li>▪ 9/30/2022</li> </ul>	<ul style="list-style-type: none"> <li>▪ 2023/056400Pct/ US22/77316</li> </ul>	<ul style="list-style-type: none"> <li>▪ AirJoule Technologies LLC</li> </ul>
<b>Latent Energy And Water Harvesting System</b>	<ul style="list-style-type: none"> <li>▪ 10/1/2021</li> <li>▪ 9/30/2022</li> </ul>	<ul style="list-style-type: none"> <li>▪ Taiwan 111137211</li> </ul>	<ul style="list-style-type: none"> <li>▪ AirJoule Technologies LLC</li> </ul>
<b>Latent Energy Harvesting</b>	<ul style="list-style-type: none"> <li>▪ 10/1/2021</li> <li>▪ 12/8/22/2022</li> </ul>	<ul style="list-style-type: none"> <li>▪ Pct/US22/8134</li> </ul>	<ul style="list-style-type: none"> <li>▪ AirJoule Technologies LLC</li> </ul>
<b>Latent Energy Harvesting</b>	<ul style="list-style-type: none"> <li>▪ 10/1/2021</li> <li>▪ 12/8/22/2022</li> </ul>	<ul style="list-style-type: none"> <li>▪ Taiwan 111147076</li> </ul>	<ul style="list-style-type: none"> <li>▪ AirJoule Technologies LLC</li> </ul>
<b>Water Recovery System Including Integrated Contactor with Thermally-Enhanced Recovery System and Method for Fluid Capture using a Cross-Linked Binder</b>	<ul style="list-style-type: none"> <li>▪ 2/5/2021</li> </ul>	<ul style="list-style-type: none"> <li>▪ US11739506</li> </ul>	<ul style="list-style-type: none"> <li>▪ GE Infrastructure Technology LLC</li> </ul>
<b>Artificial Intelligence-Guided Molecular Screening for Coordination Framework Compounds</b>	<ul style="list-style-type: none"> <li>▪ 9/14/2022</li> </ul>	<ul style="list-style-type: none"> <li>▪ US17/932,158</li> </ul>	<ul style="list-style-type: none"> <li>▪ GE Infrastructure Technology LLC</li> </ul>
	<ul style="list-style-type: none"> <li>▪ 3/3/2023</li> </ul>	<ul style="list-style-type: none"> <li>▪ US63/488,307</li> </ul>	<ul style="list-style-type: none"> <li>▪ GE Infrastructure Technology LLC</li> </ul>

# AIRJOULE® COMPARATIVE ANALYSIS

AIRJOULE® PROVIDES TRANSFORMATIONAL MOISTURE REMOVAL EFFICIENCY FOR ATMOSPHERIC WATER HARVESTING, DEHUMIDIFICATION, AND HVAC, AS COMPARED TO OTHER TECHNOLOGIES, OLD AND NEW

	Existing Atmospheric Water Harvesting	Existing State-of-the-Art Dehumidification	Conventional HVAC Technology	AirJoule®	The AirJoule Advantage
<b>Selected Industry Participants</b>					
<b>Technology</b>	Vapor compression refrigerant systems / hybrid desiccant <sup>(2)</sup>	Desiccant-based systems	Vapor compression refrigerant systems	Advanced sorbents with energy-efficient pressure swing system	<b>Transformational Technology</b>
<b>Applications</b>	Atmospheric water harvesting	Moisture control Water recapture	Moisture control	Atmospheric water harvesting Moisture control Water recapture	<b>Comprehensive</b>
<b>External Heat (Power)</b>	Requires significant external heat			No external heat	<b>Minimizes energy requirements</b>
<b>Refrigerants</b>	Utilizes refrigerants <sup>(2)</sup>	No refrigerants	Utilizes refrigerants	No refrigerants	<b>No refrigerants</b>
<b>Efficiency - WH/L (Watt-hours/Liter)</b>	<b>315 - 450 WH/L <sup>(2)</sup></b>	<b>&gt; 1,300 WH/L</b>	<b>350 - 450 WH/L</b>	<b>Expected at &lt; 200 WH/L <sup>(3)</sup></b>	<b>Most efficient</b>
<b>Total Cost of Ownership (\$ / L)<sup>(1)</sup></b>	<b>\$0.06 - \$0.20</b>	<b>&gt;\$0.15</b>	<b>n/a</b>	<b>Expected at &lt; \$0.03</b>	<b>Lowest cost</b>

**With its expected efficiency, AirJoule®'s transformational technology will be the world's most efficient and lowest cost solution for converting atmospheric moisture to water.**

Source: Publicly available information from company filings, company websites, and press releases

1. Assumes \$100 / MWh power cost and includes purchase price
2. Management believes most atmospheric water harvesting technologies use vapor compression refrigerant systems. However, SOURCE Global (<https://www.source.co/>) is a solar-powered system and does not utilize refrigerants, but with limited water output

3. Based on internal calculations of expected performance



# ATMOSPHERIC MOISTURE IS A CHALLENGE AND OPPORTUNITY

AIRJOULE®'S TECHNOLOGY HARVESTS PURE DISTILLED WATER FROM AIR

## Key Challenges and Opportunities in HVAC

### Conventional air conditioning requires significant energy and environmentally-harmful refrigerants

- 120-year-old process relies on vapor compression of refrigerants to remove heat and moisture from the air stream
- Air conditioning and electric fans account for ~10% of global electricity consumption<sup>(1)</sup>

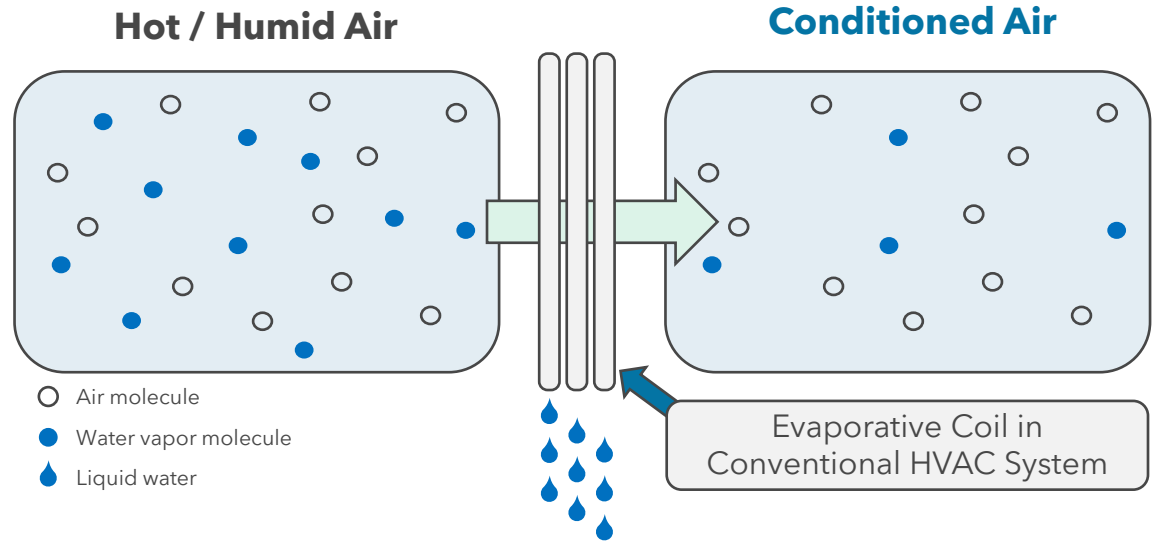
### Humidity control / moisture removal is a critical aspect of air conditioning

- Moisture must be removed from the ambient air during the air conditioning process through condensation

### Moisture removal requires additional energy consumption in HVAC systems

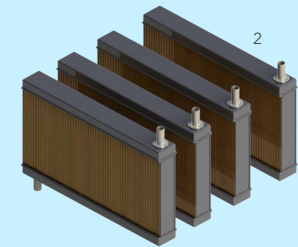
- Condensed water is typically discarded as a waste byproduct of air conditioning

## Illustrative Traditional Air Conditioning Concept



## AirJoule® technology provides for an unprecedented reduction in energy consumption for moisture removal and the elimination of refrigerants in the cooling process by commercializing MOFs

- MOFs are the Company's core technology
- MOF-coated contactors would replace traditional evaporative coils
  - 4 - 11x performance improvement over baseline regarding the moisture removal efficiency
  - Up to 75% energy savings compared to conventional HVAC technology
- Water is removed and harvested at such a high rate and low cost that the technology can be utilized by industries and societies to mitigate water scarcity





## Appendix B.

# Total Addressable Market

# HVAC GROWTH AND ELECTRICITY DEMAND

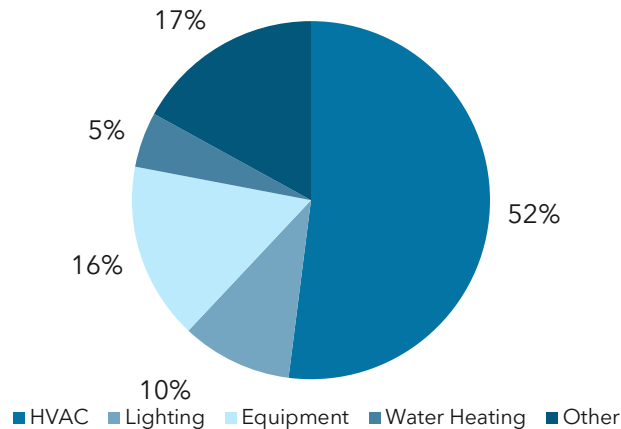
HVAC REPRESENTS A SIGNIFICANT DRIVER OF ELECTRICITY DEMAND GROWTH AS GLOBAL TEMPERATURES CONTINUE TO RISE AT AN ACCELERATED RATE

## Key Trends in Electricity Demand from HVAC

### HVAC accounts for about 10% electricity demand worldwide<sup>(1)</sup>

- HVAC represents about 52% of electricity consumption in commercial buildings<sup>(2)</sup>

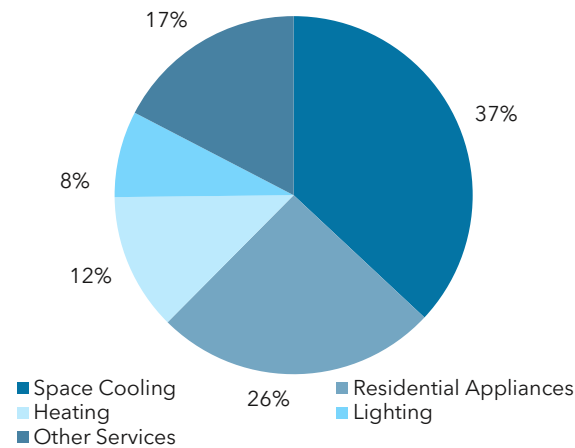
Energy Consumption Breakdown in Commercial Buildings in the U.S.<sup>(2)</sup>



### HVAC will be a key driver of electricity demand growth globally

- Cooling alone is expected to drive 37% of electricity demand growth globally until 2050<sup>(3)</sup>

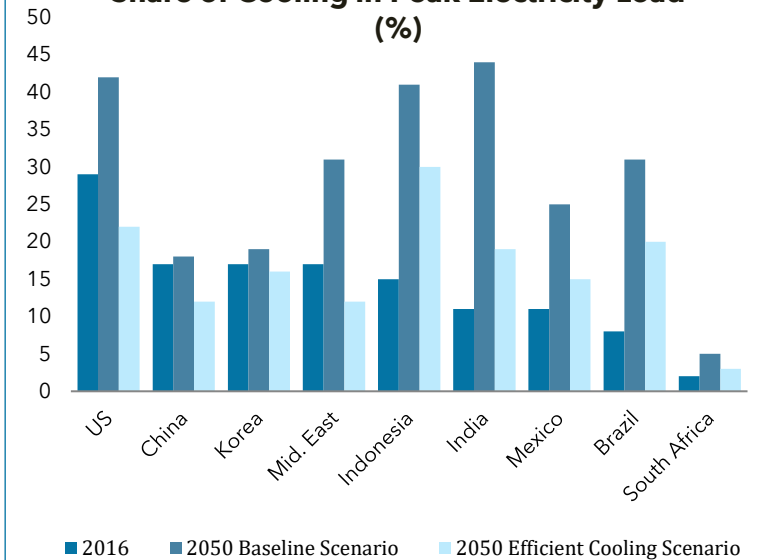
Global Electricity Demand Growth from 2018-2050 by Category<sup>(3)</sup>



### HVAC will drive peak electricity demand, particularly in hot countries

- In India, the share of electricity demand from cooling in system peak load is expected to increase from 10% in 2016 to 44% in 2050<sup>(1)</sup>

Share of Cooling in Peak Electricity Load (%)



1. International Energy Agency (IEA) - The Future of Cooling. Source: <https://www.iea.org/reports/the-future-of-cooling>  
 2. U.S. Energy Information Administration. Source: <https://www.eia.gov/todayinenergy/detail.php?id=55199#>  
 3. Statista - Air Conditioning Biggest Factor in Growing Electricity Demand. Source: <https://www.statista.com/chart/14401/growing-demand-for-air-conditioning-and-energy/>

# HVAC TOTAL ADDRESSABLE MARKET ("TAM")

THE HVAC MARKET IS EXPECTED TO GROW SIGNIFICANTLY, IN LINE WITH RISING DEMAND FOR COST-EFFECTIVE AND ENERGY-EFFICIENT TECHNOLOGIES

## Commentary

### Global market projected to grow at a 5.27% CAGR from 2023-2032<sup>(1)</sup>

- Market growth is driven by the rising need for space cooling and heating applications in the commercial and industrial sectors
- Favorable government initiatives and tax rebates on energy-saving products are also contributing to demand for new technology

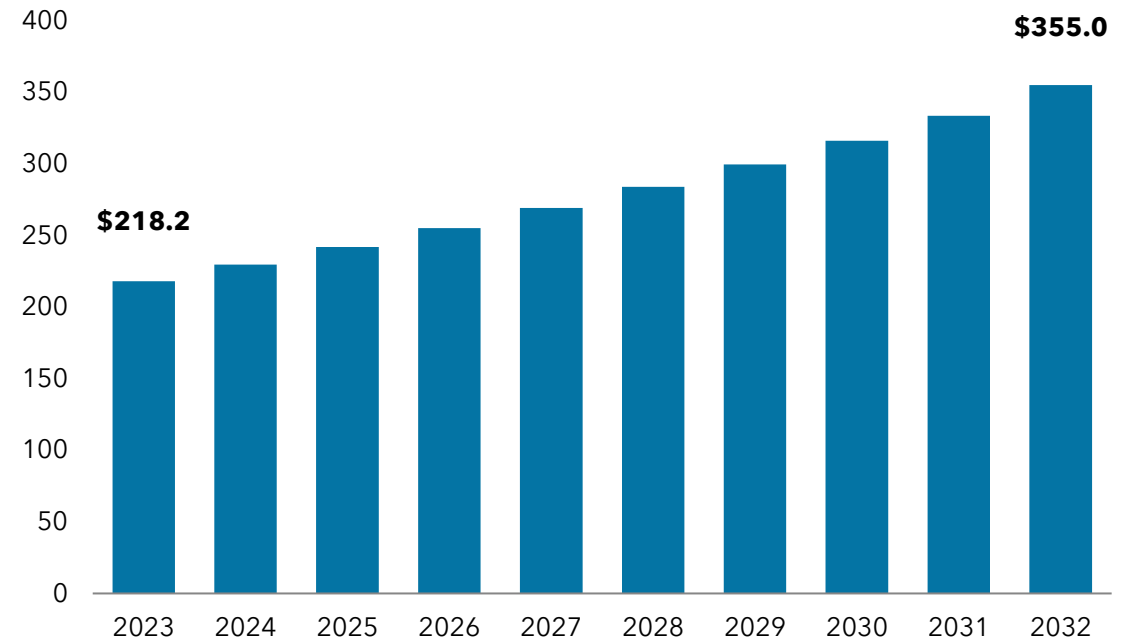
### Heavy demand from commercial industry

- Commercial applications in large offices, manufacturing plants, warehouses, data centers, etc. require extensive HVAC systems to regulate temperature
- More than 40% of the 2023 HVAC market share was allocated to commercial properties<sup>(2)</sup>

### Geographical trends, preferences, and siting drive demand imbalance

- Factors such as climate, economic development, and regulatory policies impact adoption / implementation of HVAC systems
- In developed regions like North America and Europe, there is strong demand for energy-efficient systems with high ratings

## Global Annual Market Size (\$Bn)<sup>(1)</sup>



**HVAC total addressable market is approximately \$355 billion<sup>(1)</sup>**

1. The Brainy Insights - HVAC System Market Size. Source: <https://www.thebrainyinsights.com/report/hvac-system-market-12572>  
2. Prescient & Strategic Intelligence - HVAC Market Size & Share Analysis. Source: <https://www.psmarketresearch.com/market-analysis/hvac-market>



# ATMOSPHERIC WATER HARVESTING ("AWH) TAM

THE AWH MARKET IS EXPECTED TO EXPERIENCE MASSIVE GROWTH; THE GLOBAL MARKET FOR WATER WILL RISE AS WATER SCARCITY PRESSURES MOUNT IN TANDEM WITH A GROWING POPULATION

## Commentary

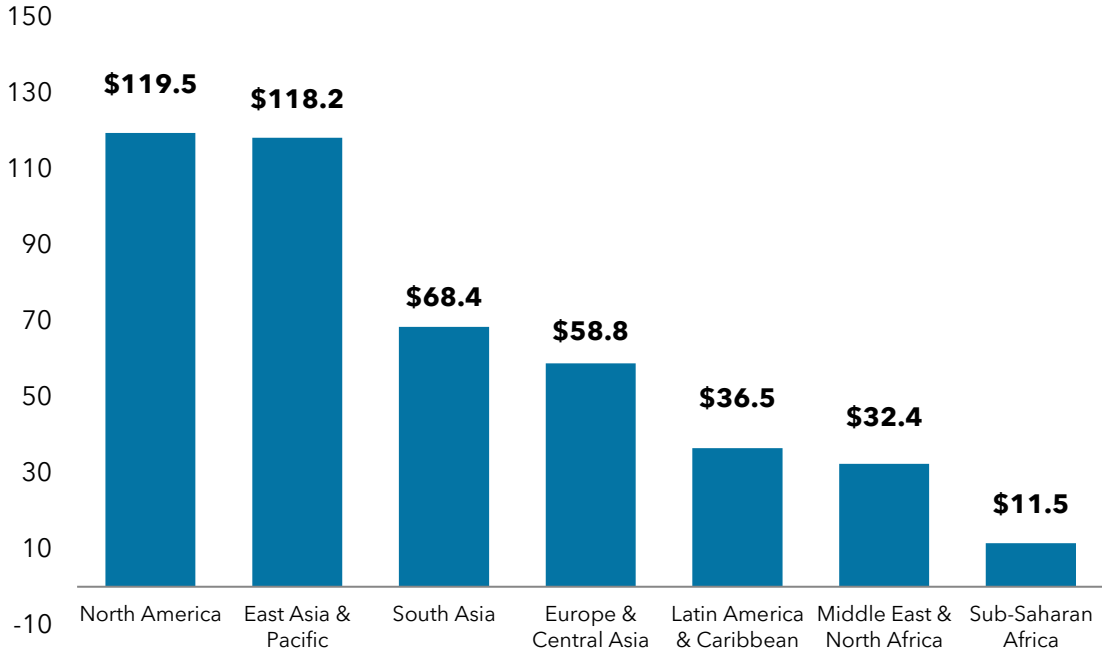
### Water scarcity drives need for AWH

- Less than 1% of water on earth is usable for residential, commercial, agricultural, and industrial purposes
- Water demand has grown by 40% in the past 40 years, yet water supply has halved since 1970<sup>(1)</sup>
- As water scarcity worsens, \$70T of global GDP (31%) could be exposed to high water stress by 2050, up from \$15T (24%) in 2010<sup>(1)</sup>
- Market size is untested as the market has not yet fully felt the impact of water scarcity. However, the scale of the market is in the hundreds of billions of dollars

### Increasing demand from data centers

- In the US, data centers consume ~660Bn liters of water each year, making this market one of the largest consumers of water<sup>(1)</sup>
- Water usage to cool power systems in data centers has grown significantly in recent years, as the amount, and size, of the facilities have dramatically increased

## Annual Cost Until 2030 to Address Water Scarcity (\$Bn)<sup>(1)</sup>



**Atmospheric Water Harvesting TAM is approximately \$100 billion<sup>(2)</sup>**

1. Bank of America - Global Water Scarcity: H2O No! Source: <https://institute.bankofamerica.com/content/dam/bank-of-america-institute/sustainability/global-water-scarcity.pdf>  
 2. Illustrative. Based on management estimates

# WATER USE IN DATA CENTERS IS GROWING

DEPLOYMENT OF AIRJOULE® IN DATA CENTERS CAN REDUCE STRESS ON MUNICIPAL WATER SYSTEMS

## Data Center Water Usage

Data centers use large quantities of water for their cooling systems, including cooling towers, chillers, pumps, pipes, heat exchangers, condensers, and computer room air handler units

- Water, while critically important to data center operations, is only a small component of operating expense (~1%)
- Data centers source most of their water from municipal water systems

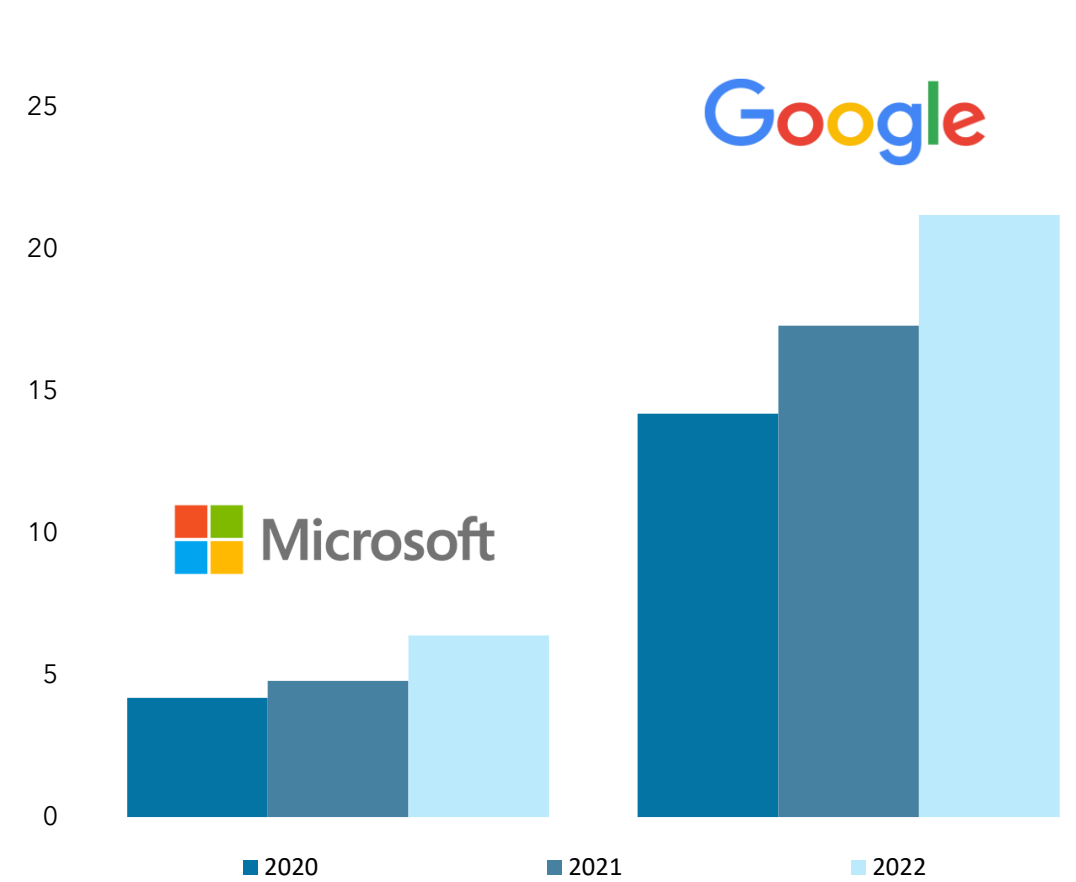
### Data center water usage already causes stress on water sources

- About 20% of data centers in the US already rely on watersheds that are under moderate to high stress from drought and other factors<sup>(1)</sup>
- The average data center uses 200k gallons of water/day, roughly equivalent to water use in 100k homes<sup>(2)</sup>

### Largest cloud / data center companies have announced commitments to be water positive by 2030

- Microsoft's data center strategy targets reducing water intensity by 40% by 2030, replenishing more water than they use and breaking the relationship between AI growth and consumption<sup>(3)</sup>
- Google has a water replenishment target of 120% of water they consume across their offices and data centers by 2030<sup>(4)</sup>
- Amazon Web Services aims to achieve water positivity by 2030<sup>(5)</sup>

## Large Tech Water Consumption (million m<sup>3</sup>/yr)<sup>(3)(4)</sup>



1. NPR - Data centers, backbone of the digital economy, face water scarcity and climate risk. Source: <https://www.npr.org/2022/08/30/1119938708/data-centers-backbone-of-the-digital-economy-face-water-scarcity-and-climate-ris>

2. Lenovo - The world's AI generators: rethinking water usage in data centers to build a more sustainable future. Source: <https://news.lenovo.com/data-centers-worlds-ai-generators-water-usage/#:~:text=NPR%20reports%20the%20average%20data,generated%20by%20the%20IT%20equipment>

3. Microsoft - 2024 Environmental Sustainability Report. Source: <https://www.microsoft.com/en-us/corporate-responsibility/sustainability/report>

4. Google - 2023 Environmental Report. Source: <https://www.gstatic.com/gumdrop/sustainability/google-2023-environmental-report.pdf>

5. Amazon - 2022 Sustainability Report. Source: <https://sustainability.aboutamazon.com/2022-sustainability-report.pdf>

# HVAC & WATER REGULATORY TAILWINDS

AIRJOULE TECHNOLOGIES IS WELL-POSITIONED TO BENEFIT FROM ACCELERATED PHASE-OUT OF REFRIGERANTS, INCREASING RESTRICTIONS ON WATER USAGE, AND TAX CREDITS FOR ENERGY EFFICIENCY

## Phase-Out of Refrigerants for HVAC

### EPA's AIM Act set to curtail refrigerant emissions in the US<sup>(1)</sup>

- Legislation mandates a phasedown of global warming potential hydrofluorocarbon refrigerants, common components in refrigeration and air conditioning
- The AIM Act provides authority to the EPA to facilitate the transition to next-generation technologies

### Clean Air Act amendments continue to phase out hydrochlorofluorocarbons ("HCFC"s)<sup>(2)</sup>

- All virgin HCFC refrigerants are scheduled to be phased out by 2030
- The Clean Air Act, and its various amendments, aim to promote responsible use practices in the air conditioning and refrigeration industry

### New York has proposed ambitious rule banning HCFCs with a 20-year Global Warming Potential of greater than 10<sup>(1)</sup>

- Rule would apply for equipment with more than 50lbs of refrigerant
- Rule would come into effect in January 2025

## Restrictions on Water Usage

### Significant drain on local reservoirs has led to pushback on data center development

- In 2019, Google agreed to limit its use of groundwater in South Carolina after a two-year battle with local groups raising concerns that aquifers were depleted<sup>(3)</sup>

### In Chile, data center permits have been revoked over water usage

- An environmental court in Santiago, Chile, has partially reversed Google's permit to build a \$200MM data center in the city of Cerrillos
- Google was told by the court to "incorporate the consideration of climate change's effects in the evaluation of the water component, taking into account a possible modification of the cooling system of the servers associated with the project"<sup>(4)</sup>

## Energy Efficiency Tax Credits

### Energy-efficient commercial buildings deduction (Section 179D)

- Applicable to interior lighting systems, heating, cooling, ventilation, and hot water systems. Must be installed as part of a plan designed to reduce the total annual energy and power costs
- HVAC systems must cut costs by 15%, and are eligible for a \$0.63/ft<sup>2</sup> tax deduction

### Energy-efficient home improvement credit (Section 25C)

- A consumer tax credit for 30% of energy-efficiency related improvement expenditures for residential homes. Energy-efficient building property includes electric water & air heat pumps, central A/C units, and water heaters

- ACHR News - New York's Proposed HFC Rules Face Heat from Critics. Source: <https://www.achrnews.com/articles/154389-new-yorks-proposed-hfc-rules-face-heat-from-critics>
- Hudson Technologies - 10-K SEC Filing. Source: <https://app.quotemedia.com/data/downloadFiling?webmasterId=101533&ref=318161611&type=PDF&cdn=24176e65e735238bed8ee463676d35b6&formType=10-K&dateFiled=2024-03-14&cik=0000925528>
- NPR - Data centers, backbone of the digital economy, face water scarcity and climate risk. Source: <https://www.npr.org/2022/08/30/1119938708/data-centers-backbone-of-the-digital-economy-face-water-scarcity-and-climate-ris>
- Data Center Dynamics - Chile partially reverses Google data center permit over water use concerns. Source: [https://www.datacenterdynamics.com/en/news/chile-partially-reverses-google-data-center-permit-over-water-use-concerns/#:~:text=With%20Uruguay%20also%20facing%20an%20extreme%20drought%2C,liters%20\(2%20million%20gallons\)%20of%20potable%20water](https://www.datacenterdynamics.com/en/news/chile-partially-reverses-google-data-center-permit-over-water-use-concerns/#:~:text=With%20Uruguay%20also%20facing%20an%20extreme%20drought%2C,liters%20(2%20million%20gallons)%20of%20potable%20water)
- DOE - 179D Commercial Buildings Energy-Efficiency Tax Deduction. Source: <https://www.energy.gov/eere/buildings/179d-commercial-buildings-energy-efficiency-tax-deduction>



# Appendix C.

## Board of Directors

# AIRJOULE TECHNOLOGIES - BOARD OF DIRECTORS

ACCOMPLISHED BOARD WITH DIVERSE AREAS OF EXPERTISE



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