

Water Utility Privatization:
A Comparison of Commercially-Owned And
Government-Owned Utilities

Case Study: Washington Suburban and
Sanitary Commission

An Independent Assessment

Maryland Tax Education Foundation

December 11, 2008

Abstract

This paper examines WSSC and finds the utility is on par with its peers in many ways; however, it needs to improve its water main replacement rate and lower its operating costs. WSSC might benefit from the managerial input of an investor-owned utility.

TABLE OF CONTENTS

I. EXECUTIVE SUMMARY	1
II. PURPOSE OF STUDY	4
III. THE WASHINGTON SUBURBAN SANITARY COMMISSION.....	5
IV. FINANCIAL PERFORMANCE: WSSC VS. GOVERNMENT-OWNED UTILITIES ..	6
Sample Size and Composition.....	6
Description of Government-Owned Water Utilities	6
<i>Marin Municipal Water District</i>	6
<i>Fairfax County Water Authority</i>	6
<i>Contra Costa Water District</i>	7
<i>Miami-Dade Water and Sewer Department</i>	7
<i>Suffolk County Water Authority</i>	7
Government-Owned Utilities Financial Ratios	7
<i>Operating Income to Sales Ratio</i>	7
<i>Net Surplus to Equity Ratio</i>	8
<i>Sales to Assets Ratio</i>	9
<i>Debt to Assets Ratio</i>	9
<i>Operating Income to Interest Expense Ratio</i>	10
<i>Sales to Number of Employees, Assets to Number of Employees</i>	11
<i>Summary</i>	12
V. INVESTOR-OWNED UTILITIES VS. GOVERNMENT-OWNED UTILITIES	12
Description of Investor-Owned Water Utilities	13
<i>Pennichuck Corporation</i>	13
<i>Artesian Resources Corporation</i>	13
<i>Connecticut Water Service, Inc.</i>	13
<i>Middlesex Water Company</i>	13
<i>San Jose Water Corporation.</i>	13
<i>American States Water Company</i>	13
<i>California Water Service Group</i>	13
<i>Aqua America, Inc</i>	14
Financial Performance: Government-Owned Utilities vs. Investor-Owned Utilities	14
Operating Income to Sales/Net Income to Equity.....	14

Sales to Assets	15
Debt to Assets, Operating Income to Interest Expense	15
Sales to Number of Employees, Assets to Number of Employees	15
<i>Summary</i>	15
VI. WSSC VS. INVESTOR-OWNED UTILITIES	16
<i>Summary</i>	19
VII. OPERATING BENCHMARKS: WSSC VS. GOVERNMENT-OWNED UTILITIES..	20
American Water Works Association (AWWA).....	20
Water and Sewer Charges	20
System Renewal and Replacement Rate	20
Operating and Maintenance Costs.....	21
<i>Summary</i>	22
VIII. WATER AND SEWER RATES OF NEIGHBORING UTILITIES	22
IX. GOVERNANCE.....	22
X. ABOUT THE AUTHORS.....	24
XI. ABOUT THE MARYLAND TAX EDUCATION FOUNDATION.....	24
XII. ACKNOWLEDGEMENTS.....	25

I. EXECUTIVE SUMMARY

Benign Neglect

- Benign Neglect: WSSC is a victim of “benign neglect.” Clean water comes out of the taps now, so elected officials defer solutions on governance, cost structure and pipeline replacement. As a result, future political leaders and ratepayers will make the tough calls. A continued rise in water main breaks might present a public health issue at some time. The major June (Montgomery County) and November (Prince Georges County) water main breaks, both of which called for boiled water in large areas, could be a harbinger of things to come.

Comparable Financial Rankings

- WSSC Ranks OK with Government Peers: WSSC performs in line with its government-owned peers in most financial respects. Its prices are in line with comparable utilities nationwide and with four local utilities we sampled. It performs its daily functions reasonably well, and it should not be considered distressed or deeply troubled.
- WSSC Ranks Below Investor-Owned Peers: Both WSSC and its government-owned peers underperform investor-owned utilities in most financial measurements. The reason appears to be relatively higher operating costs at the government-owned utilities. This situation suggests that WSSC (and its peers) could learn something from investor-owned utilities about cost control.

Operating Issues

- High O&M Cost, Low Productivity: Compared to its government-owned peers, certain of WSSC’s operating and maintenance costs are somewhat high. WSSC’s asset productivity, relative to the investor-owned utilities, is low. This may indicate overbuilt systems or gold-plated capital costs. Both findings merit follow-up by independent experts, who could be retained at moderate cost to the counties.
- Low Replacement Rate Invites Trouble Later On: WSSC has the lowest line replacement rate among its peers, suggesting that many of its pipes are past their useful life. This raises the possibility of (i) more expensive replacement costs later; and (ii) a heightened risk of more pipeline breaks. Not replacing lines now defers the problem into future years. This situation is akin to not spending \$35 to replace the oil in your car every three months and thus increasing the chance of engine failure in two years at a \$5,000 cost. For WSSC, not boosting line replacement activity now could mean higher rate increases in the future.

- Unscientific Oversight: Neither the Prince George's nor Montgomery County governments perform studies that compare WSSC to its peers. Nor do they perform independent research into the WSSC information presented to them, although WSSC has an internal audit office reporting directly to the commissioners. (This fact may surprise taxpayers, but the MTEF noted similar deficiencies in the Montgomery County Council's oversight of the Montgomery County Public System in an earlier study.) The oversight of the county governments is less than scientific and systematic.

Recommendations

- Bifurcation is Impractical: Bifurcation (or splitting WSSC into two pieces) as a means to redress policy differences between Montgomery County and Prince George's County is impractical. An inexpensive substitute tactic is to reduce Board conflict by the use of alternate commissioners, so Board personality clashes are avoided.
- Diversify Commission Experience: Despite the fact that WSSC resembles a large business, the County Executives appoint commissioners with no large business experience. Both counties have many residents with such backgrounds. The County Executives should recruit two or three commissioners with experience in a large business to round out the current portfolio of skills.
- Professionalize the Board: Alternatively, the Board could be reconstituted to resemble that of the DC Water and Sewer Authority, where government and business professionals dominate rather than political appointees. The WSSC's current Board governance structure results in needless infighting between County commissioners, lack of preparation by commissioners, and morale reduction within the workforce. The latter has prompted a slow exodus of middle managers to other water utilities and other employers.
- Increase Commissioner Compensation: Given the work involved, the \$13,000 salaries for the part-time commissioners should be increased as a matter of fairness. This action may serve to attract commissioners with large business experience.
- Enhance Existing Oversight: As noted, the oversight of the county government is less than scientific and systematic. Hiring independent experts to assist in evaluating WSSC could be accomplished at a moderate cost.
- Consider Private Section Innovations for Everyday Operations: As a means to bring costs in line with investor-owned firms, the two counties might consider

subcontracting a portion of WSSC's business operations (not the assets) to an investor-owned utility. This could be accomplished in a manner that is fair to the existing workforce. Narrowing WSSC's operating cost structure to half of the difference between it and the investor-owned median would save \$10 million per year and improving capital expense efficiency by 10% would save \$17 million per year. \$27 million per year is enough to boost replacement rates, and to moderate future rate increases. Critics of this idea will immediately point to Atlanta's privatization failure, but the successful contracting of water services has been accomplished in many government utilities, albeit smaller than WSSC. New York Governor David Paterson recently said, "I believe the private sector can be a source of innovation, allowing us to increase the value, efficiency and safety of assets like our aging infrastructure system."

- Subcontract a Portion of the Line Replacement Development Program : Most of the line replacement work is done by independent contractors, but the planning, oversight and administration of the program is WSSC's responsibility. WSSC has had delays in rolling out the replacement work, even when funding has been made available in its budget. Dedicating long term funding for a portion of this work and subcontracting this part of it to a third party project/engineering firm might be a viable option to accelerate the process.

II. PURPOSE OF STUDY

WSSC is a water and sewer utility serving Montgomery and Prince George's Counties. It is the eighth largest water utility in the U.S. In recent years, it increased its rates, while at the same time experiencing a greater number of water main breaks, increased management turnover and diminished water line replacement. Neither the Montgomery County nor Prince George's County governments evaluate WSSC in any systematic way, despite its effect on taxpayers' pocketbooks and its importance to public health. The purpose of the study is to evaluate WSSC relative to its peers, to make conclusions about its performance and to raise topics of concern for policymakers.

III. THE WASHINGTON SUBURBAN SANITARY COMMISSION

The Washington Suburban Sanitary Commission (“WSSC” or the “Commission”) was established in 1918 and provides water to 1.8 million residents in Montgomery County and Prince George’s County through 460,000 customer accounts. The Commission grew rapidly during the 60s and 70s and now has a service area of 1,000 square miles covered by 5,300 miles of water main lines and 5,200 miles of sewer main lines. WSSC employs 1,500 people.

Many of WSSC’s facilities are well established. For instance, its principal water supply facility, the Potomac River Filtration Plant in western Montgomery County, was constructed in 1950. The Little Seneca Creek Dam and Reservoir in northwestern Montgomery County was constructed in 1985. The Parkway Wastewater Treatment Plant was constructed in the mid-1950s. The Piscataway Plant in southwestern Prince George’s County was constructed in the 1960s.

The Commission operates two water filtration plants, the Patuxent and the Potomac plants, and six wastewater treatment plants. Total average production capacity is 167 million gallons per day (MGD). WSSC can handle up to 74 MGD of wastewater. The Blue Plains Water Pollution Control Plant can handle an additional 169 MGD of wastewater under a cost sharing agreement with the District of Columbia.

WSSC makes a net surplus, but it does not try to maximize revenues over expenses. Any surplus is reinvested in the business or applied toward rate reduction in the following year. As a government-owned organization, its stated objective is to provide quality water and sewer service at a reasonable cost. The Commission operates in an industry and service area that is relatively immune to economic downturns. Local climate and geographic conditions are favorable for its business.

Summary financial information is set forth below (in millions) for fiscal 2008.

Income Statement Data

Revenues	\$ 489
Net Surplus	86

Balance Sheet Data

Current Assets	\$ 441
Net Plant	4,389
Total Assets	4,874
Debt	1,359
Net Assets	3,309

IV. FINANCIAL PERFORMANCE: WSSC VS. GOVERNMENT-OWNED UTILITIES

Our evaluation of WSSC began with a financial analysis, whereby WSSC’s financial performance was measured against two peer groups: (1) a group of similar government-owned utilities; and (2) a group of investor-owned utilities. We calculated financial statistics for the groups, determined median results and made conclusions about WSSC’s performance.

Sample Size and Composition

In this research we compare WSSC first to a peer group of government-owned water utilities. Table 1 presents this peer group.

Table 1
Comparable Government-Owned Water Utilities

Utility	Primary County	State
Marin Municipal Water District	Marin County	California
Fairfax County Water Authority	Fairfax County	Virginia
The Contra Costa Water District Contra	Costa County	California
The Miami-Dade Water and Sewer Department	Miami-Dade County	Florida
Suffolk County Water Authority	Suffolk County	New York

These five entities, although smaller in size than WSSC, operate in similar suburban environments and serve customers with similar purchasing power. In order to derive this sample, the list of the one hundred most affluent suburban counties across the US was obtained. Counties that were covered by investor-owned water utilities and counties that were not highly populated were eliminated from the list. In addition, counties that had desert-like climates were eliminated. Others were excluded because they did not have a distinct water and waste water authority that filed independent financial data.

Description of Government-Owned Water Utilities

Marin Municipal Water District

The Marin Municipal Water District is a public agency that provides drinking water to 190,000 people in a 147-square-mile area of south and central Marin County, California. The District has 250 employees. (Source: <http://www.marinwater.org/>)

Fairfax County Water Authority

Fairfax County Water Authority (FCWA) is Virginia’s largest water utility, serving one out of every five Virginians who obtain their water from public utilities. Nearly 1.5 million people in the Northern Virginia communities of Fairfax, Loudoun, Prince William and Alexandria depend on Fairfax Water. 235,000 mostly residential accounts in Fairfax County comprise about 60 percent of total sales. The Authority has 400 employees. (Source: <http://www.fcwa.org/>)

Contra Costa Water District

Contra Costa Water District provides water to 550,000 customers from a single source, the Sacramento-San Joaquin delta in California. CCWD has 340 employees. (Source: <http://www.ccwater.com/>)

Miami-Dade Water and Sewer Department

Miami-Dade Water and Sewer Department (MDWSD) provides water to 334,000 retail customers and 13 wholesale customers. Distribution throughout the service area of 400 square miles is performed through 7,300 miles of treated water pipes and 6,048 miles of collection and transmission pipes. The Department has 2,427 employees. (Source: <http://www.miamidade.gov/wasd/>)

Suffolk County Water Authority

Suffolk County Water Authority (SCWA) provides water to approximately 1.2 million individuals through 352,000 accounts. The authority operates 231 pump stations, 5,700 miles of pipes and 62 storage facilities. SCWA is the largest supplier in the nation, based entirely upon groundwater. The Authority has 600 employees. (Source: www.scwa.com/)

Government-Owned Utilities Financial Ratios

The following financial ratios were utilized: operating income/sales, net surplus/equity, sales/assets, debt/assets, and operating income/interest expense. By using median results as a comparator to WSSC, we attempt to diminish the effect of specific abnormalities in a given sample.

Operating Income to Sales Ratio

Operating income to sales is a popular financial ratio that assesses how well revenues exceed costs. Operating income equals total revenues minus all operating expenses, such as cost of goods sold, administrative expenses, and depreciation (but excluding interest costs). WSSC has a superior margin (0.22) compared to the median of the government-owned peer group (0.15).

Table 2
Government-Owned Water Utilities
Profitability: Operating Income to Sales Ratio – 2007

Utility	Ratio
WSSC	0.22
Government-Owned Peer Group:	
Marin County, California	0.01
Fairfax County, Virginia	0.37
Contra Costa County, California	0.20
Miami-Dade County, Florida	(0.09)
Suffolk County, New York	0.15
Median:	0.15

Net Surplus to Equity Ratio

Net surplus to equity, also known as return on equity, is a measure of the return on money provided by the firm’s owners. The private sector equates net surplus with net income. Government-owned companies refer to “equity” as “net assets” for accounting purposes because they do not have shareholders per se. In this study, shareholders’ equity and net assets are assumed to be equivalents.

Utilities need net surplus to fund growth. Because historical depreciation may not reflect the actual cost of plant and pipeline replacements, net surplus is needed to finance capital expenses as well as growth. WSSC’s return (0.03) is in line with the government-owned median (0.03).

Table 3
Government-Owned Water Utilities
Profitability: Net Surplus to Equity Ratio – 2007

Utility	Ratio
WSSC	0.03
Government-Owned Peer Group:	
Marin County, California	0.03
Fairfax County, Virginia	0.06
Contra Costa County, California	0.05
Miami-Dade County, Florida	0.02
Suffolk County, New York	0.03
Median:	0.03

Sales to Assets Ratio

Sales to assets is a financial ratio that indicates asset productivity. This ratio measures the sales generated per dollar of assets employed by the utility. The industry's low asset turnover shows a capital intensive business. WSSC asset turnover of 0.10 is below the median (0.11) in 2007.

Table 4
Government-Owned Water Utilities
Productivity: Sales to Assets Ratio – 2007

Utility	Ratio
WSSC	0.10
Government-Owned Peer Group:	
Marin County, California	0.14
Fairfax County, Virginia	0.07
Contra Costa County, California	0.08
Miami-Dade County, Florida	0.11
Suffolk County, New York	0.11
Median:	0.11

Debt to Assets Ratio

A debt to assets ratio shows how much leverage WSSC utilizes relative to its assets and is a reflection of creditworthiness. For the construction of this ratio, we use total liabilities (including those maturing in one year) and total assets (including current assets). All six of the government-owned companies maintain the AAA credit rating, because of the implicit (or explicit in WSSC's case) guarantees of the counties.

WSSC debt to asset ratio is lower (0.33) than the government-owned median of 0.44. This indicates opportunities for WSSC to resort to additional borrowings in the future. The next table presents the ratios.

Table 5
Government-Owned Water Utilities
Credit: Debt to Assets Ratio – 2007

Utility	Ratio
WSSC	0.33
Government-Owned Peer Group:	
Marin County, California	0.23
Fairfax County, Virginia	0.36
Contra Costa County, California	0.44
Miami-Dade County, Florida	0.45
Suffolk County, New York	0.56
Median:	0.44

Operating Income to Interest Expense Ratio

Operating income to interest expense shows how many times a utility covers its interest expense with operating income. Operating income relates to the business and excludes interest income and dividend income from investments.

In 2007, WSSC had a 1.62 ratio, which indicates that the Commission was capable of meeting its debt obligations, relying solely on its operating income. The government-owned median ratio (0.72) is below 1.00 due to the fact that Miami-Dade water authority posted negative operating income. An adjusted average (1.02) does not take this entity into account. The table below presents operating income/interest expense ratios for the selected utilities.

Table 6
Government-Owned Water Utilities
Credit: Operating Income to Interest Expense Ratio – 2007

Utility	Ratio
WSSC	1.62
Government-Owned Peer Group:	
Marin County, California	0.14
Fairfax County, Virginia	2.97
Contra Costa County, California	0.72
Miami-Dade County, Florida	(0.64)
Suffolk County, New York	1.32
Median:	0.72
Adjusted Median:	1.02

Sales to Number of Employees, Assets to Number of Employees

Sales to number of employees ratio shows how many employees WSSC needs to have to maintain a certain level of revenues. In other words, this ratio indicates how many dollars of revenues each employee generates. The asset to number of employees ratio has a similar interpretation, as it shows how many employees the utility employs in order to manage its existing assets. In other words, this ratio indicates how much of inventory, tools, property, plant and equipment the business allocates to an employee in order for the employee to produce revenue.

WSSC has somewhat higher sales to number of employees than the peer group (0.31 vs. 0.25) but higher assets to number of employees than the peer group (3.12 vs. 2.69). The next two tables present sales to number of employees and assets to number of employees' ratios for the government-owned utilities.

Table 7
Government-Owned Water Utilities
Productivity: Sales to Number of Employees Ratio – 2007

Utility	Ratio
WSSC	0.31
Government-Owned Peer Group:	
Marin County, California	0.20
Fairfax County, Virginia	0.34
Contra Costa County, California	0.29
Miami-Dade County, Florida	0.18
Suffolk County, New York	0.22
Median:	0.25

Table 8
Government-Owned Water Utilities
Assets to Number of Employees Ratio – 2007

Utility	Ratio
WSSC	3.13
<u>Government-Owned Peer Group</u>	
Marin County, California	1.42
Fairfax County, Virginia	4.60
Contra Costa County, California	3.76
Miami-Dade County, Florida	1.60
Suffolk County, New York	2.09
<u>Median:</u>	2.69

In Tables 7 and 8 note how the utilities with higher assets per employee provide more revenue per employee.

Summary

Compared to its peers, WSSC has a positive (i.e., conservative) debt posture with average profitability and average asset turnover. Its higher revenue by employee is consistent with its relatively higher amount of assets per employee. This translates into a B- grade for financial performance compared to the government-owned peer group.

V. INVESTOR-OWNED UTILITIES VS. GOVERNMENT-OWNED UTILITIES

In this section, we provide a group of investor-owned utilities that constitute the investor-owned peer group.

Table 9
Composition of the Investor-Owned Peer Group

Utility	State
Pennichuck Corporation	New Hampshire
Artesian Resources Corporation	Delaware
Connecticut Water Service, Inc.	Connecticut
Middlesex Water Company	New Jersey and Delaware
SJW Corp.	California
American States Water Company	California and Arizona
California Water Service Group	California, New Mexico, Washington, and Hawaii
Aqua America, Inc	Pennsylvania, Ohio, Illinois, Texas, Florida, Indiana, Missouri, Virginia, South Carolina, New Jersey, Maine, Missouri and North Carolina

The eight utilities were selected from a list of 13 water utilities listed on the stock exchanges. Companies that operated principally in non suburban areas or desert-climate conditions were eliminated from the list.

Description of Investor-Owned Water Utilities

Pennichuck Corporation

Pennichuck Corporation (PC) services the population of 110,000 in southern New Hampshire. The company employs 98 people. (Source: <http://www.pennichuck.com/>)

Artesian Resources Corporation

Artesian Water Corporation (ARC) distributes and sells water to customers throughout the state of Delaware. Artesian Water serves 73,800 customers, providing water service to about 243,000 residents. Overall, ARC operates 1,050 miles of water pipes and covers 208 square miles of service area. It employs 205 people. (Source: <http://www.artesianwater.com/>)

Connecticut Water Service, Inc.

Connecticut Water Service (CWS) provides water service to more than 86,000 customers or nearly 300,000 people in the state of Connecticut. The company employs 206 people. (Source: <http://www.ctwater.com/>)

Middlesex Water Company

Middlesex Water Company (MWC) operates regulated water utility and wastewater system in New Jersey and Delaware. It provides water services to 90,000 customers or nearly 303,000 people. MWC employs 254 people. (Source: <http://www.middlesexwater.com/hirez/>)

San Jose Water Corporation.

San Jose Water Corporation (SJW) operates a regulated water utility and wastewater system in California. It provides water services to approximately 225,000 customers, comprising a population of one million people. SJW employs 364 people. (Source: <http://www.sjwater.com/>)

American States Water Company

American States Water Company (ASW) provides water to 254,000 customers or nearly one million people in the state of California. Though most revenues come from the regulated water business, the company engages in nonregulated activities, such as related water and waste water services, operating and maintain of wastewater systems, and water marketing for the U.S. government. The company employs 572 people. (Source: <http://swater.com/>)

California Water Service Group

California Water Service Group is the third largest water utility in the U.S. The Group provides water to 500,000 customers (or nearly 2 million people) in the states of California, New Mexico, Washington, and Hawaii. The company employs 922 people. (Source: <http://calwater.com/>)

Aqua America, Inc

Aqua America, Inc. provides water to a population of three million people across the states of Pennsylvania, Ohio, Illinois, Texas, Florida, Indiana, Missouri, Virginia, South Carolina, New Jersey, Maine, Missouri and North Carolina. The company employs 1,585 people. (Source: [www.http://aquaamerica.com/](http://aquaamerica.com/))

Financial Performance: Government-Owned Utilities vs. Investor-Owned Utilities

In this section, government-owned utility financial ratios are compared to investor-owned utility ratios. Our analysis showed that investor-owned utilities substantially outperformed government-owned utilities in profitability, asset turnover and employee productivity. The investor utilities operate with higher leverage (0.70 vs. 0.44), but their higher profits enable them to have better interest coverage than the government utilities.

Table 10
Comparison of Financial Ratios
Government-Owned vs. Investor-Owned

Ratios	2007 Medians	
	Government	Investor
Operating Income to Sales	0.15	0.26
Net Income (or Surplus) to Equity (or Net Assets)	0.02 ⁽¹⁾	0.08
Sales to Assets	0.11	0.21
Debt to Assets	0.44	0.70
Operating Income to Interest Expense	0.72	3.28
Sales (\$ million) to Number of Employees	0.25	0.38
Assets (\$ million) to Number of Employees	2.69	1.70
⁽¹⁾ Adjusted for assumed 35% income tax rate, since government-owned utilities do not pay income taxes.		

Operating Income to Sales/Net Income to Equity

The differences in the profitability ratios could be explained by either (i) investor utilities having higher rates than government utilities; or (ii) both sets of utilities having similar rates but the investor utilities having lower expenses. With respect to rates, government-owned utilities face political pressure to keep rates down. At the same time, state utility commissions set the rates for most investor-owned firms, and these commissions face political pressure as well.

Based on our research, the culprit appears to be differing expense structures. Government-owned utilities are under less pressure than investor-owned utilities to control costs. For political patronage reasons, they may be personnel “top heavy,” with civil service regulations diminishing the normal turnover of employees and civil service salaries restricting the recruitment of highly-qualified applicants. This was evident when WSSC attempted to modernize its information technology (IT) department several years ago. Furthermore, the

contracting process in government-owned utilities may have patronage overtones and low-bid arrangements that are less than optimal (cost wise) for the utility. Two individuals with whom we spoke said that WSSC's contracts were sometimes "steered" to certain firms that were not qualified to perform the work. The work then had to be "redone" by qualified companies, meaning that WSSC and ratepayers (i.e. the taxpayers) paid for the same job twice on occasion.

Sales to Assets

The sizeable difference in sales to asset ratios (0.11 for government-owned vs. 0.21 for investor-owned) suggests that the investor-owned utilities are getting much more productivity out of their assets, compared to the governmental operations. Absent a significant differential in rates as discussed above, the ratios indicate that the government utilities build plants, pipelines and other facilities in an inefficient manner.

To a degree, the inefficiency is moderated by the fact that several of the investor-owned utilities derive a small portion of sales from providing management services to municipalities that physically own the plants and pipelines.

Debt to Assets, Operating Income to Interest Expense

With their superior profitability, the investor-owned utilities support higher debt levels than their government-owned peers. The government-owned utilities have AAA bond ratings due to the credit support of their governments. The investor-owned companies have investment grade bond ratings of AA to BBB, which provide reasonable interest costs relative to the AAA rating.

Sales to Number of Employees, Assets to Number of Employees

On average, government-owned utilities use \$2.7 million of assets and generate \$250,000 of revenues per employee. Investor-owned utilities are significantly more efficient, as they use \$1.7 million of assets and generate \$380,000 of revenues per employee. This dramatic difference suggests once again that investor-owned utilities are more productive, because they generate higher revenues from a smaller amount of resources. It is important to point out that these measurements are adjusted to the number of employees; and, therefore, they are not sensitive to the size of a particular utility.

Summary

The government utilities underperform the investor-owned utilities from a financial and productivity standpoint. This fact has been noted by U.S. utility observers and World Bank experts. "By and large, the government does badly operating businesses," according to Michal Mussa, a senior fellow at the Peterson Institute and former economist at the International Monetary Fund, "and what we have seen over the years, not so much in United States but where other countries owned a lot more business . . ., is that they have gotten out of these businesses" (Washington Post, 9-24-08).

VI. WSSC VS. INVESTOR-OWNED UTILITIES

In this section, we compare WSSC specifically to investor-owned utilities. WSSC's operating margin is lower than the investor-owned medians. The result appears attributable to higher expenses rather than lower rates.

In WSSC could convert one-half the difference in operating margin (2%) to profits, the utility would have an additional \$10 million per year in cash flow.

Table 11
Operating Income to Sales Ratio– 2007

Utility	Ratio
WSSC	0.22
Investor-Owned Peer Group:	
Pennichuck Corporation	0.26
Artesian Resources Corporation	0.30
Connecticut Water Service, Inc.	0.29
Middlesex Water Company	0.26
SJW Corp.	0.21
American States Water Company	0.22
California Water Service Group	0.17
Aqua America, Inc	0.36
Median:	0.26

Compared to investor-owned firms (median 0.08), WSSC has a low return. This reflects WSSC's lower operating margin, as well as its conservative leverage posture. The following table presents net income to equity ratios for the companies.

Table 12
Net Income to Equity Ratio – 2007

Utility	Ratio
WSSC	0.02 ⁽¹⁾
Investors Owned PG:	
Pennichuck Corporation	0.08
Artesian Resources Corporation	0.07
Connecticut Water Service, Inc.	0.09
Middlesex Water Company	0.09
SJW Corp.	0.08
American States Water Company	0.09
California Water Service Group	0.08
Aqua America, Inc	0.10
Median:	0.08
⁽¹⁾ Assumes 35% income tax rate.	

It is important to point out that investor-owned firms have much higher asset turnover ratios than WSSC. This suggests relatively poor productivity or unduly high capital costs by WSSC. A partial explanation may reside in (i) investor-owned utilities having more servicing revenues than WSSC; and/or (ii) WSSC having lower rates yet similar capital expenditure. See the next table.

Table 13
Sales to Assets Ratio– 2007

Utility	Ratio
WSSC	0.10
Investor-Owned Peer Group:	
Pennichuck Corporation	0.18
Artesian Resources Corporation	0.18
Connecticut Water Service, Inc.	0.16
Middlesex Water Company	0.22
SJW Corp.	0.27
American States Water Company	0.31
California Water Service Group	0.31
Aqua America, Inc	0.19
Median:	0.21

On average investor-owned utilities have higher revenues per employee than WSSC (\$380,000 vs. \$310,000). See the next table.

Table 14
Sales to Number of Employees - 2007

Utility	Ratio
WSSC	0.31
Investor-Owned Peer Group:	
Pennichuck Corporation	0.30
Artesian Resources Corporation	0.26
Connecticut Water Service, Inc.	0.29
Middlesex Water Company	0.34
SJW Corp.	0.57
American States Water Company	0.53
California Water Service Group	0.40
Aqua America, Inc	0.38
Median:	0.38

Moreover, WSSC's assets per employee ratio are much higher than the average for the investor-owned peer group (\$3.13 million vs. \$1.7 million). As noted, a partial explanation for this sizeable difference is the fact that the investor-owned firms have some servicing activities where their employees manage assets owned by others; however, most of the differences appear to be attributable to inefficiencies or high capital costs. If WSSC could improve its capital cost profile by just 10% annually, it would have an additional \$17 million in cash flow.

Table 15
Assets to Number of Employees - 2007

Utility	Ratio
WSSC	3.13
Investor-Owned Peer Group:	
Pennichuck Corporation	1.72
Artesian Resources Corporation	1.44
Connecticut Water Service, Inc.	1.75
Middlesex Water Company	1.55
SJW Corp.	2.11
American States Water Company	1.69
California Water Service Group	1.28
Aqua America, Inc	2.04
Median:	1.70

Generally speaking, investor-owned companies utilize more external debt financing in their capital structures. See the next table.

Table 16
Debt to Assets - 2007

Utility	Ratio
WSSC	0.33
Investor-Owned Peer Group:	
Pennichuck Corporation	0.73
Artesian Resources Corporation	0.71
Connecticut Water Service, Inc.	0.72
Middlesex Water Company	0.65
SJW Corp.	0.69
American States Water Company	0.69
California Water Service Group	0.67
Aqua America, Inc	0.70
Median:	0.70

Investor-owned companies maintain higher coverage ratios (median 3.28) relative to WSSC. It is important to note that WSSC borrows at lower rates compared to a for-profit business. WSSC's bonds are guaranteed by Montgomery and Prince George counties and are tax exempt.

Table 17
Operating Income to Interest Expense - 2007

Utility	Ratio
WSSC	1.62
Investor-Owned Peer Group:	
Pennichuck Corporation	2.67
Artesian Resources Corporation	2.52
Connecticut Water Service, Inc.	3.83
Middlesex Water Company	3.43
SJW Corp.	3.33
American States Water Company	3.14
California Water Service Group	3.62
Aqua America, Inc	3.23
Median:	3.28

Summary

The evidence indicates that WSSC needs more assets and more employees to deliver the same revenue as an investor-owned utility.

VII. OPERATING BENCHMARKS: WSSC VS. GOVERNMENT-OWNED UTILITIES

American Water Works Association (AWWA)

American Water Works Association (AWWA), the national non-profit organization of water utilities, produces annual benchmarking reports, which provide valuable performance indicators for U.S. water and wastewater utilities. AWWA kindly agreed to provide operational statistics obtained from its recent 2007 study of the 15 largest U.S. water and sewer utilities (size of population served more than 500,000 people). The composition of the sample is confidential, but it was comprised totally of government-owned utilities.

Water and Sewer Charges

It is challenging to produce a reliable benchmark for water and sewer charges, because each water utility operates in a unique set of conditions. In some areas rates may be artificially high or low depending on the elected officials' current objectives. Moreover, each utility faces different wastewater discharge requirements, raw water quality, mix of service to residential and wholesale customers, age and condition of facilities, and other items. For this reason, we rely on medians in reaching conclusions about WSSC's relative performance.

AWWA calculates the bill amount for a typical residential customer served through a 3/4 x 5/8-inch meter. All recurring costs are included; however the initial hook-up fee is ignored. The next table compares WSSC charges with the industry max, min, and median figures. WSSC's water charges equal the industry median (\$23.88) and its wastewater charges are slightly above the median (\$34.01 vs. \$31.12). We also note that WSSC charges were in line with four other local water utilities.

Table 18
Monthly Residential Water and Sewer Charges
(7500 gallons of water per month)

Utility	Water Charges	Sewer Charges
WSSC	\$ 23.88	\$ 34.01
Industry Min	\$ 9.03	\$ 13.97
Industry Max	\$ 34.70	\$ 70.14
Industry Median	\$ 23.88	\$ 31.12

System Renewal and Replacement Rate

According to AWWC, a water distribution system's components default target life is 50 years and the wastewater collection system default target life is 100 years. In other words, this suggests that minimal replacement rate should be approximately 2% for water pipeline and 1% for wastewater pipeline. As shown in the table below, WSSC fails to maintain the minimal replacement rate, and the Commission has the lowest replacement rate in the sample.

Table 19
Water and Wastewater Pipeline Replacement Rate

Utility	Water Pipeline	Wastewater Pipeline
WSSC	1.0 %	0.5 %
Industry Min	1.0 %	0.0 %
Industry Max	19.0 %	29.0%
Industry Median	5.0%	4.0%

Pursuant to an agreement with federal authorities, WSSC is locked into a 10 year, \$400 million capital spending program (beginning in 2006) to reduce sewage overflow during rainstorms. WSSC had a chronic problem with such overflows, which violated environmental regulations.

Operating and Maintenance Costs

An operating and maintenance (O&M) cost comparative analysis helps to understand how much a water utility spends in order to maintain its everyday operations. AWWA collects three cost-related measures: O&M cost per account, O&M cost per million gallons (MG) processed, and direct cost of treatment per million gallons. It is important to point out that depreciation is excluded from total O&M costs, because some utilities do not depreciate their assets, or are just now beginning to depreciate assets. Excluding depreciation expense helps to normalize the data. In table below compares WSSC's O&M costs to the industry medians.

Table 20
Water and Wastewater Operating and Maintenance Cost Ratios

Utility	WSSC	Median	Difference (%)
Water O&M Costs per Account	\$ 175	\$ 219	-20
Water O&M Costs per MG processed	\$ 1,207	\$ 1,059	+14
Water Direct Cost of treatment per MG	\$ 355	\$ 283	+25
Wastewater O&M Costs per Account	\$ 298	\$ 209	+43
Wastewater O&M Costs per MG processed	\$ 1,787	\$ 1,500	+19
Wastewater Direct Cost of treatment per MG	\$ 1,140	\$ 630	+81

Water and wastewater O&M costs of the Commission are above industry medians. For water operations the difference is particularly large for costs per MG processed. For wastewater operations the difference is particularly large for costs per MG processed and direct cost of treatment per MG.

WSSC has suggested that the AWWA comparisons overstate WSSC's relative costs because the data inputs from other utilities exclude certain O&M expenses that might be absorbed by a municipal government or otherwise ignored on the calculations. We checked with AWWA

on this point and factored in WSSC’s revisions in Table 20. However, the differences in Table 20 are evident.

Summary

WSSC’s pricing is in line with its government-owned peers. However, its replacement rates are way below the medians and certain O&M cost ratios are above the medians.

VIII. WATER AND SEWER RATES OF NEIGHBORING UTILITIES

WSSC rates are in line with neighboring utilities.

Table 21

Water and Sewer Monthly Rates in the Neighboring Counties, September 2008

Utility	Water Rate (7,500 gallons/month)	Account Maintenance Fee (residential meter)	Sewer Rate (flat or 7,500 gallons/month)	Total
WSSC	\$ 24.00	\$ 3.67	\$22.00	\$49.67
Howard County	9.80	29.00	14.00	52.80
Anne Arundel County	16.58	6.00	29.18	62.10
Fairfax County	13.88	7.40	28.05	49.33
Arlington County	25.13	-----	53.93	79.05
AWWA Industry Median	23.88	NA	31.12	55.00

IX. GOVERNANCE

Major policy directives for WSSC are decided by a Board of six commissioners. Three of which are appointed by Montgomery County and three of which are appointed by Prince George’s County. Neither county has a clear majority nor do they have identical goals for WSSC. Ideally, clean water and processed sewage at a reasonable price should be the objective, but WSSC controls 1,500 jobs and \$180 million (per year) in civil engineering contracts, both targets for political meddling. Furthermore, the population disparities and per capita income differences between the counties provide contrary opinions on water rates and capital investment priorities (e.g., which county gets the project first). As a result, decision making at WSSC from time to time becomes paralyzed and hostage to political infighting and personality conflicts. To date, the respective county executives and councils have adopted a hands off policy when such disputes arise.

Several solutions to this problem have been proposed by interested observers:

- Bifurcation: splitting WSSC into two county-specific pieces;
- Alternate Directors: allowing county commissioners with personality (or job) conflicts to miss meetings without losing their vote;
- DC Water and Sewer Authority Model: balancing political appointees with professionals from the county government ranks;

- Independent Seventh Commissioner: having the Governor or state legislature appoint an independent seventh commissioner to break ties; and
- State Control: turning control of the utility over to the state.

We believe bifurcation is impractical giving the integrated nature of WSSC's operations. Furthermore, the \$1.3 billion in WSSC bonds are jointly guaranteed by PG and Montgomery Counties. Unwinding these bonds would be an expensive exercise. Having a state-appointed seventh commissioner also appears impractical, as this individual would be subject to the same political issues as the existing six. State control places the utility one bureaucratic layer further away from taxpayers, and it seems likely to encounter severe local resistance. Alternate commissioners, who would vote in the absence of a sitting commissioner, might relieve some of the occasional strains in governance.

Although the WSSC is a large, business-type organization, the commissioners have little, if any, work experience in such organizations. Both counties have many residents with large business experience, yet the county executives avoid appointing such residents.

The low rate of pay and the infighting at the Commission is a deterrent to some individuals when asked to join the Board. If the pay is increased, the existing and future commissioners may be motivated to spend more time on their duties. At present, some commissioners, particularly on the PG County side, are less than fully prepared at Board meetings, according to two sources. Higher pay might attract business-background commissioners as well.

One idea is to have an independent representative of the Maryland State government try to mediate a new governance set up, since proposed changes are likely to spark the county rivalries.

The counties have no systematic way to compare WSSC to its peers in terms of relative performance. The counties do not hire experts in water utilities to verify budget assertions and plans made by WSSC, even though such items involve tens of million of dollars for county residents.

In an earlier study (2004) of the Montgomery County Public School System (MCPS), MTEF noticed that the County Council, School Board and County Executive had no means of comparing MCPS to its peers. Such peers include demographically similar counties, such as Fairfax (VA), Westchester (NY) and others. The lack of objective measurement systems is troubling given the dollars involved.

X. ABOUT THE AUTHORS

Jeff Hooke is the volunteer, unpaid Chairman of MTEF. He is the author of several books on finance and investment. He is a Baltimore native and resides in Chevy Chase, MD. A Managing Director of Hooke Associates, he was formerly an investment banker and private equity executive. He has written a number of studies for MTEF and other research groups.

Dmitry Mikhaylov is a Masters in Finance candidate at George Washington University. He worked at Citibank in the private client division. He holds a degree from the University of Colorado.

XI. ABOUT THE MARYLAND TAX EDUCATION FOUNDATION

MTEF is a nonprofit, non-partisan organization that studies budget and tax issues in the State of Maryland. Its most recent study covered private equity returns and the implications for public pension funds in Maryland. Its website is www.marylandtaxeducation.org.

XII. ACKNOWLEDGEMENTS

The authors wish to thank individuals in the following organizations for their cooperation:

American Water Works Association
Montgomery County Council
Prince George's County Council
The World Bank
Washington Suburban Sanitary Commission
York Water Co. (publicly traded)
Former WSSC Commissioners
National Association of Water Companies
Middlesex Water Company (publicly traded)