Nasdaq Clean Edge Global Water™ Index: Industry Report and Investment Case

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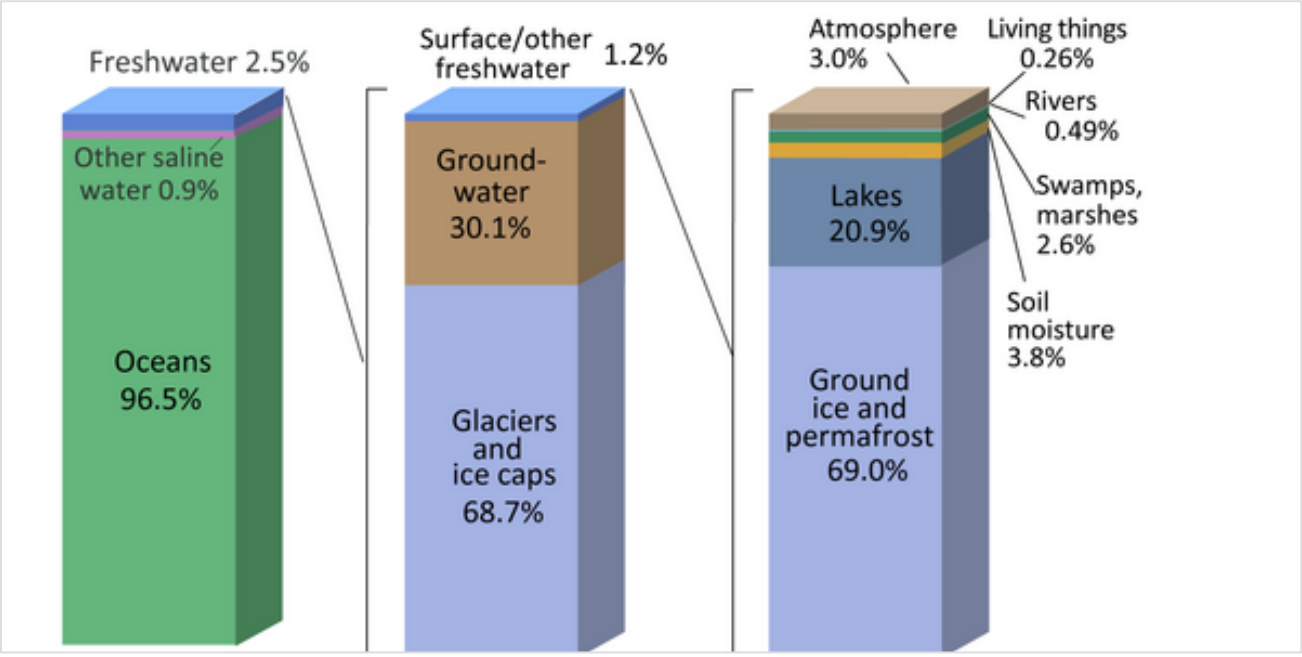
Water Industry Overview:

Resource Scarcity, Major Challenges and Market Fundamentals

While 70% of Earth's surface is covered by water, only 2.5% is freshwater and less than 1% of this freshwater is accessible through traditional sources. This scarcity, compounded by population growth and climate disruption, creates a fundamental supply challenge. By 2050, water use is projected to rise 55%, leaving 40% of the global population in water-stressed regions (Organization for Economic Cooperation and Development)[1]. The water industry offers consistent revenue streams resilient to economic fluctuations, with global demand increasing approximately 1% annually since the 1980s[2].



Credit: U.S. Geological Survey, Water Science School https://www.usgs.gov/special-topic/water-science-school Data source: Igor Shiklomanov's chapter "World fresh water sources" in Peter H. Gleick (editor), 1993, Water in Crisis: A Guide to the World's Fresh Water Resources.

[1] https://www.c40.org/what-we-do/scaling-up-climate-action/water-heat-nature/the-future-we-dont-want/water-availability/
[2] https://www.climateforesight.eu/articles/water-inequality/

The industry faces several critical challenges, with aging infrastructure being the number one concern for water professionals in the past decade. The US loses over 6 billion gallons of water daily through leaky pipes, enough to fill over 200,000 swimming pools, with replacement needs estimated at $472.6 billion[3]. Only 33.6% of North American utilities report being "very able" or "fully able" to cover future service costs. Widespread water contamination is a significant threat to the agriculture space, as it relies on 72% of global freshwater consumption, and the global water supply has been found to contain harmful levels of PFAS (forever chemicals).

Growth Opportunities: Bringing Intelligence to the Water Market

The intelligent water market is projected to grow substantially, with smart water management solutions expected to exceed $50 billion globally by 2028, representing a paradigm shift in how water resources are managed and conserved[4].

Several breakthrough opportunities are emerging, including: Next-generation agriculture (vertical farming and precision agriculture could save 50-180 billion cubic meters of water); advanced filtration (technologies that will drive the water treatment market to a projected $536.41B by 2030); smart water management systems (a projected $45.1B market by 2032); resource recovery from wastewater; and innovative infrastructure investment models. Water reuse systems (sewage to tap) are also gaining acceptance, with Singapore's NEWater plants producing up to 40% of the nation's water supply[5].

The water industry is undergoing a significant transformation through digitization and smart technologies. This shift is designed to address critical challenges such as water scarcity, aging infrastructure, and operational inefficiencies. Below are examples of key developments in bringing intelligence to the water market.

Smart Metering

Smart water meters represent a fundamental technological advancement in the water sector through:

- Real-time consumption monitoring: Advanced meters provide granular data on usage patterns, enabling utilities and consumers to identify consumption trends and anomalies.
- Leak detection: Smart meters can detect unusual flow patterns indicative of leaks, potentially saving 15-20% of distributed water that is typically lost through leakage in urban networks.
- Automated billing: Eliminates manual meter reading, improving accuracy and reducing operational costs.
- Consumer engagement: Customer portals and mobile apps connected to smart meters empower consumers to monitor their usage and adopt conservation practices.

Advanced Analytics and AI

The integration of analytics and artificial intelligence is transforming water management via:

[3] https://infrastructurereportcard.org/cat-item/drinking-water-infrastructure/
[4] https://scoop.market.us/smart-water-management-market-news/
[5] https://medium.com/@pace-ventures/clean-water-clear-conscience-a-deep-dive-into-water-treatment-technologies-545b6ad91dd7

- Predictive maintenance: AI algorithms analyze operational data to forecast equipment failures before they occur, optimizing maintenance schedules.
- Demand forecasting: Machine learning models predict water demand based on historical usage, weather patterns, and demographic data.
- Quality monitoring: Real-time sensors and analytics ensure water quality meets regulatory requirements throughout the distribution system.
- Network optimization: AI-powered hydraulic models optimize pressure management and energy usage across distribution networks.

IoT and Sensor Networks

IoT technology is creating connected water infrastructure by using:

- Distributed sensing: Networks of sensors monitor pressure, flow, quality, and other parameters throughout the water system.
- SCADA integration: Modern IoT platforms integrate with existing Supervisory Control and Data Acquisition systems for comprehensive operational visibility.
- Environmental monitoring: Sensors track watershed conditions, reservoir levels, and climate factors affecting water availability.
- Edge computing: Processing data at the source reduces latency for critical applications like flood warning systems.

The Water-Energy Nexus

In order to understand the water market, it is crucial to explore the interdependence between the water and energy spaces within the broader context of accelerating freshwater depletion due to climate change and other environmental concerns – as well as increasing demand for both resources on an aggregate and per capita basis. New policies are likely needed to address the impact of energy production, which results in complexities in the decisions made in the water space[6]. More specifically, the water-energy nexus faces pressure from electricity-intensive water processes and intensive electricity generation. For example, the electricity-intensive water process of desalination – removing salt from seawater or brackish water – requires significant energy input. Desalination feasibility depends on factors including feed water salinity, temperature, plant design and technology type. The key challenges that face desalination using renewable energy — such as the intermittency of renewable energy sources, the need for off-grid energy storage systems, and the economic viability compared to conventional systems — are yet to be met. The need for energy resource management and continued research to bridge technical gaps in the water-energy nexus for sustainable desalination solutions is growing in importance[7].

Investment Landscape

[6] https://www.iea.org/articles/introduction-to-the-water-energy-nexus
[7] https://www.sciencedirect.com/science/article/abs/pii/S2213138823001662

Alternative funding includes green bonds (which outpaced fossil fuel bonds in H1 2023 at $350 million versus $235 million), the $35 billion Drinking Water and Wastewater Infrastructure Act (2021) in the US, and growing public-private partnerships worldwide. The combination of essential human need, regulatory support, technological innovation potential, and ESG alignment positions water as an attractive long-term investment sector despite substantial challenges.

The sector has seen some significant M&A activity in recent years despite a general slowdown in activity impacting most industries globally. One of the most active participants, Xylem, acquired Evoqua Water Technologies (both its water and wastewater treatment technology companies) for $7.5 billion in May 2023, a landmark deal for the industry. This was followed by Xylem's acquisition of its longstanding Swiss distributor, Heusser Water Solutions AG, in the final quarter of 2024, as well as a majority stake in Idrica, a leader in water data management and analytics, to "empower water utilities with intelligent solutions for their most critical challenges[8]." Xylem is a global leader in water technology and has played an essential role in addressing critical water and infrastructure challenges with its innovative services and efforts toward an increase in water-secure communities.

In another significant industry development, Ecolab expanded its market presence through the acquisition of Barclay Water Management, which specializes in water safety and digital monitoring solutions serving industrial and institutional clients primarily in the Northeast US region. The transaction, completed on November 1, 2024, brings Barclay's innovative technology into Ecolab's portfolio, notably including the proprietary iChlor® Monochloramine System that targets Legionella bacteria in drinking water systems while providing continuous monitoring capabilities and extending equipment lifespan. Barclay, headquartered in Newton, Massachusetts, reported revenues of approximately $50 million in 2023, expects to strengthen Ecolab's existing water treatment offerings[9].

In January 2024, ABB entered into an agreement to acquire Canada-based Real Tech, a supplier of optical sensor technology that enables real-time water monitoring and testing.

In May 2025, American Water Works agreed to acquire multiple water and wastewater systems across eight US states for approximately $315 million from Nexus Water Group.

In recent years, M&A activity has been increasingly driven by digital transformation, with companies prioritizing investments in data-driven solutions to address water scarcity, climate resilience, and other global challenges.

Market Outlook

The water industry represents a stable market sector driven by necessity, infrastructure replacement requirements, and climate adaptation challenges. While there are significant hurdles in aging systems and emerging contaminants, technological innovations in treatment, conservation, and smart management offer substantial growth potential. Both public funding and private investment will be necessary to address the estimated hundreds of billions needed for system upgrades, with consistent rate increases likely to

[8] https://www.xylem.com/en-us/about-xylem/newsroom/press-releases/xylem-acquires-majority-stake-in-idrica-to-empower-water-utilities-with-intelligent-solutions/
[9] https://investor.ecolab.com/news/news-details/2024/Ecolab-Acquires-Barclay-Water-Management/default.aspx

continue. The sector offers attractive investment characteristics: steady demand, regulatory support, technological innovation potential, and alignment with ESG objectives.

Investors can construct meaningful thematic exposure via the Nasdaq Clean Edge Global Water™ Index (GHHO™), which is designed as a benchmark for tracking the companies most exposed to the increasing global demand for clean potable water and the associated technological, regulatory, and societal trends impacting the space.

Methodology Summary

The Nasdaq Clean Edge Global Water™ Index (GHHO™) is designed to track the performance of companies that derive a substantial portion of their revenues from the potable water and wastewater industry, as defined by Clean Edge. Industry exposure includes water distribution, infrastructure (pumps, pipes, and valves), water solutions (purification and filtration), and ancillary services such as consulting, construction, and metering. Companies are also evaluated based on their business activities, controversies, and ESG Risk Ratings.

Industry sectors include Water Infrastructure, Ancillary Products & Services, Treatment & Testing, and Utilities & Distributors, as defined by Clean Edge.

GHHO utilizes a unique modified equal weighting system which adjusts the index exposure of each eligible company based on whether it is classified as Pure Play or Diversified. Pure Play companies are those that derive a substantial amount (50% or more) of revenue from water sector activities, as defined by Clean Edge. All other companies are defined as Diversified.

Pure Play: Index Securities are equally weighted so that Pure Plays make up 80% of the index weight.

Diversified: Index Securities are equally weighted so that Diversified securities make up 20% of the index weight (For more information on the index methodology, click here).

GHHO index reconstitutions are conducted semiannually based on the Reconstitution Reference Date, which is the last trading day of February and August, respectively. Securities that meet the eligibility criteria are then ranked in descending order by market capitalization and the top 50 constituents are selected for inclusion in the index.

Index Eligibility Criteria

To be included in the index, a security must meet the following criteria:

- Derive a portion of their revenues from water distribution, infrastructure, water solutions, and/or ancillary services, as determined by Clean Edge.
- Be listed on an Index-eligible exchange.
- Have a market capitalization of at least $500 million (USD).
- Have been listed and available for trading for at least three full calendar months, not including the month of initial listing. The seasoning eligibility is determined as of the Reconstitution Reference Date and includes that month.

- Have a minimum three-month average daily dollar trading volume of $3 million (USD).
- Have a minimum free float of 20%.
- And meet ESG eligibility requirements, discussed further below.

ESG Eligibility

There is an additional ESG component that must be factored in when considering security eligibility. A security's issuer must not be positively identified by Sustainalytics as exhibiting any of the following characteristics:

- Non-compliance with the United Nations Global Compact (UNGC) principles and related international norms and standards, such as the Organization for Economic Cooperation and Development (OECD) Guidelines and United Nations Guiding Principles.
- A Controversy Rating higher than four.
- An ESG Risk Rating for 'Resource Use' above Medium.
- An Event Rating higher than three for the events listed in Appendix A of the index methodology.
- Involvement in specific business activities, defined in Appendix B of the index methodology.

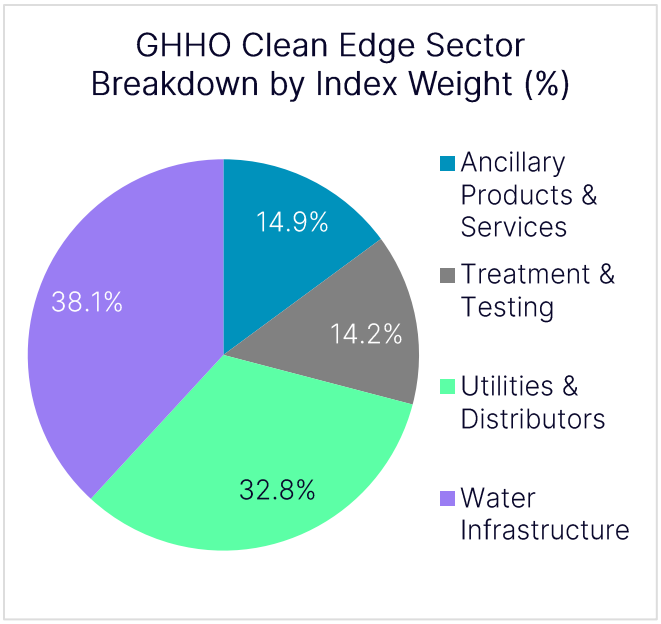
The Nasdaq Clean Edge Global Water Index (GHHO) is a thematic index that includes companies across various segments as defined by Clean Edge, including:

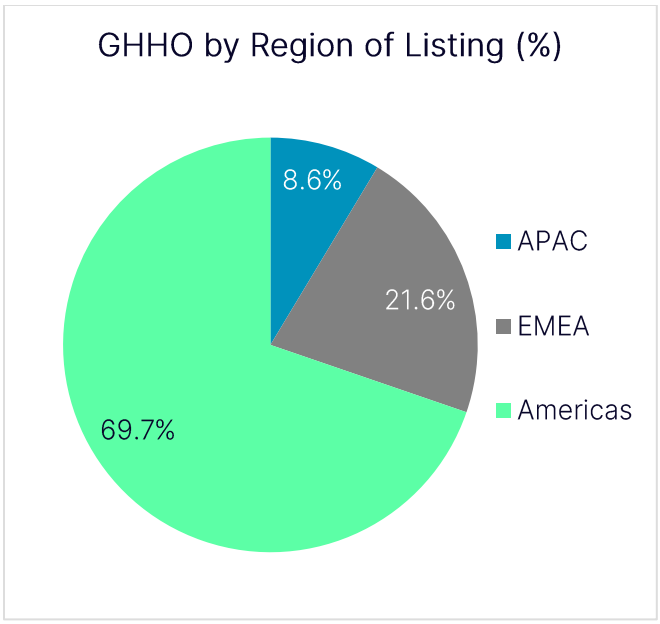
- Utilities & Distributors: companies responsible for delivering potable water from a treatment plant to homes and businesses through local infrastructure (networks of pipes, pumps, and storage tanks) ensuring consistent supply of safe drinking water. Utilities further manage and operate the infrastructure to maintain water quality and address any potential issues within the distribution system; essentially, they manage the entire process of getting clean water from the source to the tap.
- Water Infrastructure: companies that supply the hardware and physical components that constitute water and treat wastewater systems for communities, agriculture, and industry.
- Treatment & Testing: companies that aim to solve water quality challenges for individuals, businesses, and communities by providing water testing, treatment chemicals, and purification technologies.
- Ancillary Products & Services: companies that provide additional services related to water management beyond simply supplying water, such as water testing, treatment system installation and maintenance, water efficiency audits, leak detection, and specialized water treatment solutions for municipal, industrial, and commercial clients.

GHHO Index Composition and Performance

When evaluating GHHO by Clean Edge sector breakdown, the greatest exposure comes from the Water Infrastructure space (38.1%), followed by Utilities & Distributors (32.8%), Ancillary Products & Services (14.9%), and finally, the Treatment & Testing sector (14.2%).

Companies based in the Americas make up most of the index exposure with 69.7%, followed by the Europe, Middle East, and Africa (EMEA) region, contributing 21.6% of the index weight. The rest of the index, just under 9%, is comprised of companies from the Asia-Pacific (APAC) region.



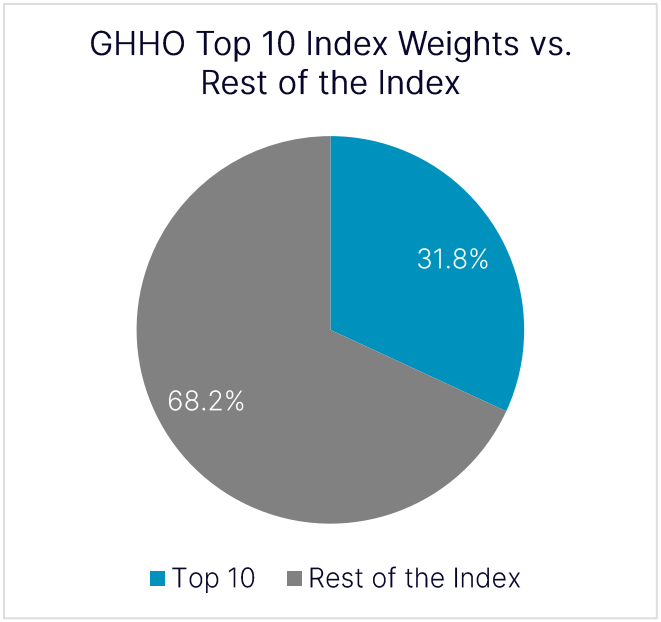


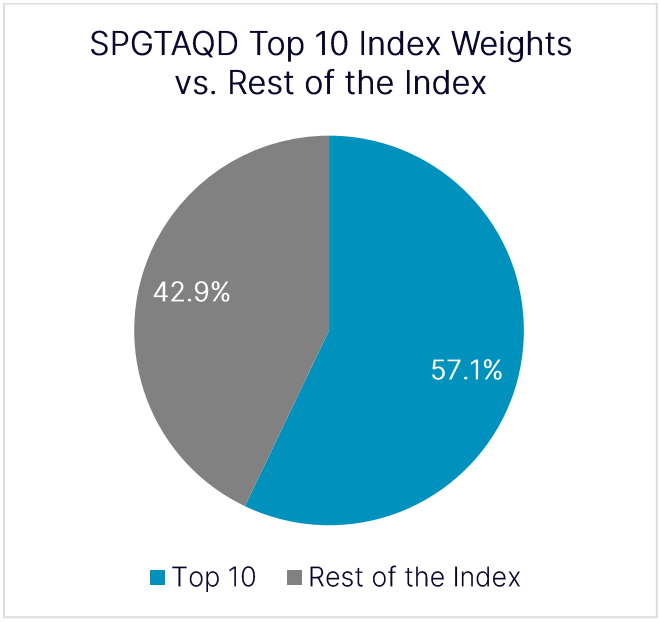
As of March 31, 2025, Source: Nasdaq Global Indexes and Clean Edge

GHHO launched on October 21st, 2024, and has produced a blended live & simulated 5-year return of 95.58%, or about 14.5% annualized, as of March 20, 2025. Prior to launch, the simulated index performance dating from March 20, 2020 was 104.98%, based on back-casted data that reflects the current market landscape. As seen above, there was a noticeable pullback in 2022 due to a prolonged bear market across most US & global equities. Since then, a general upward trend has resumed.

Competitor Analysis

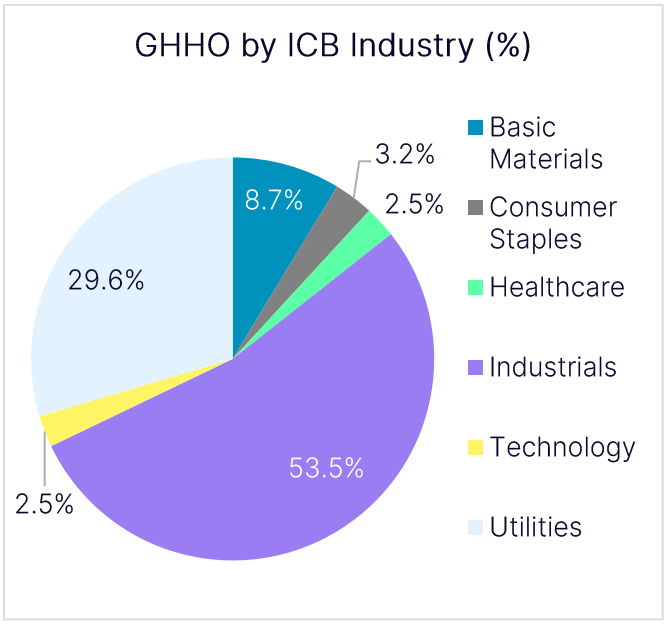
As of March 31, 2025, the top 10 constituents of GHHO account for nearly 32% of the index weight. Seven out of the top 10 constituents are in the Water Infrastructure segment, two are part of the Utilities & Distributors segment, and the remaining one is part of the Treatment & Testing segment, as classified by Clean Edge. A lower percentage of index weight held within GHHO's top 10 constituents allows for increased diversification throughout the index, both on ~~an~~ individual constituent and sector levels.

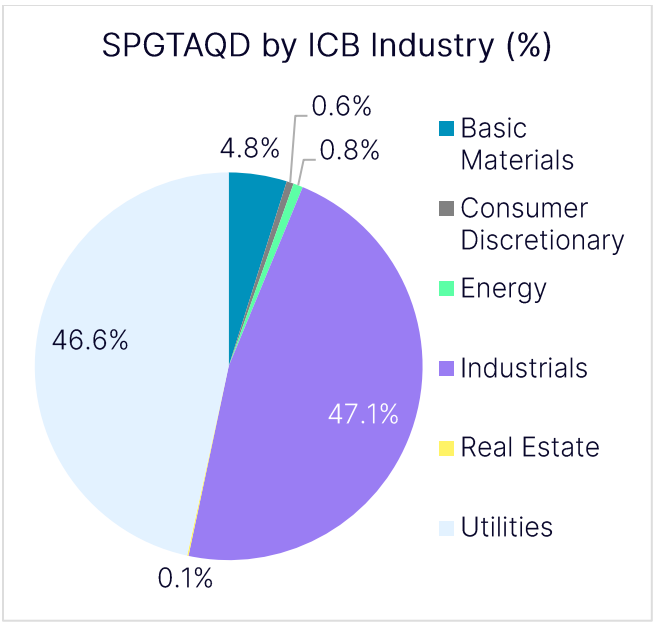




As of March 31, 2025. Source: Nasdaq Global Indexes, Bloomberg

From an index composition standpoint, GHHO provides diversification across sector, geography and size exposures. The index is currently comprised of 50 constituents and is allocated to six of the 11 ICB industries, with the most significant weights across Industrials (53.5%) and Utilities (29.6%). The remaining four ICB industries are Basic Materials (8.7%), Consumer Staples (3.2%), Technology (2.5%), and Healthcare (2.5%).





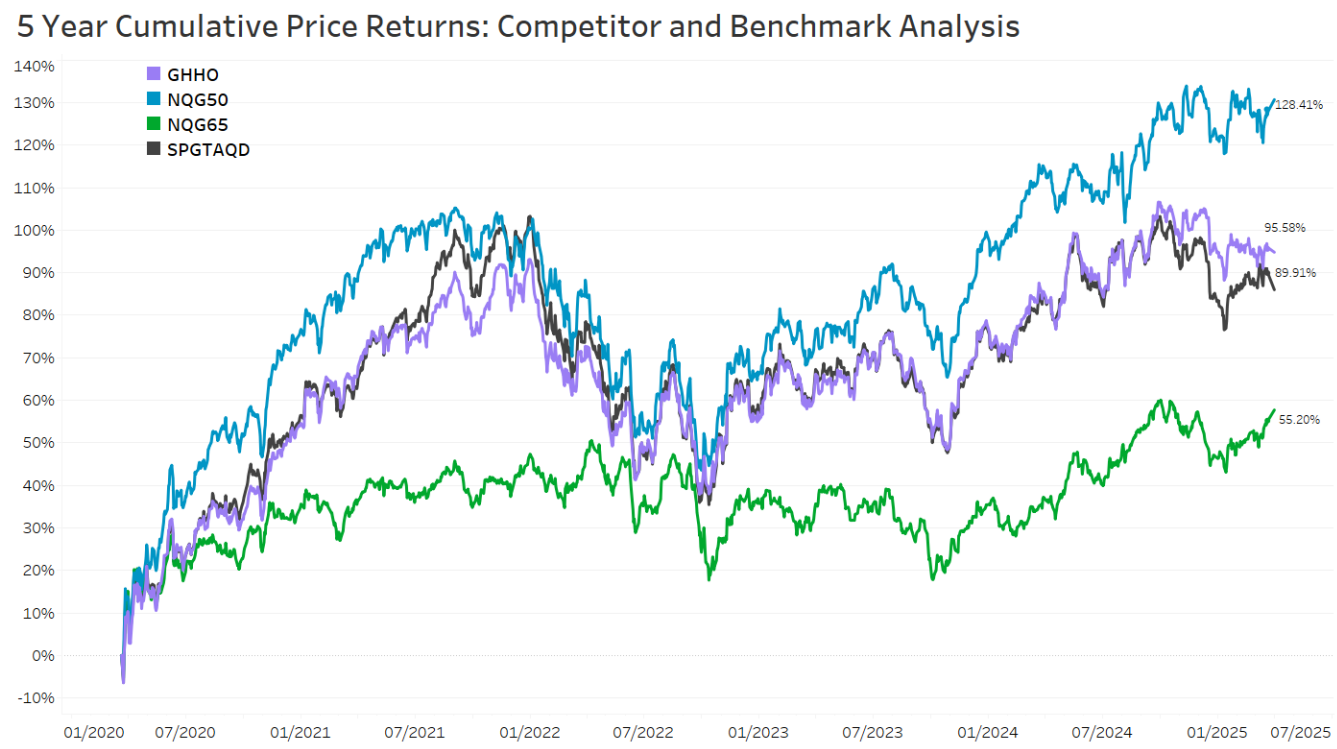
As of March 31, 2025. Source: Nasdaq Global Indexes, Bloomberg

One of its closest competitors, the S&P Global Water Index (SPGTAQD), is currently comprised of constituents with a similar concentration in Industrials (47.1%), but notably higher concentration in Utilities (46.6%). The remaining exposures are in Basic Materials (4.8%), Energy (0.8%), Consumer Discretionary (0.6%), and Real Estate (0.1%).

A substantial difference between the two indexes is in their approach to weighting. SPGTAQD is a market-cap weighted index, which produces some significant differences in exposures compared to GHHO's modified equal weighting scheme. More specifically, SPGTAQD is heavily concentrated at the very top, with almost double the index weight (~57%) across its top 10 constituents, vs. ~32% for GHHO.

The tendency of SPGTAQD to overweight Utilities vs. GHHO warrants some consideration. Water utilities are tasked with providing safe and potable water, treating wastewater, and managing stormwater, all while navigating complex regulations and unique budgetary constraints. While water utilities make for obvious candidates in a water benchmark index, the heightened risks arising from climate change are increasingly impacting water management activities, while compliance in a changing US regulatory environment may be getting more difficult as well. These reasons may help explain why this domestically oriented sector has been underperforming others in the global water space.

The Industrials sector is also crucial to include in a water benchmark because it provides essential diversification and growth potential beyond traditional water utilities. Industrial water companies develop innovative technologies for water efficiency, treatment, and reuse while manufacturing critical equipment and providing specialized services that address global water challenges. These companies typically operate internationally, offering geographic diversification and greater exposure to markets with expanding water infrastructure needs. Their inclusion provides investors access to the full water value chain, including the technological innovations and efficiency improvements that will be increasingly important as water scarcity and quality issues intensify globally.



As of March 20, 2025. Source: FactSet, Bloomberg, Nasdaq Global Indexes

The Nasdaq Global Industrials™ Index (NQG50™) has been significantly outperforming the Nasdaq Global Utilities™ Index (NQG65™), with trailing five-year price returns of 127.11% compared to 55.20%. When comparing SPGTAQD and GHHO over the same period (3/20/2020-3/20/2025), price returns are very similar but nonetheless show a slight outperformance for GHHO. This could be attributed to the differences in the utilities and industrials allocations between the two indexes, with the latter sector outperforming and the former underperforming each respective index's return.

It is important to highlight the significance of the Consumer Staples ICB sector that holds weight in GHHO's Top 10, which is not present in the S&P Global Water Index. More specifically, the Consumer Staples segment is integral to the potable water industry because it is largely non-cyclical due to the continued demand for products and consumer goods that are offered by companies within this sector. The S&P Global Water Index lacks exposure to the Consumer Staples sector, given its general mission to measure the performance of companies involved in water-related businesses, as opposed to the focus on the potable and wastewater industry.

Conclusion

The global water industry is critically important for a variety of reasons. Water is a fundamental resource that is a necessity for human survival, agriculture, industry, and energy. The global water industry manages the supply, treatment, and distribution of this vital resource. In doing so, it must address scarcity challenges as well as the public health implications that may result from the lack of clean potable water and from poor sanitation systems. In industry and energy, the deployment of more efficient, circular technologies supports more sustainable systems in manufacturing and in the water-energy nexus. Global water indexes are a linchpin for the industry, providing the required transparency and replicability for investors to make capital allocation decisions to

ultimately fund the innovations, such as novel desalination technologies, that drive the industry forward to meet its challenges. Overall, as water scarcity becomes more of a pressing global issue, these indexes can serve as important tools for investors and policymakers to track progress in addressing water-related challenges.

GHHO showcases the increasing significance of the global water industry by tracking the leaders providing the products, services, and technologies that support a safe, modern infrastructure in the potable water and wastewater industry. GHHO's unique approach to index construction results in a diversified exposure that enables meaningful performance measurement and risk assessment for investors interested in tracking the theme globally.

Sources: Nasdaq Global Indexes, Clean Edge, Bloomberg, Factset.