Water Industry Analysis and the Opportunity for Alternative Project Delivery

February 2015

This memo offers an overview of the water industry in the United States and explores possible revenue opportunities to be achieved with alternative project delivery (APD). It is intended to give a sense of the business and policy environment for water projects and evaluate the potential for APD to be used for water supply and sanitation (WSS) infrastructure.

Infrastructure Needs in the Water Sector

There are an enormous number of water supply and sanitation (WSS) systems requiring infrastructure development in the United States. State and federal governments have responded to this need by dedicating resources to advancing alternative project delivery (APD) for WSS systems in the most recent water resources bill, “The Water Resources Reform and Development Act of 2014” (WRRDA). Since the capital spend for this sub-sector makes up for more than 40% of revenue earned by environmental services firms, it is of prime importance to estimate the potential influence that APD may have on the water project pipeline.

The United States Environmental Protection Agency (E.P.A.) estimates a $600 billion dollar need for WSS infrastructure over the next 20 years. The infrastructure gap represents the infrastructure investment needs of the nation’s approximately 52,000 community water systems and 21,400 not-for-profit non-community water systems” (“EPA Drinking Water Infrastructure Needs Survey and Assessment”, 2014). The E.P.A. also estimates that there is a yearly gap of $20 billion between infrastructure need and water utilities’ ability to meet that need.

There are three reasons why the E.P.A. estimates such a large capital improvement need. Many water systems are aging, primarily in the Northeast. Southwest states are also experiencing high population growth, particularly in metro centers. In addition, these states are experiencing water scarcity. Since “population growth is highest in America’s driest states”, this demand leads to greater stress on water infrastructure and competition between personal and commercial access for water sources and delivery (Kearney, 2014).

The federal government has played a supporting role in water projects, primarily though state revolving fund loans and grants administered by the E.P.A. However, the role of the federal government as a funding and financing source has been greatly diminished over the past few decades. According to the “U.S. Infrastructure Finance Needs for Water and Wastewater” report by the Rural Community Assistance Partnership, “The federal government share of wastewater infrastructure spending has shrunk from 78 percent in 1978 to just 3 percent today. In the last four years alone, combined funding for the four largest federal programs that support water and wastewater infrastructure has declined more than 17 percent, not adjusted for inflation.” As federal and state resources remain constrained, municipalities and water utilities will face more burdens in securing funding and financing for public infrastructure projects.

United States Water Industry Analysis

The top environmental services companies – those that capture the largest revenue share of the U.S. WSS industry – are companies with multiple proficiencies. Table 3 and Table 4 show those companies and their revenues. The top twenty
companies in WSS collectively hold a nearly 80% share of water treatment and supply sub-sector revenue and over 65% of wastewater treatment revenue share in the wastewater treatment sub-sector.

### Table 3: Top Water Treatment and Supply Companies

<table>
<thead>
<tr>
<th>Name</th>
<th>Revenue (in US Millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetra Tech Inc.</td>
<td>$1,288.1</td>
</tr>
<tr>
<td>CH2M Hill Ltd.</td>
<td>$1,155.9</td>
</tr>
<tr>
<td>Suez Env. NA. (Inc. Degremont)</td>
<td>$805.0</td>
</tr>
<tr>
<td>AECOM Technology Corp.</td>
<td>$624.9</td>
</tr>
<tr>
<td>MWH Global</td>
<td>$574.4</td>
</tr>
</tbody>
</table>

Source: ENR Top 200 Environmental Firms, 2014

### Table 4: Top Wastewater Treatment Companies

<table>
<thead>
<tr>
<th>Name</th>
<th>Revenue (in US Millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH2M Hill Ltd.</td>
<td>$851.4</td>
</tr>
<tr>
<td>MWH Global</td>
<td>$648.9</td>
</tr>
<tr>
<td>Veolia North Aermica</td>
<td>$628.8</td>
</tr>
<tr>
<td>Aegion Corp</td>
<td>$467.7</td>
</tr>
<tr>
<td>CDM Smith</td>
<td>$428.5</td>
</tr>
</tbody>
</table>

Source: ENR Top 200 Environmental Firms, 2014

WSS companies face a number of challenges to achieving profitability. Due to heavy governmental regulation and the physical nature of water, the sector has high fixed costs. WSS companies are subject to restricted margins because private parties are restricted from setting (and sometimes collecting) user fees. In addition, there is inelastic demand for water; for instance, consumers are less likely to buy more even if major technological or quality advances are made to make water cleaner. Due to these constraints, many of the top WSS players have sought out global project opportunities, alternative contract structures, and other strategies to remain competitive in the field.

Environmental services firms have a number of strategies to achieve profitability, however. Mergers and acquisition (M&A) activities in the water sector reveal that WSS companies see “acquisitions [as] an important growth strategy” (Ernst & Young, 2013). Given their regulated margins, water utilities have used M&A as the tool to “achieve economies of scale and build value.” This strategy has allowed many top firms to gain additional competencies that allow them to seek a diverse array of work in energy production, design, waste, management and science. As a result, top WSS firms also have the ability to tackle global projects. With in-house abilities and larger balance sheets, top WSS are also able to pursue alternative contract structures. These strategies help WSS firms continue to grow and establish market dominance even as the WSS field weatherst economic and governmental changes.

### Alternative Project Delivery in the Water Industry

Alternative project delivery in the water sector is broadly defined as alternative contract structures that range from privatization to structures involving private finance. As of 2002, the Texas Water Development Board “estimated that in the United States there are currently over eight hundred contracts between utilities and privatization contractors. The value of these contracts has been estimated at $500 million annually” (2002). In 2014, the National Association of Water Companies estimated that there are more than 2,000 APD contracts for WSS infrastructure in the United States. In a little more than ten years, APD contracts in the water sector have doubled. Yet, the share of APD projects that employ private finance (the Design-Build-Finance-Operate-Maintain APD model) is a small portion of these contracts. Less than 12% of APD projects are WSS projects that rely on private finance.

Capital expenditures on water infrastructure are estimated to be $39.2 billion in 2014, rising to $52.2 billion by 2016 (IHS Global Insights, 2015). WSS capital expenditures are expected to grow from a compound annual growth rate of 8% by 2016 to a rate of 13% by 2028. Of the $39.2 billion capital expenditures in 2014, capital expenditures made through APD projects makes up only 2% of the total value. Approximately 1.1% of all water projects use APD (based on the number of water systems and the estimate of active APD contracts) and about 0.1% of projects actually employ private finance. Considering that the United States WSS market is approximately $35.2 billion per year and growing at
8% CAGR, APD has barely penetrated the water sector in the United States.

The APD revenue opportunity in the water sector is, comparatively, much smaller than APD opportunities in the transportation or municipal infrastructure markets. Federal initiatives have recently introduced financing tools that may enable more APD projects in the WSS sector. Using the $350 million allocated to the Water Infrastructure Financing Authority, the E.P.A. will assist approximately 20 to 30 APD projects over a five year period. Since 1989, there have been 164 APD projects that have reached financial close using private finance (Public Works Financing). Successful privately-financed WSS APD projects have a total capital value of $15.324 billion. Around five projects are completed each year in the past twenty-five years. Federal financing tools will more than double the deal flow expected in the next five years.

Despite the WSS APD market having a lower total capital value than other APD markets, one can assume that APD will indeed become a more common construction delivery model. States and municipalities need APD due to increasing infrastructure needs and the inability to finance projects. Federal and state governments have responded to this need with enabling legislation and financing tools that will drastically increase the number of APD projects in the market. WSS firms will continue to consolidate and seek a competitive differentiation in an increasingly difficult environment. For top WSS firms, the APD water market will become an area that inspires and sustains growth. The APD market for WSS infrastructure is nascent, but has the public supports needed to grow the pipeline and the private market capabilities to address infrastructure needs.

Project Identification and Opportunities

As a comparator, Canada has developed a water APD market and Canadian projects closely mirror United States opportunities. PPP Canada conducted a report on the water industry in Canada and found that most APD water projects had a total capital cost lower than $100 million, with a majority of projects to be lower than $50 million (2013). Like the United States, Canada’s water market is fragmented (though to a much lesser degree), so one cannot access a national consolidated inventory of upcoming WSS projects. Project opportunities – both in Canada and the United States – are found in municipal or public water utility capital plans that have a short-term horizon (five years). Canadian water projects, like American WSS projects, are also more likely to be brownfield projects.

Four principal factors, or market drivers, shape the direction of the APD implementation in the United States water market. The four major market drivers are:
- aging facilities in need of major capital investments;
- implementation of stricter regulations;
- rising populations in Southwestern states; and,
- states are experiencing water scarcity issues.

These market drivers are the impetus for many in the water industry to examine different approaches to service delivery in order to gain system efficiencies and put much needed infrastructure in place. Market drivers also point to a project sourcing strategy. Jurisdictions that have enabling APD legislation in place and have a great need for infrastructure are those places that are most likely to implement APD.

Conclusion

The water industry faces a number of constraints that shape its ability to participate in APD. On one hand, governmental regulation, high fixed costs, and inelastic demand make profitability difficult to achieve in the water sector. On the other hand, APD financing tools will double the number of projects in the pipeline and APD implementation comes at a time when WSS systems are facing great financial, resource, and distribution distress. Market participants should view APD with optimism and expect a slowly growing number of deals. Top WSS market participants are investing resources in APD projects because this contractual model will soon gain traction – if not in the next two years, certainly in the next five to six years.
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