

# Analyst Presentation: Global Industrial Water Market Overview



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Presented by:



# Overview

## BACKGROUND

The industrial sector's increasing demand for advanced water and wastewater solutions, spanning the entire process from supply to discharge, is gaining significant traction, globally. This market is characterized by diversity and fragmentation, with geographical and vertical distinctions influencing strategies for water and wastewater management.

Bluefield's role is to support clients by tracking the pivotal shifts across the varied industrial verticals and assess the potential implications for water and wastewater management.

- **The energy transition:** As global pressure to reduce carbon emissions accelerates, 'dirty' power generation sources (e.g., coal) are on the decline, and cleaner sources (e.g., wind, solar) are gaining market share. The transition impacts numerous sectors' water usage and management, from power to mining.
- **Rising data demand:** The digital revolution and growing interest in artificial intelligence has increased the need for data centers, contributing to explosive growth in water consumption.
- **Corporate sustainability:** Growing stakeholder demand to improve the sustainability of operations is pressuring companies to set water management targets and ramp up investments in water efficiency, conservation, and reuse.

Bluefield analyzes key verticals in the industrial water space including automotive, chemicals, data centers, food & beverage, mining, oil & gas, power, pulp & paper, and semiconductors, providing up-to-date market forecasts and competitive analysis.

## TAKEAWAYS

- Globally, industrial water use comprises 19% of water withdrawals, surpassing municipal demand. Large quantities of water consumption and discharge from industrial sites—ranging from power plants to paper manufacturing facilities—can have significant impacts on local watersheds and utility infrastructure.
- Bluefield tracks industrial facility counts in the U.S. on a quarterly basis, serving as a benchmark for industry growth. Greenfield facilities require water & wastewater management spend, whether for on-site treatment plants or infrastructure to connect to local municipalities. On the other hand, existing facilities serve as a potential opportunity for water & wastewater management infrastructure upgrades to meet increasingly stringent regulations, address emerging contaminants (e.g., PFAS), and achieve corporate water conservation targets.
- Market disruptors—new technologies, climate change—reshape how companies are investing in water and wastewater. To mitigate water-related climate risks, facilities may install an array of technologies to combat water availability or flooding concerns. Technologies include water reuse systems and rain harvesting tanks to reduce reliance on source water.
- Compared to municipal water, the industrial water market is faster moving with greater capital availability, making it an attractive segment for investment and solution deployment. Leaders in the space (e.g., Veolia, Ecolab, Xylem, Saur) offer a wide array of products and services to cover multiple industrial verticals with varying water & wastewater needs.

*Built on years of data and analysis, Bluefield Research's [Industrial Water Corporate Subscription](#) has become a key resource for companies across the value chain to identify the key verticals, trends, and growth opportunities that stand out in an already crowded field with increasing competition.*

## Industries

Chemicals

Data Centers

Food & Beverage

Mining

Oil & Gas

Power

Pulp & Paper

Semiconductors

Other Manufacturing

## Input Water Applications

Cooling Water



Ultra-pure Water



Process Water



Resource Extraction



Boiler Water



Cleaning



Pollution Control



In End Product



## Resulting Wastewater Challenges

Wastewater challenges vary across industries, geography, and facilities.

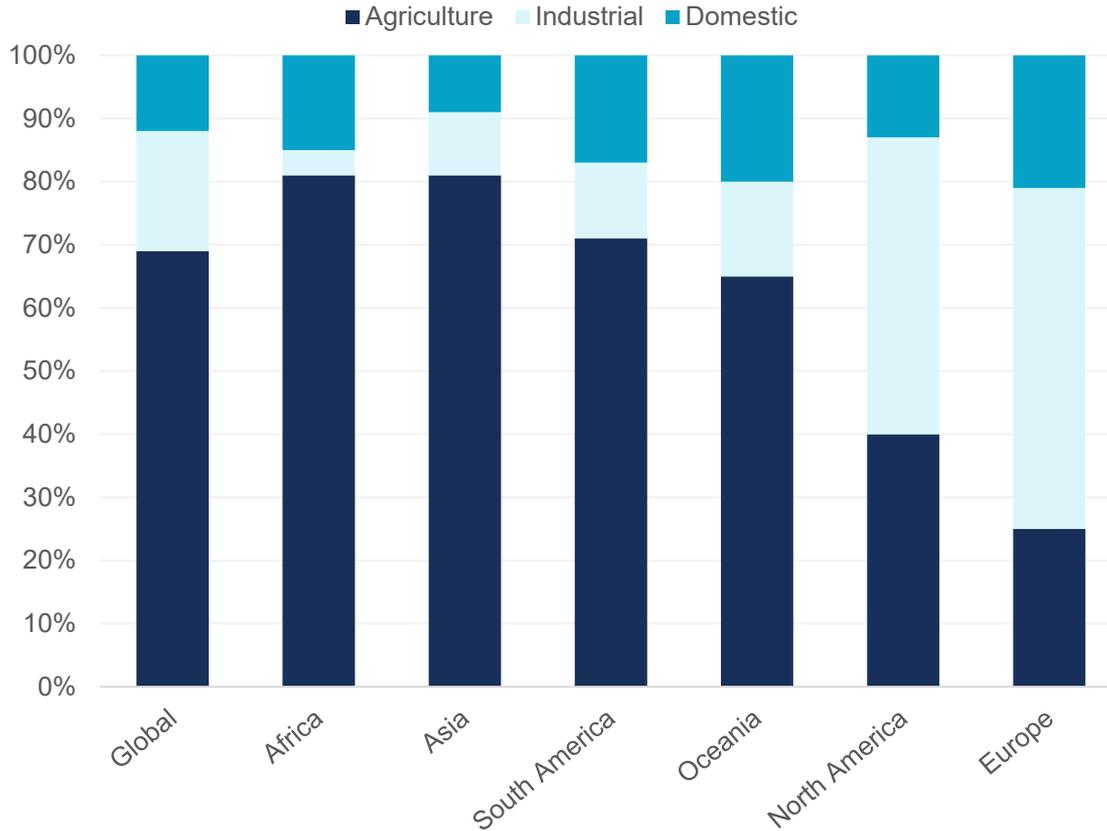
### Example wastewater challenges:

- pH
- Temperature
- Total suspended solids
- Chemical oxygen demand
- Biological oxygen demand
- High organic levels—common characteristic of the food & beverage manufacturing industry
- Trace heavy metals (lead, zinc, nickel, copper, etc.)—common in the battery manufacturing and mining industries
- Harmful contaminants (arsenic, various acids)—common in the semiconductor and pulp & paper industry

Source: Bluefield Research

Bluefield takes a broad view of industrial water, identifying key opportunities and market shifts across verticals ranging from power generation to semiconductor manufacturing.

## Water Withdrawal by Sector



### Takeaways

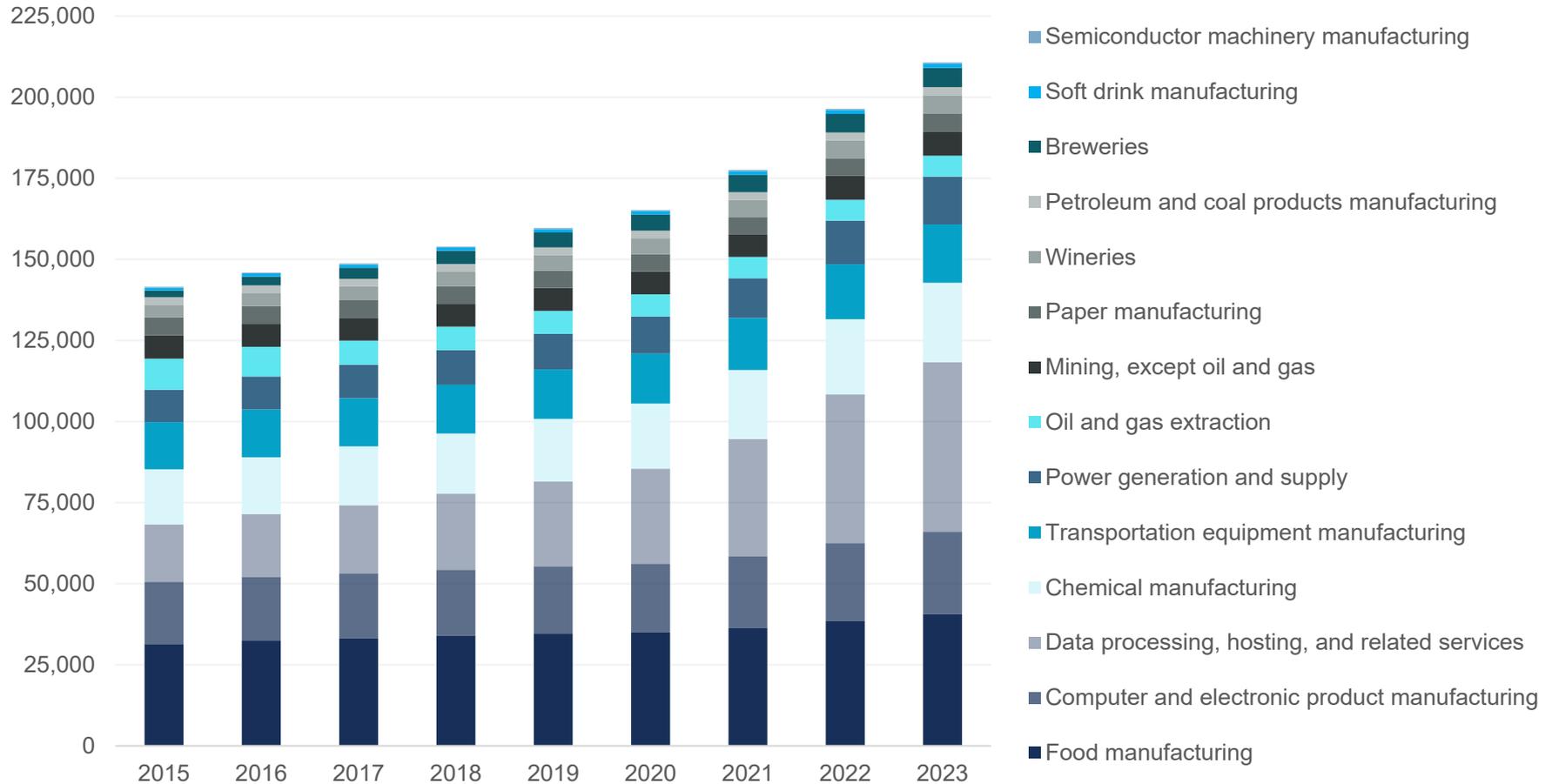
#### High water use exposes companies to water-related risks.

- The global gap between water supply and demand is expected to reach 56% by 2030, according to the World Resources Institute.
- Water scarcity is a business risk, as inadequate supplies can hinder production or increase operating costs as more expensive, alternative sources are implemented (e.g., trucking in water).
- Water & wastewater is estimated to contribute 10% of global greenhouse gas emissions due to high energy requirements for pumping, treatment, heating, and cooling, putting further pressure on industry to improve efficiencies.

Source: Food and Agriculture Organization of the United Nations, AQUASTAT, Bluefield Research

Industrial water usage represents a significant share of global withdrawals, surpassing municipal demand, in turn creating significant opportunities for water solutions providers.

## U.S. Industrial Facilities Count, Q2 2015–Q2 2023



Source: U.S Bureau of Labor Statistics, Bluefield Research

Since 2015, industrial facility counts have grown at a CAGR of 5.1%. While signaling overall growth, underlying, sector-specific data highlights more nuanced variability, from emerging high-growth sectors to more mature.

## Key Industrial Water Drivers



### Water Stress

Large water requirements of industrial facilities place pressure on local watersheds. In areas of high-water stress, companies are increasingly focused on securing water supplies and optimizing water use.



### Population Trends

Population growth impacts numerous industries, as an increase in the number of consumers boosts demand, from tissue in the pulp & paper industry to changing energy demands in the power industry.



### Water Quality Concerns

Emerging contaminants (e.g., PFAS) are a concern for manufacturing facilities, especially those with water in direct contact with products. Feedwater must be pre-treated to mitigate risks.



### Economic Growth

A growing economy requires inputs for new production including materials and minerals, which need to be extracted and manufactured, in turn driving greater industrial water withdrawals and wastewater discharges.



### Regulation

Tighter environmental regulations on wastewater discharges from facilities are a constraint as resulting wastewater from manufacturing can contain harmful toxins. Facilities out of compliance face financial penalties and reputational risks.



### Sustainability Initiatives

Increased emphasis on sustainability from the public and investors has led companies to set water conservation goals, with additional funding allocated to meet targets.



### Industrial Policy Incentives

Industry-specific policy (e.g., Inflation Reduction Act, CHIPS Act) can impact manufacturing and associated water management spend.



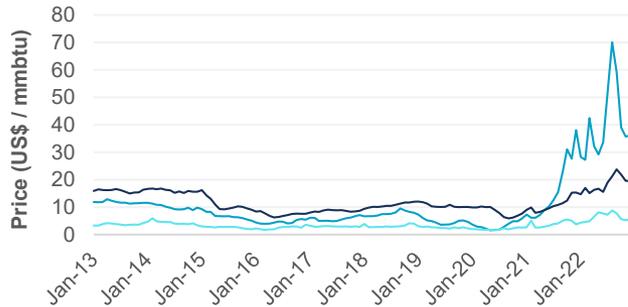
### Cost Effectiveness

Poor water management at an industrial site can result in higher water costs and fines for noncompliance with discharge regulations.

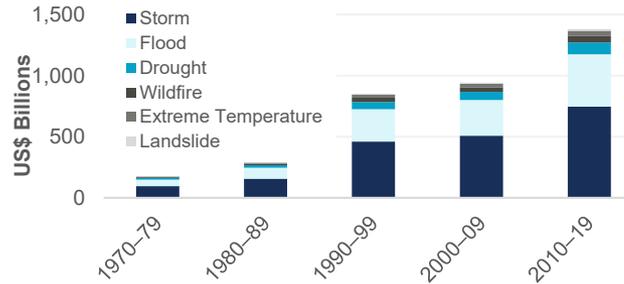
Source: Bluefield Research

**Industrial water is shaped by a range of drivers ranging from policies to water risks. Various factors can increase the emphasis on water and wastewater management from corporates.**

Natural Gas Market Prices, January 2013–2023



Global Economic Losses from Climate Disasters

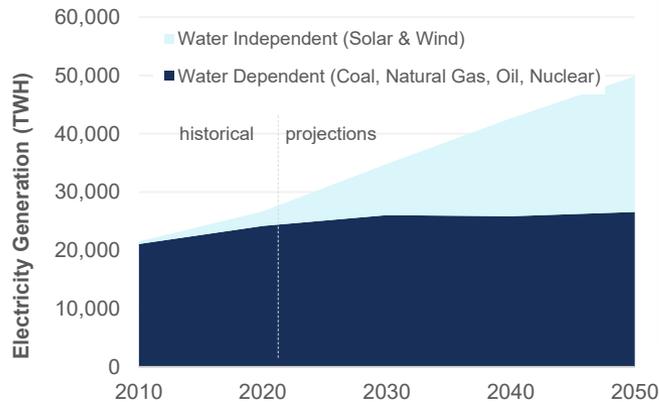


## Takeaways

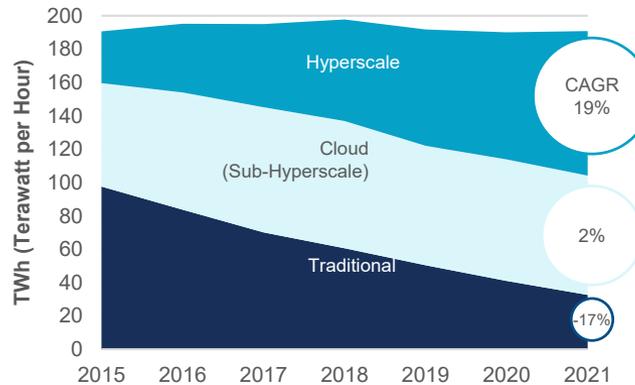
**Companies are placing greater emphasis on sustainable water and wastewater management.**

- Scaling natural gas prices (up 1,600% in Europe, 217% in the U.S., and 95% in Japan) have heightened the global focus on climate, sustainability, and industrial energy inputs.
- The global energy transition (i.e., fuel switching) will remake the market opportunities for water management across the upstream oil & gas and electric power sectors. Solar & wind's share of global electricity generation is projected to increase by approximately 20% and 14% by 2050, respectively.
- The rising costs and associated risks with climate disasters—reaching almost US\$15 trillion in the last decade—are driving a greater focus on water issues and management strategies across both governments and corporate boardrooms.
- Advanced digital technologies (e.g., AI, IoT) are increasingly changing water management strategies, whether for remote monitoring, asset management, or industrial operations. Deploying new digital solutions requires technical expertise.

World Power Generation



Hyperscale Data Center, 2015–2021

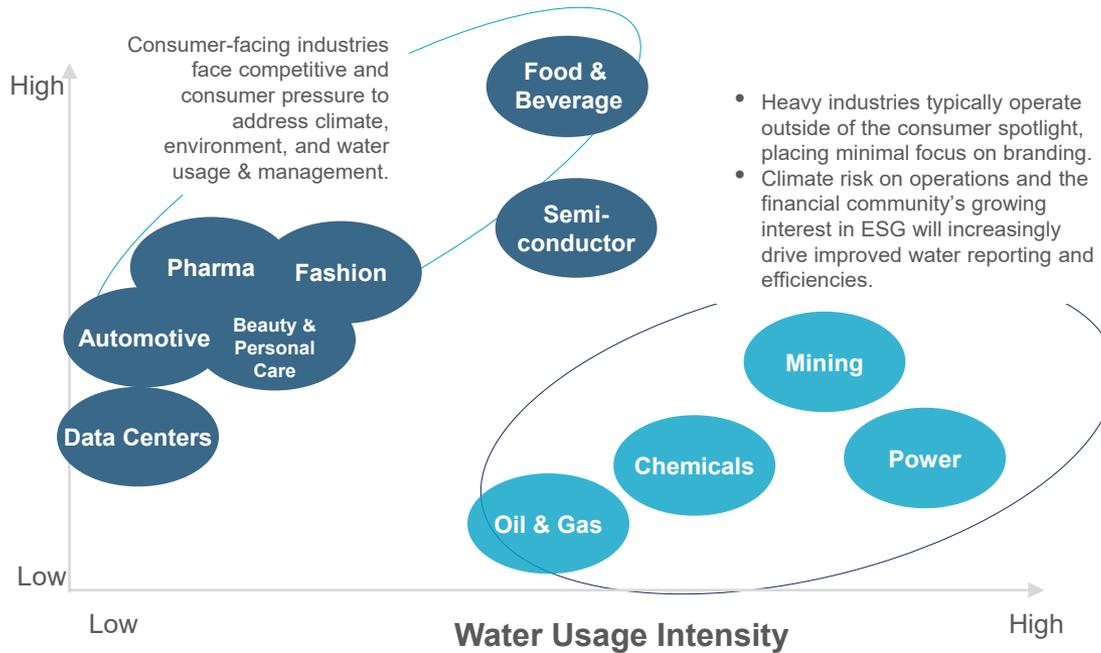


Source: World Bank Commodity Price Data, International Energy Agency, Bluefield Research

**The industrial landscape is changing in the wake of geopolitical uncertainty, growing climate risks, and new technologies (e.g., renewables, IoT) that are reshaping water demand and management across verticals.**

## Comparing Industry Water Goal Setting and Water Use

Number of Companies with Water Targets



Source: Companies, Bluefield Research

### Takeaways

**As companies continue to place increasing importance on sustainable water management, water use intensities are expected to decrease.**

- Heavy industrial players stand out largely due to their extremely high rate of water consumption, with power, mining, and chemicals all exceeding 2.50 m<sup>3</sup> per US\$1,000 of revenue.
- The scale and heavy fragmentation of the food & beverage sector drive its water-to-revenue ratio upward, making it the most water-intensive light industrial sector.
- The lack of reporting and operational transparency (including suppliers) in the fashion and technology sectors raises uncertainty around water use intensity rates—currently estimated at 0.19 m<sup>3</sup> and 0.03 m<sup>3</sup> per \$1,000 of revenue, respectively.
- While receiving heavy scrutiny from local stakeholders, data center companies rank lowest in terms of water use intensity. These companies are increasingly turning to more efficient cooling systems and onsite reuse systems to address operational energy and water risks.

Water usage is increasingly making its way into corporate sustainability plans, shedding light on potential water-related risks to businesses and their stakeholders.

## Water Value Chain: Products and Services

System Procurement	Hardware & Equipment		Consumables	Operation and Maintenance Services			
Engineering Services	Equipment / Technology Sales	Equipment / Technology Rental	Chemicals	Services & Support	O&M Contracts	Emergency (On call) Services	Digital Monitoring
<ul style="list-style-type: none"> <li>• Single-source system install</li> <li>• Design-build</li> <li>• Turnkey EPC</li> </ul>	<ul style="list-style-type: none"> <li>• Feed pumps, tanks</li> <li>• Meters, filtration</li> <li>• RO membranes</li> <li>• Ion-exchange</li> <li>• Biological Treatment</li> <li>• Physical treatment</li> </ul>	<ul style="list-style-type: none"> <li>• Containerized treatment systems</li> <li>• Decentralized treatment systems</li> <li>• Water purchase agreement</li> </ul>	<ul style="list-style-type: none"> <li>• Raw chemicals</li> <li>• Chemical blends</li> <li>• Test kits</li> <li>• Filters</li> <li>• Resins</li> </ul>	<ul style="list-style-type: none"> <li>• Replacement</li> <li>• Repairs</li> <li>• Laboratory analysis</li> <li>• System assessment</li> <li>• Program advise</li> <li>• Trials / pilots</li> <li>• System start-up</li> </ul>	<ul style="list-style-type: none"> <li>• Operation with dedicated staff</li> <li>• Maintenance contracts</li> </ul>	<ul style="list-style-type: none"> <li>• Emergency deliveries</li> <li>• Emergency support</li> </ul>	<ul style="list-style-type: none"> <li>• Cloud-based data acquisition</li> <li>• Remote monitoring, analytics</li> <li>• Customer portal</li> </ul>

Source: Bluefield Research

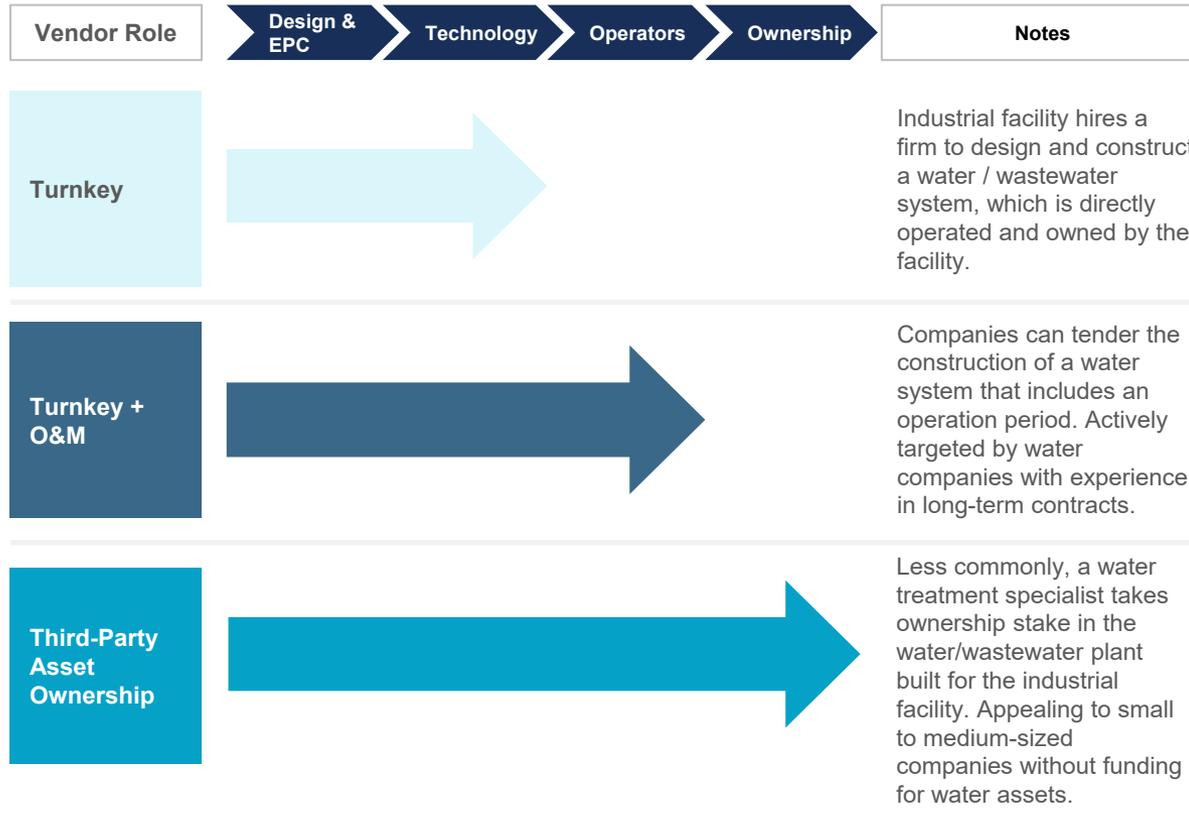
### Takeaways

#### Vendors often hold a range of positions along the industrial water value chain.

- Some firms offer integrated portfolios of products and solutions, while others specialize in more targeted segments.
- O&M services allow vendors to secure the after-sale market, through replacements (particularly if proprietary technology) and direct O&M.
- Third-party O&M can provide a business opportunity when consulting services are initially procured to assess a treatment system and its issues.
- The consumable segment is highly commoditized, without significant pure-plays. The market is composed of a fragmented group of distributors that do not necessarily produce their own consumables.
- Vendors active in the equipment sale and rental segments also supply consumable products that align with their portfolios (e.g., filters for filtration systems).

 The value chain spans a wide range of offerings, with multiple entry points that can be cleared through organic growth, M&A, and partnerships.

## Vendor Service Models and Opportunities



Source: Bluefield Research

### Takeaways

**More flexible vendor offerings, enabled by digital solutions, and more complex water management are driving new opportunities.**

- Large facility owners increasingly rely on third-party management of their water and wastewater operations, including shifting to this model when updating treatment equipment.
- As systems scale up and continue to complexify, some industrial plants tender for the construction of a system that includes an operation period. Water companies with experience in long-term contracts are actively pursuing these projects, as are water O&M specialists looking for higher margins than those found in traditional municipal utility O&M contracts.
- The oil & gas and mining industries demonstrate additional business models, such as an externalized service model. While still rare, these contract structures—where the facility owner fully delegates water supply and handling of water to the service provider, which is designed and built by an engineering consultant—are increasingly appealing to small and medium-sized companies without financial or risk capacity for water operations.

 Industrial vendors deploy a mix of business models—turnkey delivery to third party O&M—to address the highly variable needs of clients and customers.

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Clients of this service receive access to interactive data dashboards on industrial water opportunities.

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- Industrial Consent Decrees
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RESEARCH

Global companies across the value chain are developing strategies to capitalize on greenfield opportunities in water – new build, new business models, and private investment. Bluefield Research supports a growing roster of companies across key technology segments and industry verticals addressing risks and opportunities in the new water landscape.

Companies are turning to Bluefield for in-depth, actionable intelligence into the water sector and the sector's impacts on key industries. The insights draw on primary research from the water, energy, power, mining, agriculture, financial sectors and their respective supply chains.

Bluefield works with key decision makers at utilities, project development companies, independent water and power providers, EPC companies, technology suppliers, manufacturers, and investment firms, giving them tools to define and execute strategies.

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