Water Market USA

Global Water Intelligence

About this report

Water Market USA is the most ambitious market report yet published by Global Water Intelligence. It is more than just an indicator of where and how money will be spent in the US water sector over the next few years. It is also a collection of practical resources relevant to everyone with a business interest in the water industry.

At the centre of the report is a **project list**, compiled as a result of 3,500 hours of research contacting the top 1,000 water and wastewater utilities in the country, together with smaller utilities, which through the State Revolving Fund system had indicated that they were pursuing larger capital projects. We then analysed the **finances** of 300 major utilities in order to build up a picture of how the cashflows in the municipal water sector work. This enabled us to build up a **forecasting model** which we used to create an overall picture of **capital and operating expenditure between 2009 and 2016**, and then to drill down to examine the outlook for key **water technology sectors**.

In order to give the data a narrative context, we also interviewed key industry executives to get their views on emerging industry trends. These **interviews** were published initially as a business documentary included in the DVD accompanying this report, and subsequently as a print transcript with accompanying commentary in this report.

Besides the interviews and the research, we also created a series of datasets relevant to the US water industry, including a **companies listing** with thumbnail profiles, a **utilities directory** with performance indicators, a **mergers and acquisitions listing** and a database of all permitted **wastewater discharge facilities** in the US (covering both industrial and municipal wastewater producers). The idea is that the report and its accompanying datasets will enable readers not just to identify potential opportunities, but to make the connections to initiate action. The full contents of the data disk published with this report are:

Spreadsheets	**Contents**
Company profiles	Short profiles of businesses active in the water space.
Corporate finance	A listing of mergers and acquisitions in the water sector since 2000, plus a listing of water-related stocks.
Industrial water overview	A forecast of capital expenditure by industrial water users over the next decade.
Infrastructure forecast	A forecast of capital expenditure by water utilities.
Major utilities	A directory of major US water utilities.
Municipal operations	A forecast of operating expenditure by utilities.
Project list	A listing of current and future capital projects being contemplated by water utilities.
Technologies forecast	A forecast of expenditure on certain water and wastewater technologies and water treatment chemicals.
US Utilities' financials	A financial analysis of major US water utilities.
Wastewater discharge facilities	A complete listing of all municipal and industrial EPA-permitted wastewater discharge facilities in the US.
Water scarcity solutions	Detailed information about the outlook for desalination and water reuse.

PDF Documents	**Contents**
1. USA Market Report	This document, containing an introduction to the key features of the US market, a transcript of the DVD and forecast graphs and data.
2. USA Utilities and Projects	A directory of US utility companies, including contact details, financial information, infrastructure information and current/future projects being undertaken by the utilities.
3. USA Company Profiles and Directory	A PDF directory of utilities, financials and projects, listed by utility.
4. USA Desal and Reuse Tracker and Inventory	A comprehensive intevtory of desaliantion and reuse projects, plus the most recent updates to the GWI desalination and reuse trackers.

We appreciate that the US water market is a moving target, and for that reason we aim to publish periodic updates of the data and content of this report. This should enable us to track the accuracy of our forecasts, and to take new information and policies into account.

The format and contents of the report represent a new direction for GWI's research publishing. I very much welcome feedback from readers so that we can improve.

Christopher Gasson
Publisher
Oxford
27th May 2009
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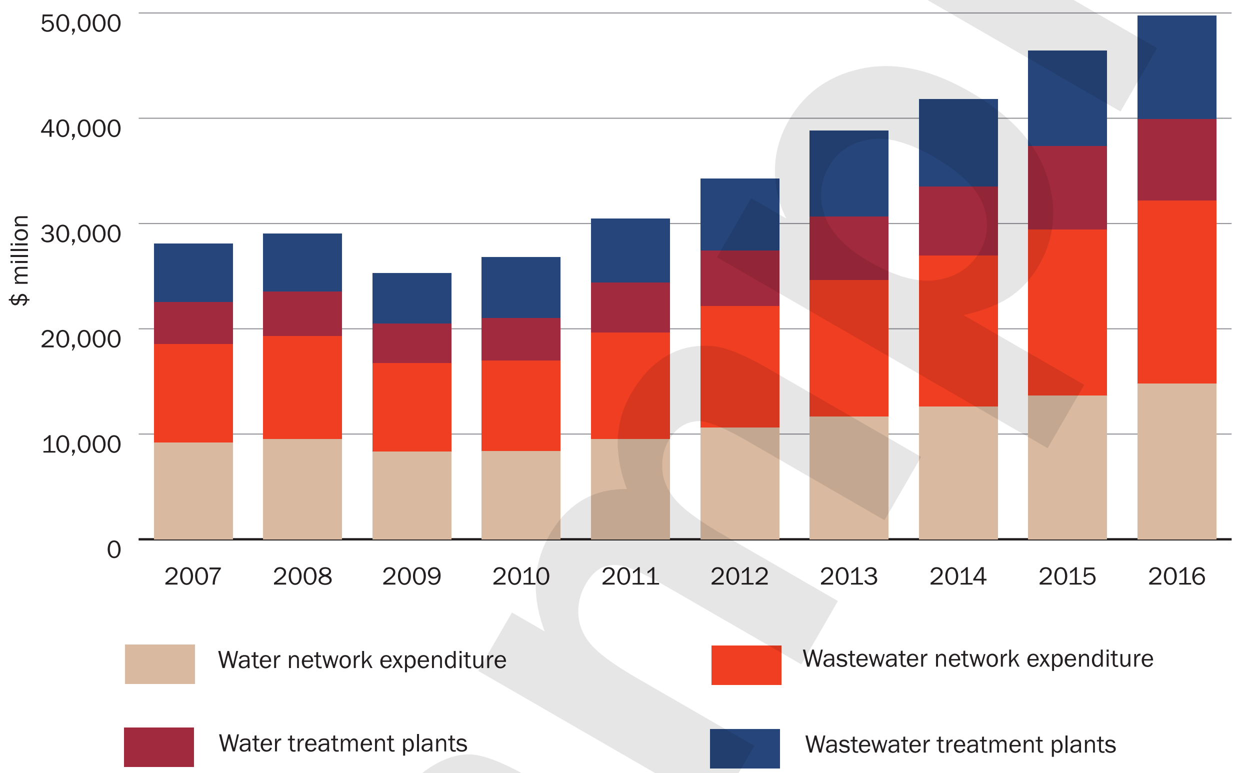
Water Market USA: Executive Summary

The US municipal water sector is facing greater challenges than at any time in its history. Decades of under-investment have left a legacy of decaying infrastructure, and an industry which is ill-equipped to meet environmental standards or prepare for growing water scarcity. The fundamental problem is that water is a capital-intensive industry, and the combination of low user fees and public ownership has meant that it is difficult to attract the necessary capital to the sector. The stimulus package is expected to provide only limited relief, as other sources of capital such as developer contributions and municipal bond issues are cut back.

Neglecting water investment is a common phenomenon internationally, but experience has shown that it cannot be avoided in the long term. We forecast the following pattern of capital investment in US water and wastewater infrastructure over the years to 2016.

Figure i: Forecast of capital expenditure in US water and wastewater infrastructure 2007-2016



Themes picked up in this report include:

Infrastructure investment: Utilities have been prepared to delay network rehabilitation work in the past because it lacks the urgency of meeting compliance deadlines related to treatment standard regulations. However, with three generations of pipe now reaching the end of their lives, investment is likely to become more crisis-driven. We forecast that from 2011 onwards, there will be a rapid acceleration of investment in pipe rehabilitation, with compound annual growth approaching 15% on the water side, and 17% on the sewer side.

The impact of scarcity: This is driven by growing demand in the face of a fixed renewable water supply. Although industrial and agricultural water demand is no longer growing, the problem for the US is two-fold. Firstly, domestic water demand is rising in those parts of the country which have the lowest natural water availability. Secondly, aquifers are being drained significantly faster than they are being replenished in many parts of the country: this is unsustainable. Water rights trading, desalination and water reuse are the obvious solutions, but are not universally popular. Objections will have to be overcome, as the West has few alternatives. We forecast that $15.5 billion will be invested in desalination and water reuse between 2009 and 2016.

Private sector participation: There is strong political resistance to private sector involvement in the US water sector. 8.8% of the population is served by regulated private water utilities, and a further 6.5% is served by private operators contracted by municipal utility owners. The spread of the private sector in the US water sector has lost momentum since the 1990s, but there is some hope that tax incentives, the need for more complex technologies, and the aging of the municipal workforce will create additional opportunities for the private sector in future.

Investment opportunities: Water is emerging as a mainstream investment theme: investors are increasingly asking “what percentage should we have in water?” The quoted investment sector is divided between investor-owned utilities – which are seen to offer low risk returns, even in a bear market – and equipment/service suppliers which offer more variable performance. Opportunities for private equity investment are emerging, as municipalities are forced to think more creatively about finance. The emergence of the water rights market is also attracting investment funds, but it is a risky market to operate in.

Technology trends: Some key water technology sectors will continue to see growth, despite the short-term downturn in capital expenditure. Membrane separation technology (especially reverse osmosis) and advanced oxidation (including UV disinfection) fall into this category. Growth in lower-tech equipment supply sectors such as pipes, pumps, and valves will be more closely associated with overall levels of capital expenditure.

Fragmentation: There are more than 50,000 water utilities in the US, and above that, two or three levels of regional, state and federal strategic or regulatory authority. This makes for an impossibly fragmented market, but there is one unifying force which leaves its signature at every level and in every corner of the industry: the **consulting engineers**. The top 20 firms are the key to the market: they define the procurement system, they take the lion's share of the capital expenditure, and they set the direction of the industry.

This report has been written and edited by Mario Alemi, Chris Bowling and Christopher Gasson. Design and production support was provided by Mark Porter, Heather Lang and numerous members of staff at Global Water Intelligence.

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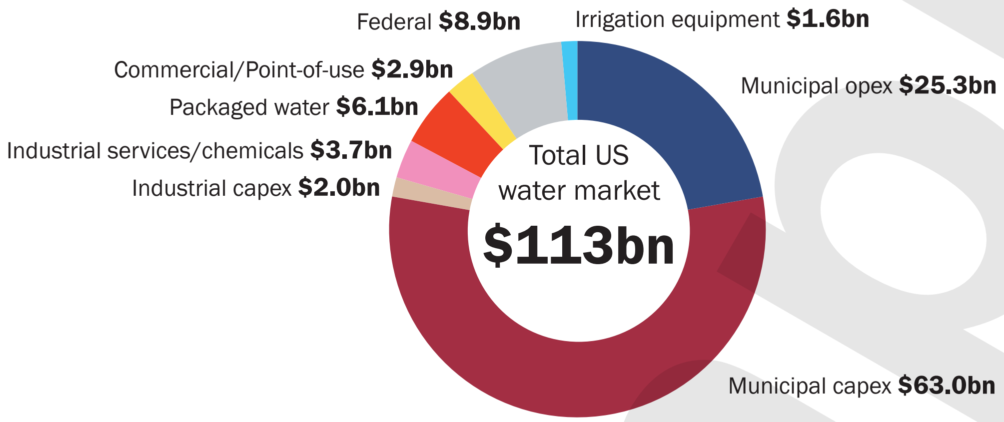
Water Market USA

1. Introduction

1.1 Understanding the US water market

Water is used in almost everything that we do, so it is always important to define what we mean by a “water market”. This report focuses primarily on public water supply and wastewater collection and treatment. This encompasses the capital investment in infrastructure, as well as the operating cost of running it. It gives cursory coverage to the industrial water market, but it does not engage with the markets for packaged water, irrigation, point-of-use water systems, pool and spa products and services, or plumbing fittings. Figure 1.1 below gives our best estimate as to the size of this broader market and puts the public water supply market in context.

Figure 1.1: Size of the US water market



Source: GWI research.

Water is very much a local commodity: people tend to drink the water that falls on their heads, and the industry which has grown up to make this possible is locally focused. It means that there is very little in common between the water supply system in one country and the next. The US market in particular has evolved with a number of idiosyncrasies. These can be summarised as follows:

Fragmentation: There are more than 50,000 water utilities in the United States. Some serving major cities have millions of customers. Others may be no more than a borehole and a pipe connecting a handful of houses. 84% of them serve fewer than 3,300 people each. This fragmentation means that it is difficult for new companies and technologies to penetrate the market. Figure 1.2 below illustrates the diversity of US water systems.

Figure 1.2: Community water systems by size

Size of population covered by system	Very Small (<501)	Small (501-3,300)	Medium (3,301-10,000)	Large (10,001-100,000)	Very Large (>100,000)	Total
No. of systems	29,160	13,858	4,838	3,728	404	**51,988**
Population served	4,857,104	19,868,795	28,134,557	106,310,834	133,128,786	**292,300,076**
% of systems	56%	27%	9%	7%	1%	**100%**
% of population	2%	7%	10%	36%	46%	**100%**

Source: EPA

There are a smaller number of wastewater systems (perhaps 35,000), some of which are stand-alone entities and some of which are managed within the relevant municipal water department.

Lack of sector policy: The fragmentation of the water utilities sector means that water policy is highly decentralised. The most important federal institution is the **Environmental Protection Agency**, which is involved in setting quality and environmental standards for utilities and other water users. It also provides finance to support the **Clean Water State Revolving Funds** (for wastewater) and the **Drinking Water State Revolving Funds**. It does not take a proactive role in the organisation of the sector, and does not, for example, become involved in water resources issues.

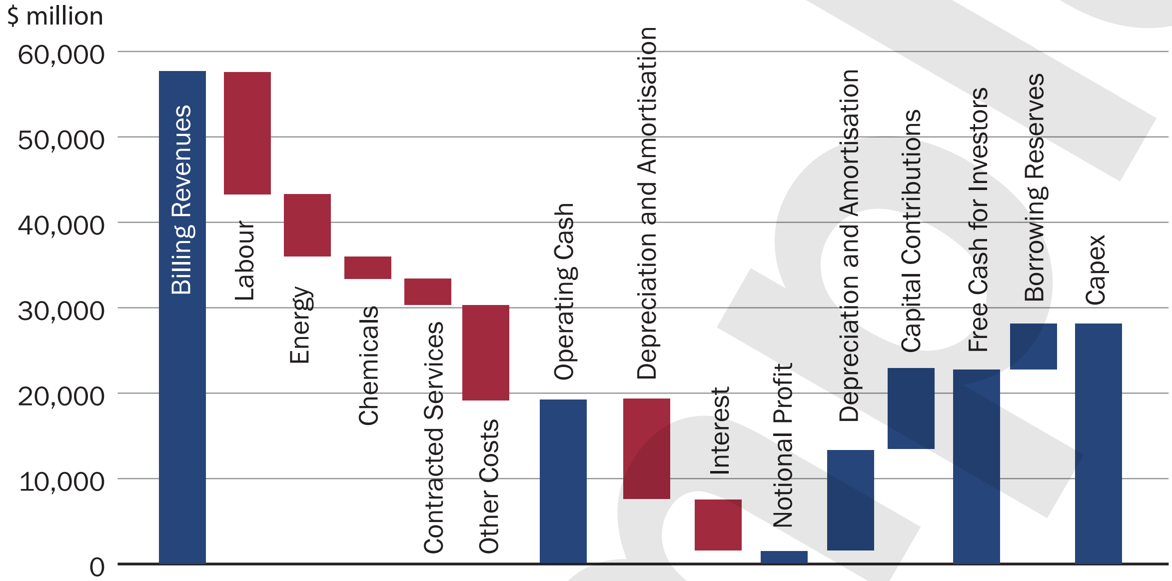
Other federal bodies involved in the water sector are the **Bureau of Reclamation** (which is responsible for water resources issues in the western United States), and the **Army Corps of Engineers** (which is involved in constructing and maintaining dams and levees). **State policymakers** have a bigger influence on water than federal policymakers, particularly where strategic water issues are important (such as in California, where the Department of Water Resources oversees the State Water Project). They are also involved in the economic regulation of investor-owned utilities, through the Public Utilities Commissions.

2. Forecasts

2.1 Municipal utility finances

In order to create a forecast of expenditure by US water utilities, we started by creating a financial model for the US municipal water sector based on analysing the financials of 400 major utilities. We then used this model to look at how the credit crunch might have affected expenditure in the water sector.

Figure 2.1: USA municipal expenditure model 2007

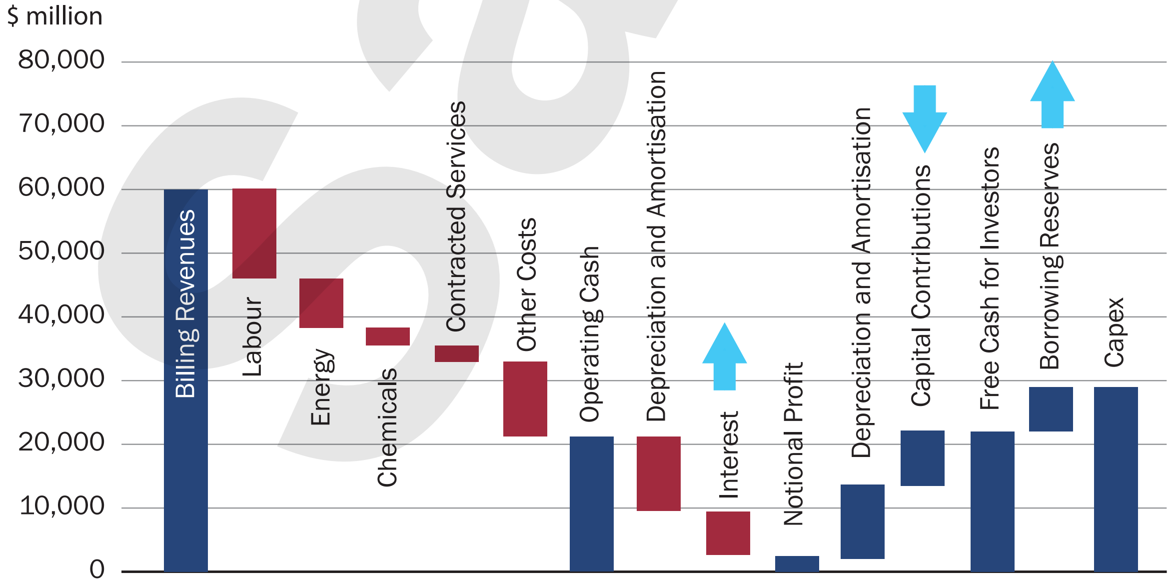


We estimate that 2007 water utility revenues were in the region of $57 billion. Current expenditure on labour, energy, chemicals and contracted services totalled $38 billion. This left total operating cashflow of $19 billion. This is reduced to $7.6 billion after taking depreciation into account. Interest charges of $6 billion reduce the notional profit of the sector to around $1.6 billion.

If we add back the depreciation, we get free cashflow of $13 billion. On top of this comes capital contributions from private developers and government subsidies of $9 billion, which leaves total internal cashflow available for capital expenditure of nearly $23 billion. With net drawing from reserves and borrowing of $5 billion, total capital expenditure would have been $28 billion.

Now let's look at how the worsening credit conditions might have affected the market in 2008:

Figure 2.2: USA municipal expenditure model 2008



3. Meeting the challenge of water scarcity

This chapter looks at the opportunities for businesses and investors which may arise from meeting the challenge of water scarcity.

3.1 The challenge of water scarcity

Scarcity is the most visible driver of demand for investment in the water sector. Governor Schwarzenegger's declaration of a drought in California in June of 2008; the water shortages in Atlanta, the draining of Lake Mead, the spread of dust-bowl conditions in the Mid West - all have added to the sense of crisis surrounding America's water resources.

Scarcity is a function of **supply** and **demand**. The problem we have is that demand for water is growing fastest where water is least available. Figure 3.1 shows the rate of population growth across the United States.

Figure 3.1: Rate of population growth by state

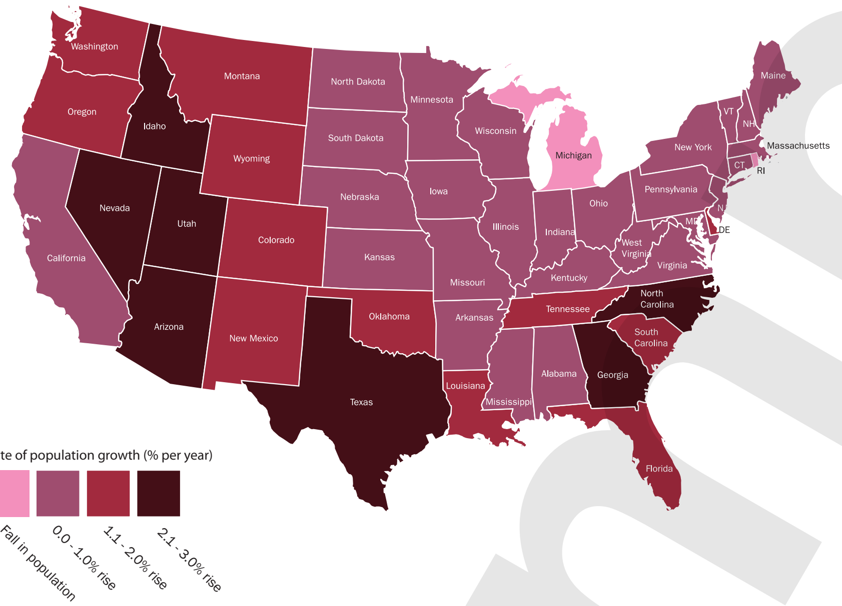
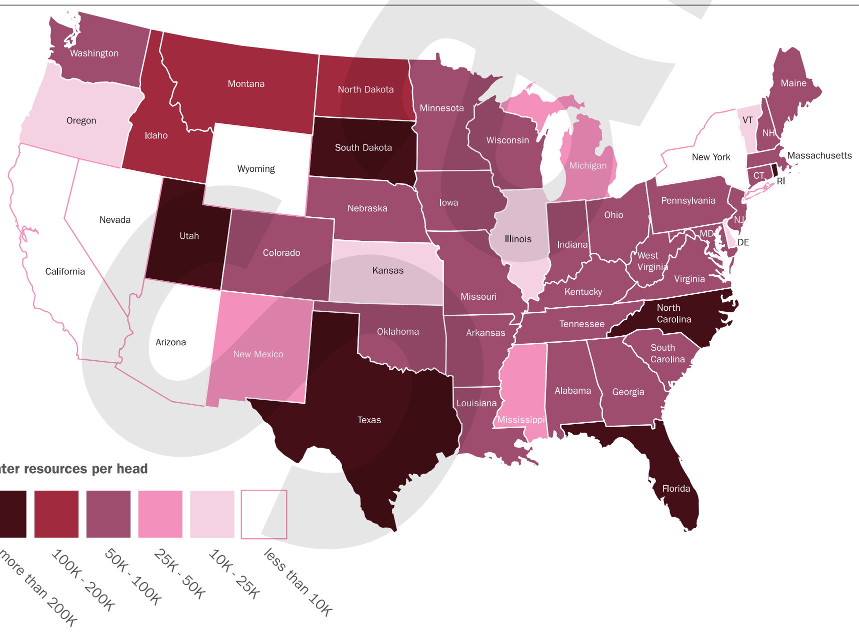


Figure 3.2 shows renewable fresh water availability by state.

Figure 3.2: Renewable fresh water availability by state



4. Investing in the US water market

4.1 Overview of investing in the US water market

As we examine investment opportunities in the sector, we focus on the appeals and challenges for individual investors, as well as for institutional investors, venture capitals and private equity. Also, we look at overall investment in the sector and private activity bonds, which tie into our infrastructure discussion.

While we have seen peaks of hype and over hype which unfortunately cloud the landscape, the fundamentals of the sector are attractive and provide **solid long term opportunities** and alluring **return potential**.

Until relatively recently, water as a standalone sector for investment was essentially unrecognised. There were only a few institutional pioneers such as John Dickerson with his Summit Global Fund and Pictet, one of the largest and most established water funds.

Over the past few years, we have seen a tremendous increase in investor interest on all levels. The number of water-specific funds has risen dramatically and prominent individuals such as T. Boone Pickens have jumped into the sector. Additionally, on the venture and private equity side, we see more and more people searching for the next hot deal. Also, there is an intrinsic appeal to investing in water, as pointed out by Gary Miller, a Senior Vice President of the engineering, construction and consulting firm CH2M. He attests to the very core, basic human component to investing in water, which makes it a stable long-term investment.

Opinion: The strong need for water makes it a very stable long-term annuitised-type return.

GWI interviewed Gary Miller, Senior Vice President of Business Development & Planning at CH2M Hill OMI

Gary Miller: I think that when you look at investment in the water industry, whether it's private equity or what have you, I think **people see the water industry as one of the essential ingredients of life**. We all need water no matter where you are in the world. There is always going to be that need and stability and demand for water for drinking purposes and also for industrial growth.

Economic growth and development needs solid water and infrastructure and also wastewater treatment services. So there is always going to be that strong need for water [and] wastewater, just like there is for electricity and power. And I think if you're an investor looking at the market, it's a very stable long-term annuitised-type return.

4.2 The Stock Market

In the equities market, the challenge in the US over the last several years has been to find value within an increasingly limited universe. GE, ITT, Danaher and other multi-conglomerates have swallowed up several of the treatment and equipment companies and the utilities universe remains extremely fragmented. **Size and liquidity are often hurdles** for institutional investors and while valuation multiples have contracted in recent months, finding viable options remains tricky.

Moreover, investors often seem to want some hot new technology. There is definitely a myth, particularly within the whirlwind of clean-tech, that the sector is full of options. In reality, the bulk of the sector is the more boring, staid equipment and infrastructure-related companies. Investing in water has become alluring, but ironically when you actually break down the investable options – pipes, pumps and valves, utilities, sewer rehabilitation and engineering companies – the selections are hardly glamorous. Investors also seem to want innovation and frequent breakthroughs, when overall the sector is, in many cases, tremendously **slow moving**.

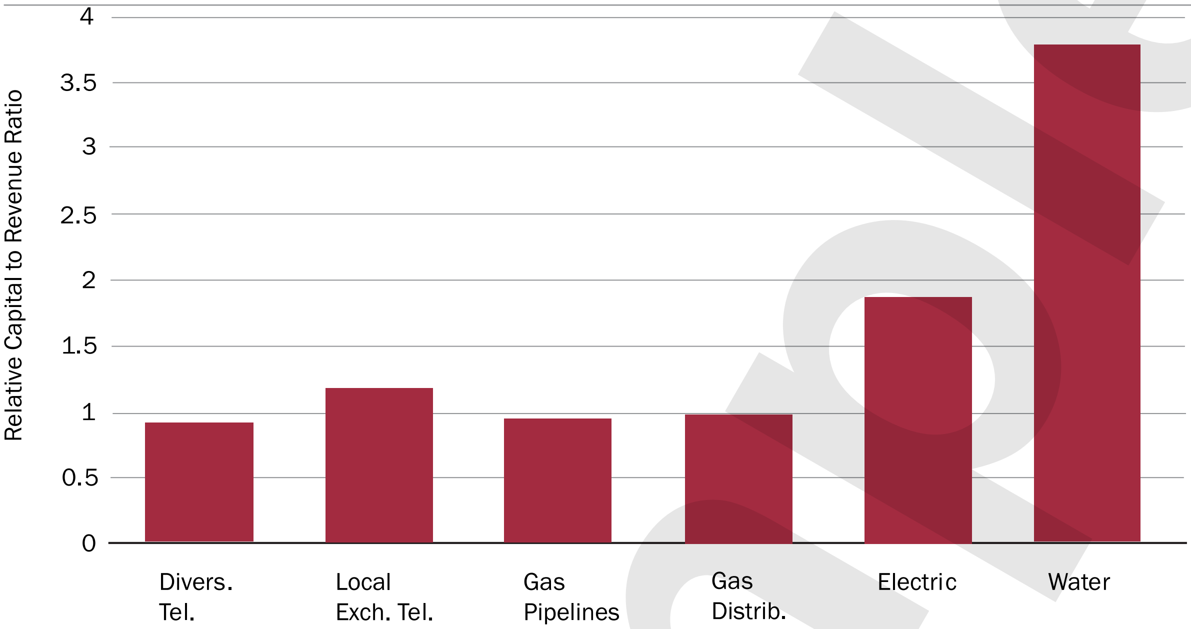
Desalination is a good example of what investors often view as an exciting, ground breaking area of investment. However, as Jud Hill of Summit Global Management points out, only a fifth of the embedded capital is in the "exciting" part of a plant, with the remainder in the distribution/collection system. He also points out that the water industry is very conservative, and new technologies generally require five to ten years to prove their reliability and become adopted by utilities.

5. The Outlook for America's Infrastructure

5.1 Overview

Water requires more capital investment per dollar of revenue than any other utility, as shown in Figure 5.1.

Figure 5.1: Relative capital investment to revenue ratio for a range of utilities



Pipelines are more expensive to lay than cables, but the end product is less highly valued than electricity or telephony. Furthermore, water infrastructure is **unseen infrastructure**. Pipes are buried beneath roads and sidewalks, but when a road or a sidewalk needs repairing, it is obvious to all. When a water pipe or a sewer needs repairing, it is out of sight and out of mind - at least until it becomes a sink hole.

In this section, we look at the gap between the need to invest in water infrastructure, and the amount of capital actually being spent. Michael Deane, Senior Policy Advisor for infrastructure finance at the Environmental Protection Agency (EPA) explains the trend:

Commentary: The trend is towards lower grants and higher leverage through subsidised loans.

GWI interviewed Michael Deane, Senior Policy Advisor, Infrastructure Finance, Office of Water EPA

Michael Deane: Federal subsidies hit a high in 1980 after several decades of significantly ramping up from very low levels in the '50s to very high levels in the '80s.

Very consciously, a policy decision was made to move from **federal grants** to subsidised loans where the interest rate is subsidized by the federal government. [This was] a method [of] helping communities move from high subsidies with capital costs and wastewater projects to lower subsidies through loans that they have to repay… The trend is towards lower subsidy and higher leverage for the federal dollars by **federal matching funds** and recycling those dollars. So every federal dollar that goes out within the **State Revolving Fund loan program**, I believe so far it's been $3 invested on that, so really a much higher leverage.

The **reduction in grant finance** for water utility investment coincided with an **increase in the operating cost** of water and wastewater utilities. Since the early 1990s, there have been growing concerns about the gap between the level of investment required to meet the need for clean drinking water and safe wastewater discharge.

The growing gap between investment needs and actual capital expenditure is highlighted by the D grades awarded to the nation's water and wastewater infrastructure by the American Society of Civil Engineers. The EPA estimated in 2000 that unless there was real revenue growth of 3 percent per year, there would be a capital shortfall of $224 billion and an operating shortfall of $160 billion in water and wastewater expenditure by 2019.

6. Contract Operations Market

6.1 Overview

When the US **contract operations market**, often referred to as **public private partnerships** or PPPs, came of age during the 1990s, it appeared promising. But, after a short period of growth, contract operators struggled to fulfil contracts, and the stream of sizable new deals tailed off.

Perhaps, as GWI publisher Christopher Gasson writes, "the fundamental problem with the US water market is that nobody wants to think about it as a market". That is reflected, for instance, in different fiscal and legal pressures on the public and the private sector. It's a tough world, but the private operators seem to believe that hard work will lead to good results.

In this section, after a snapshot on the history of the contract operations in the US, we'll discuss some of the main obstacles, and review experts' ideas on how to overcome them.

Commentary: The early days of the market were limited by short contracts.

GWI interviewed Gary Miller, Senior Vice President of Business Development & Planning at CH2M Hill OMI

Gary Miller: Typically in the US, this contracting out or outsourcing market is relatively young. It's really only 35 years old now as compared to Europe where outsourcing has been done for 75 to 100 years. So you have an industry that's really still in a developing stage somewhat. One of the limitations that we had early on was that most of the contracts that we would have with municipal governments were **limited to five years**.

There was a **rule change** several years ago called 9713, which actually allowed up to **twenty year contracts**. One of the early… challenges with that rule change was that many of the contracts that had been used actually did not change along with that rule change to allow for the 20-year contracts. [This meant] some of the terms and conditions in those contracts were really not applicable to the longer term contracts.

Although these initial problems of contract length are now largely solved, there is still the matter of convincing municipalities that participation from the private sector is a good thing. As Patrick Cairo points out, it typically takes more than two years to make such an arrangement, which doesn't fit well with the four year election cycle that the key municipality decision maker participate in. On the bright side, the experience has been that contracts are generally renewed once they are in place.

Opinion: The four year election cycle for decision makers is a major obstacle.

GWI interviewed Patrick Cairo, Executive Vice-President, Strategy and Marketing of United Water

Patrick Cairo: The trend in new starts if you will, new contracts, is still very slow… We're not satisfied. I think the entire industry of private companies is certainly hoping that it grows to a greater extent. It's pretty widespread. [The market is] about $1.5 billion and it encompasses over 2,500 contracts.

The good thing is that for the most part those contracts are **renewed** and stay within the private sector, but it is still a real challenge to convince municipalities to go from public operation to private operation… Whether they're large or small it takes… over two years of discussions with them to convince everyone that that's the right thing to do. The difficulty of course is that usually the decision makers here are on a four-year cycle of election. So… we have them convinced and then they start approaching an election so they put it on the drawing board and maybe they're not reelected and things change.

Don Correll, CEO of American Water stresses the importance of distinguishing between the "old" five year contract operations, which generally involved just operations and the "new" longer term PPPs, which also include investment in **infrastructure**.

Water Market USA

Utility Companies Directory and Projects Directory

Global Water Intelligence

Utility and Project Directory

Georgia 151

Population served (water): 325,000
Water pipe network: 1320 km
Utility type: Water/Wastewater Utility
Ownership type: Public
Owner: Alameda County

Water sales revenue 2008 (2007): $31,291,000 ($23,625,000)
Total revenue 2008 (2007): $50,462,000 ($49,013,000)
Total operating costs 2008 (2007): $37,733,000 ($31,751,000)
Total assets 2008 (2007): $301,229,000 ($286,784,000)
Total liabilities 2008 (2007): $20,616,000 ($25,273,000)
Year on year revenue growth: 3%
Year on year operating cost growth: 19%
Operating profit margin: 25%
Average revenue per capita served: $155.27
Average operating cost per capita served: $116.10
Average revenue per water connection: $391.14
Average operating cost per water connection: $471.66
Operating surplus per water connection: –$80.53

Projects

Phase II, Brackish Groundwater Desalination Facility
Type: Desalination Plant
Cost: $10,141,000
Finance: Part funded by California DWR Desalination Grant ($2.8m)

American States Water Company (AWR)

California
630 East Foothill Boulevard San Dimas, CA 91773
Lloyd E. Ross, Chairman
t: 909–394–3600 **f:** 909–394–1382
e: customerservice@aswater.com
w: http://www.aswater.com/

Population served (water): 267,000
Stormwater drainage: No
Utility type: Water Utility
Ownership type: Investor owned

Anaheim Public Utilities

Anaheim California
201 South Anaheim Blvd. Anaheim, CA 92805
Marcie L. Edwards, General Manager
t: 714–765–3300, 714–765–5137
w: http://www.anaheim.net/section.asp?id=54

Population served (water): 334,000
Water pipe network: 1207 km
Stormwater drainage: No
Utility type: Water/Energy Utility
Ownership type: Municipal
Owner: Municipality

Projects

Nohl Canyon Water Storage Tank
Type: Multiple
A new 10MG Storage Tank to help meet current and future water supply needs
Cost: $16,000,000
Finance: Bonds
Status: Design
Start: 7–2008
Sources: http://www.anaheim.net/article.asp?id=1394

Antelope Valley—East Kern Water Agency (AVEK)

Antelope Valley—East Kern California
Antelope Valley—East Kern Water Agency Boardroom, 6500 W. Avenue N, Palmdale, CA 93551
Carl B. Hunter, Jr, Director
t: 661–943–3201
w: http://www.avek.org/

Population served (water): 500,000
Water pipe network: 870 km
Stormwater drainage: No
Utility type: Bulk Water Supplier
Ownership type: Created by the state of California

Projects

Groundwater Recharge Project
Type: Water — Other
Groundwater recharge and storage project. The Proposed project also provides for recovered raw water to be delivered to a storage, treatment and pumping facility.
Companies: Hanson Environmental/Boyle Engineering
Status: Initial Planning
Sources: http://www.avek.org/Initial%20Study.pdf

Apple Valley Ranchos Water Company

Apple Valley California
21760 Ottowa Road Apple Valley, CA 92308 P.O. Box 7005 Apple Valley, CA 92307
Nyri A. Wheeler–Lewis, Assistant Secretary

Water Market USA

Company Profiles and Directory

Global Water Intelligence

Company Profiles and Directory

Company name	Operations and maintenance	Consultant engineer	Design / build / construction	Water Chemicals	Membranes / membrane systems	Membrane manufacturer	Water / wastewater treatment equipment	Network equipment	Other Accessories	Page
3M						•	•			1
ABB Instrumentation								•	•	1
Accusonic Technologies									•	1
ADI International Inc										1
ADS Environmental Services										1
Advance Products & Systems										1
Advanced Valve Technologies LLC										2
AECOM Technology Corporation										2
Aeration Industries International Inc										2
AEROMIX Systems Inc										2
Aerzen USA										2
Airmaster Aerator LLC										2
AirSep Corp										3
Airvac Inc										3
Alfa Laval Inc										3
AllMax Software Inc										3
A-LOK Products Inc										3
American Cast Iron Pipe Co										3
American Engineering Services										3
American Highway Products Ltd.										4
American Water Chemicals										4
American Water Works										4
Ameron International Corp.										4
AMETEK										4
Amiad Filtration Systems										5
Analytical Technology Inc										5
Andritz AG										5
Anthrafilter										5
AP/M Permaform										5
Apco/Willamette Valve & Primer										5
Applied Process Technology										6
Aqua America										6
Aqua-Aerobic Systems, Inc.										6
AquaSensors, LLC										6
Aquatech International										6
Aquionics Inc										7
Arch Chemicals Inc										7
Argonide Corp										7
Arizona Instrument LLC										7
Asahi/America, Inc.										7
Ashbrook Simon-Hartley										7
Ashcroft Inc.										7
Ashland Inc.										8

Company name	Operations and maintenance	Consultant engineer	Design / build / construction	Water Chemicals	Membranes / membrane systems	Membrane manufacturer	Water / wastewater treatment equipment	Network equipment	Other Accessories	Page
Assured Flow Sales Inc										8
Atara Equipment/Sodimate										8
Atlantic Screen										8
Automata, Inc.										8
Automation Products Group Inc.										8
Badger Meter										9
BakerCorp										9
Baldor Electric Co										9
Basin Water Inc.										9
BDP Industries										9
Belt Collins										9
Bermad Inc										10
Bio-Microbics, Inc.										10
BIOREM Environmental Inc										10
BioShaft Water Technology Inc										10
Biothane Corp										10
BioVir Laboratories, Inc										10
Biwater AEWT										10
BJM Pumps LLC										11
Black & Veatch										11
Blue Angel Pumps										11
Blue Ribbon Sales/Service										11
Blue-White Industries										11
Brentwood Industries										12
Bright Technologies										12
Brown and Caldwell										12
Brown Bear Corporation										12
BW Technologies by Honeywell										12
C.I.M. Industries Inc										12
Caldwell Tanks										12
Calgon Carbon Corp.										13
California Water Services										13
Carollo Engineers										13
Carylon Corp										13
CAT Pumps										13
CB&I										14
CDM										14
CEI-Carbon Enterprises Inc.										14
CH2M Hill										14
CHEMetrics Inc										14
Chemilizer Products Inc										15
Chemineer										15
Chemline Inc										15
Chem-Tainer Industries										15
Chemtrol										15
Chemtura Corp										15

Company name	Operations and maintenance	Consultant engineer	Design / build / construction	Water Chemicals	Membranes / membrane systems	Membrane manufacturer	Water / wastewater treatment equipment	Network equipment	Other Accessories	Page
Christ Water Technology Americas, LLC										15
Cla-Val Co										16
Clearwater Enviro Technologies Inc										16
Clow Valve										16
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GF Piping Systems										31
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Water Market USA

Desalination and Reuse Inventory and Tracker

Global Water Intelligence

Desalination and Reuse Inventory and Tracker

Current and future desalination projects

Project	Plant	Contact	Client	Expected cost	Project Structure	Status (GWI Desal Tracker, May 2009)
Bay Area Regional Desalination Project (BARDP), CA			Bay Area Regional Desalination Project Partners, East Bay Municipal Utility District (EBMUD), San Francisco Public Utilities Commission (SFPUC), the Santa Clara Valley Water District (SCVWD) and Contra Costa Water District (CCWD)			
Brownsville, TX						On 30 December 2008, NRS published the Texas Seawater Desalination Demonstration Project pilot study for the Texas State Water Development Board (TWDB). Seawater desalination is technically feasible, but more expensive than previously thought. The Brownsville Public Utilities Board therefore proposed to construct a second, bigger 2.5 MGD (9,500m3/d) pilot plant for a total estimated cost of $67 million. The financing package will include a $20 million loan from the TWDB, a $28.2 million grant from the state, and $19.3 million from the TWDB State Participation Fund.
Calleguas Creek, CA					The Department of Water Resources will underwrite half the cost for the City of Camarillo	
Cambria, CA				$13.7 million		A 3,300m3/d SWRO plant is planned using subsurface wells, at either San Simeon Creek, or Santa Rosa to the south. A geotechnical study is planned at Santa Rosa to assess the site's suitability, but an environmental assessment for this preliminary site work must be completed first by the US Army Corps of Engineers. The study will probably be started in September 2009 and will take around six months to complete. The schedule of the tender process and construction will depend on financing and the outcome of the environmental and technical studies.

