



# Pittsburgh Water & Sewer Authority

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**Financial, Internal Controls, and IT Analysis**

October 2017

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# Financial Benchmarking Analysis Summary

# Financial Benchmarking Analysis Summary

- To analyze the financial condition of Pittsburgh Water & Sewer Authority ("PWSA"), Grant Thornton analyzed operational and financial ratios of certain municipal water utilities in Pennsylvania for which financial information was publicly available (the "Peer Group").

## Benchmarking Analysis

	Latest Fiscal Year	System Characteristics			Financial Condition				
		Asset Condition	Service Area Wealth	System Size	Annual Debt Service Coverage (1)	Days Cash on Hand	Debt to Operating Revenue	Debt to Net Revenue	Credit Rating
		Net Fixed Assets / Annual Depreciation	Median Service Area Income / US Income	Operating Expense excluding Depreciation	Net Revenues / Annual Debt Service	(Cash / (Operating Expense) * 365	Net Debt / Gross Revenue	Net Debt / Net Revenue	Range of S&P ratings on debt issuances
Altoona Water Authority	12/31/2016	28.3	101.9%	19.2	1.1x	114.6	2.7x	7.1x	AA
Bucks County Water & Sewer Authority	12/31/2016	27.7	149.0%	47.7	1.3x	225.5	3.5x	7.8x	A-AA
Erie Water Authority	12/31/2015	25.8	102.4%	18.1	0.9x	261.3	8.4x	17.7x	A-AA
Falls Township Authority	12/31/2016	16.7	149.0%	9.6	NA	104.0	1.2x	5.0x	N/A
Capital Region Water	12/31/2015	33.7	128.3%	16.1	1.6x	612.5	4.4x	8.0x	A+-AA
Lancaster Sewer Authority	3/31/2016	25.5	122.6%	10.4	1.4x	266.2	4.1x	8.1x	A-AA
Lehigh County Authority	12/31/2016	14.7	125.5%	37.8	1.0x	367.8	5.5x	15.3x	A-AA
North Huntingdon Township Municipal Authority	4/30/2017	22.8	124.9%	5.4	2.1x	79.5	0.5x	1.3x	AA
Northampton Borough Municipal Authority	3/31/2017	34.7	125.5%	3.8	1.6x	103.3	3.4x	7.9x	AA
City of Philadelphia PA Water & Wastewater	6/30/2016	21.9	149.0%	382.3	1.4x	75.5	2.9x	6.8x	A+-AA
Reading Area Water Authority	12/31/2015	17.3	125.6%	23.0	0.6x	228.2	2.9x	16.9x	A-AA
Warminster Township Municipal Authority	12/31/2013	24.6	107.8%	7.4	3.4x	17.2	0.4x	1.3x	N/A
West View Municipal Authority Water Revenue	12/31/2016	NA	124.9%	NA	1.2x	220.9	3.4x	9.7x	AA
Westmoreland County Municipal Authority	3/31/2016	43.8	124.9%	56.6	0.8x	68.3	4.7x	22.0x	A+-AA
Wilkesburg-Penn Joint Water Authority	12/31/2016	33.5	124.9%	19.5	3.1x	464.2	-0.2x	-1.4x	AA
Low		14.7	101.9%	3.8	0.6x	17.2	-0.2x	-1.4x	
1st Quartile		22.1	123.8%	9.8	1.0x	91.4	2.0x	5.9x	
Median		25.6	124.9%	18.6	1.3x	220.9	3.4x	7.9x	
Average		26.5	125.7%	46.9	1.5x	213.9	3.2x	8.9x	
3rd Quartile		32.2	127.0%	34.1	1.6x	263.8	4.3x	12.5x	
High		43.8	149.0%	382.3	3.4x	612.5	8.4x	22.0x	
Pittsburgh Water & Sewer Authority	12/31/2016	40.6	124.9%	131.9	0.8x	59.8	4.1x	15.0x	A-AA

Sources: Bloomberg, Capital IQ and public filings.

(1) Calculation may not be consistent with rate covenant calculations. Net revenue is calculated as operating income excluding depreciation and amortization. Annual debt service is calculated as total interest expense plus short-term debt balance.

# Financial Benchmarking Analysis Observations

- The following slides summarize our preliminary observations.

System Characteristics	
Asset Condition	<p>The condition of a utility's capital assets determines its ability to comply with environmental regulations and continue delivering adequate service with existing resources. Generally, the remaining useful life on capital assets will be higher for a utility that makes capital replacements and repairs to address aging plant and equipment compared to a utility that fails to fund depreciation.</p> <p>We note the weighted average remaining useful life of PWSA's capital assets is at the high end of the range observed for the Peer Group.</p>
Service Area Wealth	<p>Most of the costs of operating a utility and maintaining its capital assets are borne by ratepayers. The income of the residents of the service base conveys the capacity of its ratepayers to bear higher rates to fund operations and capital upgrades.</p> <p>PWSA's service area wealth relative to the national average is in line with central tendencies observed for the Peer Group.</p>
System Size	<p>Larger systems tend to be more diverse and enjoy economies of scale. The size of a system implies the flexibility and resilience not only of its operations, but of its service base.</p> <p>PWSA is one of the largest public utilities in Pennsylvania as reflected by its O&amp;M expenses which are higher than all other peers except the Philadelphia Water Department.</p>

## Financial Benchmarking Analysis Observations (cont.)

Financial Condition	
<p>Annual Debt Service Coverage</p>	<p>Debt service coverage is a core statistic assessing the financial health of a utility revenue system. The magnitude by which net revenues are sufficient to cover debt service shows a utility's margin to tolerate business risks or declines in demand while still assuring repayment of debt.</p> <p>PWSA's annual debt service coverage is at the low end of the range of the Peer Group and below 1.0 based on our calculations, indicating annual debt service is not fully covered with income generated from operations. PWSA's rates have historically been set to comply with its Trust Indenture covenants, which allows this low level. However, management has noted this weakness and is in the process of replacing its Trust Indenture with more appropriate coverage levels.</p>
<p>Days Cash on Hand</p>	<p>Cash is the paramount resource utilities have to meet expenses, cope with emergencies, and navigate business interruptions. Utilities with a lot of cash and cash equivalents are able to survive temporary disruptions and cash flow shortfalls without missing important payments. PWSA revenues include ALCOSAN pass-through charges; when \$62.1 million of ALCOSAN pass-through charges are excluded Days Cash On Hand increases to 105.6 days</p> <p>We note PWSA's days cash on hand is at the low end of the range of the Peer Group. Days cash on hand, a liquidity measure, does not include liquidity provided by other instruments such as a revolving credit facility. Including the unused revolving balance increases PWSA's liquidity very significantly. Note that use of a revolver is not common among municipal credits but can be a more efficient way to maintain and access liquidity.</p>
<p>Leverage Ratios</p> <p>Debt / Operating Revenue</p> <p>Debt / Net Revenue</p>	<p>A utility's debt profile determines its leverage and fixed costs. Systems that carry a lot of debt have less ability to reduce costs if demand shrinks, and are generally more challenged to achieve higher debt service coverage. A greater debt burden may also prohibit a utility from funding necessary capital upgrades, if a covenant prevents the issuer from incurring the debt necessary to fund those upgrades.</p> <p>PWSA's leverage ratios are above the average of the Peer Group and in line with the 3<sup>rd</sup> quartile, though it has no Indenture covenants that limit its ability to issue debt as a result of this leverage.</p>

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# Internal Controls Analysis

# Internal Controls Analysis

Capital Budgeting	
<p>Current State</p>	<p>There has been continuous improvement since on-boarding of the Project Manager (Kate Mechler) in 2015 but there is potential for improvement.</p> <ul style="list-style-type: none"> <li>• Currently, one external consultant (Project Manager – Kate Mechler) makes up the entire Capital Planning team</li> <li>• Capital planning was originally ad-hoc and discretionary, whereas now there is a process from project requisition to project approval (Nominations Committee, Executive Committee, and Board) on a year-by-year basis, including the prioritization of projects</li> <li>• Adopted EPA’s risk-based scoring methodology</li> <li>• All projects are monitored using E-Builder</li> <li>• Projects are officially presented as part of a 5-year plan. Historically, the Board has reviewed and provided input on the Capital Improvement Program (CIP) and capital budget, however the governance model of PWSA has not required the Board to approve the CIP and capital budget. PWSA management has recommended the CIP and capital budget be approved by the Board.</li> </ul>
<p>Observations</p>	<p>Resource constrained – With a single resource on the Capital Budgeting team, there is little time to focus on proactive management of capital projects and planning:</p> <ul style="list-style-type: none"> <li>• Manage capital projects more efficiently</li> <li>• Perform daily activities / monitor assets (e.g., pump stations) more closely</li> <li>• Perform business case / project prioritization beyond basic "cost" and "risk" criteria. Additional criteria could include: public benefit, public demand, frequency of failures, age or condition of existing, public health/safety, Cost savings/avoidance, on-going O&amp;M cost factors, etc)</li> </ul> <p>Inability to effectively recruit and retain qualified resources due to constraints related to:</p> <ul style="list-style-type: none"> <li>• Competitive compensation</li> <li>• PWSA employees must be a resident of the City of Pittsburgh</li> </ul> <p>Policy and procedures – General lack of formally documented policies and procedures</p>

# Internal Controls - Analysis

Procurement	
Current State	<p>Maturity of the procurement function has increased with the arrival of the CFO</p> <ul style="list-style-type: none"> <li>• Currently use Microsoft Dynamics/Great Plains but which is not deemed efficient or effective by the team; the processes are very manual, including controls related to approvals and payment</li> <li>• Procurement team is made up of three personnel whose responsibilities include procurement, contracting (except for Professional Services), and invoicing</li> <li>• Purchasing policies and procedures are governed as follows –               <ul style="list-style-type: none"> <li>• Professional Services – per policy</li> <li>• Non-Professional Services – per the PMAA legislation (Municipal Authorities Act)</li> </ul> </li> <li>• All purchases require purchase orders, and may also have written contractual agreements</li> </ul>
Observations	<p>Broad observation related to a lack of documented procurement manual / policies &amp; procedures</p> <p>Controls observations:</p> <ul style="list-style-type: none"> <li>• Purchases are being made without an authorized purchase order, and without appropriate approvals, (requiring purchase orders to be created and approved after the purchase has been made and received). A manual detective control <u>is</u> in place to monitor this process, and these violations are tracked and reported to executive management and the Board, resulting in disciplinary action. As this is a fault in specific personnel executing a business process in violation of PWSA policy, this cannot be inherently addressed in a system.</li> <li>• Resulting in payments put on hold (manually) until the purchase orders are raised/appropriately authorized or the invoices appropriately entered/approved – leading to increased complaints from vendors due to late payments, but resulting in appropriate control</li> <li>• Most controls are manual, and can be overridden in the system ( e.g. an invoice can be approved for payment that exceeds the amount of a purchase order). A new system is being contemplated to replace Dynamics GP</li> <li>• Segregation of duties controls weakness within the purchasing team:               <ul style="list-style-type: none"> <li>• Same person could potentially set up / update the vendor, approve a purchase order, receive the goods/services, and approve the invoice – PWSA’s Dynamics - GP system, as implemented by Cogsdale, does not allow for sufficient segregation of duties</li> <li>• Separately, the Finance Manager can additionally also process the payment and create the check</li> <li>• Purchasing and A/P is structured under the same department</li> </ul> </li> </ul>

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# Information Technology Analysis

# Information Technology Analysis

Key Observations Summary	
Overall Investment and Industry Comparisons	<ul style="list-style-type: none"> <li>Financial investment must be made for the enhancement of PWSA’s overall information technology infrastructure in order to reinforce the realization and achievement of management’s short- and long-term goals. At present, the Authority’s IT operating expense budget is \$3.0 million representing 1.6% of the Authority’s total revenues of \$180 million. This percentage is half of what other utilities currently spend on IT, which is 3.1% (Source – Gartner IT Key Metrics Data (2016)). In light of the Authority’s existing IT challenges and increased business needs, its current investment is inadequate. Furthermore, staffing is insufficient; there are only three (3) PWSA FTEs currently maintaining the Authority’s IT infrastructure.</li> </ul>
Immediate IT Security Vulnerabilities	<ul style="list-style-type: none"> <li>PWSA has information security vulnerabilities which, if not addressed, could result in legal, financial, and reputational harm, and could prove injurious to its customer base. The Authority processes and houses a voluminous amount of highly sensitive consumer information. The susceptibility to future cyber security threats and inadvertent data breaches is both apparent and probable. Also, the SCADA system which maintains plant pumping and processing activities is severely vulnerable requiring a decisive and immediate response from PWSA management.</li> </ul>
IT Corporate Governance	<ul style="list-style-type: none"> <li>PWSA’s Board of Directors should lead IT risk mitigation strategy and governance for the organization. Similar to other organizations, and as practiced in large private sector companies, an IT risk policy inclusive of supporting procedures and standards should be created and reviewed annually by the Board. IT risk and control self-assessments should be conducted as a means to monitor the organization’s compliance with such policies and procedures. The results of such assessments should be presented to the Board at a determined degree of regularity, along with remediation actions and progress.</li> </ul>
Disaggregation Concerns	<ul style="list-style-type: none"> <li>The Authority’s current information technology infrastructure is very disaggregated and not centrally managed. This results in the lack of consistency in overall application management and lack of automation to support management decisioning.</li> </ul>

# Information Technology Analysis

Detailed Observations	
IT Organizations	<p>The IT organization is managed by Adejuwon Anjoorin, and is structured with 8 FTES (three currently filled and five vacant positions). Of the open positions, three are Help desk staff. PWSA IT believes the additional headcount will provide PWSA the ability to meet current and long-term needs. The staffing gap resulted from a combination of attrition and newly identified roles/needs. The ability to fill open positions has been challenging, and is driven by uncompetitive salaries, and well as the requirement that PWSA employees must be residents of the City of Pittsburgh. 3<sup>rd</sup> parties are being leveraged to provide various IT services. Generally, the support provided by 3<sup>rd</sup> parties has been adequate to meet the needs of PWSA with the exception of the ERP support vendor Cogsdale (see note in the "Systems" section).</p> <p>Several applications are currently managed by the business functions that utilize them, such as SCADA and Promium, and not supported by the IT team. To maximize visibility and effectively manage the overall application stack, it would be beneficial for a single IT support function to manage all technology assets; however, the talent/skillset currently reflected in the eight (8) FTEs would not be able to effectively support those applications. Thus, additional headcount and/or expansion of outsourcing would need to be considered.</p> <p>Residency requirement impairs the recruitment of qualified candidates in mid- and high-level positions. It would also contribute to higher turnover as experienced personnel want to move out of the city for family reasons as well as the recruitment of more contractors at higher levels than might otherwise be expected.</p>
IT Strategy	<p>The CFO and IT Manager are committed to the IT strategy created in 2016. The IT strategy contains appropriate goals required for IT to meet the short and long-term needs of PWSA, but limited resources have been available to support its implementation.</p> <p>The challenge will be to continue alignment of the IT strategy with the overall enterprise business strategy. PWSA must gravitate from the current urgent reactive mode, and migrate toward a more proactive stance on facing IT issues. This will require addressing multiple critical tasks such as: a.) obtaining adequate IT staff; b.) documenting operational and governance processes; and, c.) addressing security and control weaknesses.</p>

# Information Technology Analysis

Detailed Observations	
Centralization of IT Management	<p>There is no centralization of IT effort. Software can be purchased and installed outside of the visibility of the IT department including the hiring of external consultants to assist on the implementation and support of the software. This results in incompatible systems, higher support costs, and gaps in overall IT security.</p>
Systems	<p>The engagement team obtained a comprehensive list of applications used by the PWSA and interviewed various application end-users. The capabilities of various applications have not been adequately communicated to the user community resulting in user discontent, wasted time to create manual workarounds, and potential exploration of new applications. Very few instances of successful customization of software contributes to this sense of frustration. This is compounded by the inability of current systems to interface (i.e. share information) electronically. For example, eBuilder software (all PWSA construction projects handled by this software) is not sharing project financial data with Great Plains (PWSA's GL package). Data is instead manually entered from the eBuilder package into Great Plains, which lends itself to increased time and cost, and the potential for manual entry errors. However, the eBuilder software package has well documented interface capability with Great Plains.</p> <p>The relationship with ERP support vendor (Cogsdale) has been challenging. PWSA requirements for changes or enhancements appear to be deprioritized with Cogsdale. PWSA is considering replacing their ERP solution (Cogsdale/MS Dynamics GP). However, PWSA should address other critical components prior to considering a replacement (e.g., reengineering business processes, addressing security concerns, data integrity issues to facilitate reporting needs, etc.). The decision to implement a new ERP platform should be thoroughly contemplated and planned to ensure the final solution is optimal to the enterprise and supports management's long-term growth strategies. The IT Manager is conscious and aware of the benefits of migrating to cloud solutions where viable, and is a positive and appropriate strategy for PWSA.</p> <p>There is a substantive list of applications that are in varying states of reduced functionality and supportability with no defined plan to address. Changes in management personnel during projects often results in a restart instead of completion of ongoing projects.</p>

# Information Technology Analysis

Detailed Observations	
Systems	<p>The Authority, just as any organization of similar size, relies heavily on Excel spreadsheets to drive both complex and financially material business decisions. End-user developed spreadsheets are not inventoried, criticality identified, or evaluated to assess control sufficiency or fit-purpose designation. In light of the disaggregation perceived within the IT infrastructure, management's spreadsheets should be inventoried and managed under an organizational policy and reviewed annually.</p> <p>The Authority's telephone system utilizes hardware that is no longer available due to vendor bankruptcy. PWSA is relying on repair services from a local company. Once the supplier's inventory of parts is depleted, the telecommunication system could potentially be non-functional if there is a failure and the part is no longer available.</p> <p>eBuilder (construction management software) is managed outside of the PWSA IT function, and is hosted by vendor with PWSA logging into their system with no software on site. PWSA relies on the vendor for data security and backup of data. Vendor does provide (per contract) for the download of backup data at no cost. eBuilder administrative functions (system access, password creation, download of backup data, etc.) are handled by the eBuilder Project Systems Coordinator (a resource outside of the IT function). Certain basic functions are not being performed, due to a lack of time, such as password changes, backups, data integrity checks, etc. These are not being done as the eBuilder Project Systems Coordinator does not consider this a core function of their role, and would only be done if more staff were available. This underscores the concern of not involving IT with software package management who theoretically would have understood the need for security, backup and integrity protocols.</p>

# Information Technology Analysis

Observations	
Help Desk / End User Services	<p>Help Desk (HD) is understaffed, with three open positions (see IT Org). Two resources serve to support the HD currently as part of their daily responsibilities. Incident intake channels include email, phone, and face to face. IT team is appropriately encouraging end users to use Solarwinds to log requests to enable better visibility and efficiency of managing tickets. The IT team supports six (6) PWSA locations. The IT team manages support during normal office hours. Outside normal hours (M-F 7-5), IT Staff and NetXperts provides support on as needed basis.</p>
Data Center / Networks	<p>The Server room is located on premise in the main PWSA office location consisting of three server towers located in a ~300 sq. ft. room which is fully secure with access code lock; only certain individuals in IT have access to the code. Recent enhancements and upgrades have been made to the environment, and additional upgrades are planned. The overall security and protection of the room is satisfactory.</p> <p>Scheduled data backups (daily) are in place, and are sent to the cloud. All networking support is provided by a 3rd party; NetXperts. The IT team was unable to provide current physical or logical network diagrams, however the engagement team did not thoroughly assess the architecture for security, availability, performance, scalability, or supportability. Verified end users do in fact access PWSA systems remotely (via SSL VPN), however multi-factor authentication is not employed.</p>

# Information Technology Analysis

Observations	
Security and IT Controls	<p>The overall security environment is rudimentary and needs to be addressed as a priority. Needed security policies have been identified, but implementation and approval is challenging. PWSA experienced a cyberattack (ransomware) in 2015. The incident was identified in time so as to avoid a material issue. Files within the impacted network folders were restored from backup and security enhancements were made to reduce the risk of a future incident. Penetration tests are not conducted on a scheduled, regular basis or after a major change in the IT environments.</p> <ul style="list-style-type: none"><li>• A security assessment was performed in May 2017 by a 3rd party, and with multiple recommendations. Some of the recommendations are being implemented, but many mitigations have not yet been addressed (e.g., disaster recovery/business continuity plans).</li><li>• The lack of resources in the IT team have contributed to the inability to put all needed mitigations in place.</li></ul> <p>End users are able to use USB ports on both desktop and laptop workstations. Multi-factor authentication or VPN remote access is not in place. Basic provisioning processes are in place, however somewhat informal. For the ERP system, role profiles are in place based on job roles. System user adds / changes / deletes are provisioned via triggers from HR, based on hires, role changes or departures from the organization. However, the processes are manual, and rely on handwritten forms to be provided to IT.</p> <p>There are no system based preventive controls in place to identify Segregation of Duties (SOD) conflicts.</p> <p>There is an integrated change management landscape in place (test, train, production), with proper migration processes. System changes are tested and approved by business personnel prior to migration to production.</p>

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# Information Technology Analysis

Observations	
Security and IT Controls	Lack of security surrounding the SCADA system that maintains their physical plant pumping and processing activities. Potential exists for a catastrophic event for the City of Pittsburgh (i.e. basic as password security does not exist thereby presenting the potential for system compromise). IT completed a security assessment of this system in April with numerous recommendations (password security was one). To date, no actions have been taken to address the identified security issues.

# Information Technology Analysis

Observations	
IT Spend / Budget	<p>At present, the Authority's IT operating expense budget is \$3.0 million representing 1.6% of the Authority's total revenues of \$180 million. This percentage is half of what other utilities currently spend on IT, which is 3.1% (Source – Gartner IT Key Metrics Data (2016)). The CapEx budget has identified specific IT investments for 2018, including:</p> <ul style="list-style-type: none"> <li>• Moving to cloud services; MS Exchange, and SharePoint;</li> <li>• Hosted solution for Engineering servers; and,</li> <li>• Security Operations Center.</li> </ul> <p>These initiatives are positive in their vision to move PWSA into a more efficient IT support model, enhancing security, availability, supportability and performance, while managing cost. A key factor in the IT team's ability to fulfill completion of these initiatives will be staffing their open positions</p>
IT Projects	<p>Management of IT projects is informal. Although there is a defined list of planned IT projects and Project Management processes are maturing, the processes for governing the IT initiatives need more detailed documentation related to resource, schedule, cost, issue, risk and quality management processes.</p> <p>Requesting and approving projects requires the IT Manager to draft a business case, however, much like capital projects, the prioritization of IT projects would benefit from a more complete list of prioritization criteria, rather than "who complains the loudest."</p> <p>Integration of ERP systems with other supporting systems requires dedicated resources over time, but changes and restarts impede progress towards integrating the ERP. Software upgrades have been purchased but are unable to be installed due to limited resources which prevent use of newer and more efficient applications (i.e., VM software in use is version 5.5 but 6.5 needed to install other newer applications - 6.5 purchased some time ago but no resources to install).</p>

# Information Technology Analysis

Observations	
IT Projects	<p>There is an apparent lack of confidence in the Cogsdale ERP system resulting in the cancellation of the “Cogsdale Rehabilitation Project” that was designed to resolve processing issues. Current plan is to replace with a new ERP system. Cogsdale was created in 1997 with the main focus on water and sewer authorities and currently has over 300 installations so the expectation is that this software would be able to accommodate all of PWSA’s ERP needs. The website has case studies of success with smaller companies (24K customers). The Authority periodically uses Cogsdale contractors, yet Cogsdale has not been integrated.</p> <p>No documentation for project managers to follow for all new physical plant projects. Without written guidelines, each project manager handles their project as best they can based on the knowledge obtained in the past. This creates consistent problems internally as unexpected issues must be dealt with on a routine basis that may otherwise have been avoided.</p>

# Information Technology Analysis

Observations	
IT Projects	<p>Cogsdale implementation was performed by an external group, with limited involvement of internal users. This external group was also used to determine the requirements of PWSA and not the internal users. Exacerbating the challenge is that different external groups were used to determine the requirements and to implement the system. Internal users assisted as the external groups felt necessary, but the external groups mostly acted in conjunction with senior resources at PWSA who would not be expected to be fully conversant with the end user's needs.</p>
Data/Business Analytics	<p>PWSA's lacks the ability to easily gather, compile, and distribute the financial and operational information needed to monitor the organization's performance. The current solution is Microsoft SQL based, and relies on ad hoc queries to extract and compile information.</p> <p>PWSA has 37 key metrics on which they plan to report; consistent with the Pennsylvania Utility Commission requirements. The ability to efficiently and accurately compile the information required for these reports will be a significant challenge for PWSA due to the lack of a viable Business Intelligence (BI) solution. Contributing to reporting challenges is the lack of data integrity across the organization. Examples of transactional data issues were shared, such as customer invoices being incorrect due to data, process, and/or systems issues. In addition, there are no established data standards for any of the primary data domains/elements, nor a governance model to manage overall quality.</p> <p>Core business processes are poorly engineered; there is a very high reliance on manual processes and handoffs. PWSA recognizes this, but has not been able to influence the organization to focus on much needed re-engineering efforts. This will need to be a focus of PWSA in advance of, or during any pursuits to replace existing software packages. PWSA would greatly benefit from establishing business process owners to manage the organization through a reengineering effort and beyond.</p>