

Meeting with Utility Leaders on Sustainable Management

July 27-28, 2005

Meeting Summary

Background

The Office of Water (OW) at the United States Environmental Protection Agency (EPA) is working in collaboration with the water and wastewater industry to ensure that the Nation's water infrastructure is sustainable in the future. One key part of this collaboration focuses on ways to help utilities manage more effectively to help reduce future infrastructure needs and achieve other important outcomes.

OW initiated a meeting with utility leaders from water and wastewater utilities to begin a dialogue on this subject and explore further opportunities for collaboration. At the meeting, there were 17 direct participants (listed at the end of these notes) including water and wastewater utility managers, water sector trade associations, and EPA. In addition to the direct participants, there were several other observers to the meeting from water sector associations, EPA, and consulting firms. These observers were encouraged to participate as time allowed and a number of the points contained in the synthesis below reflect observations from these attendees. The meeting had the following objectives:

- Inform participants about key findings from a series of utility profiles from leading utilities;
- Engage participants to identify and refine a list of potential attributes of a sustainably managed utility;
- Discuss EPA actions to develop an EPA Strategy that focuses on actions EPA can take to help ensure Sustainable Infrastructure;
- Discuss a possible national strategy for the water sector to promote the adoption of more sustainable utility management; and
- Identify a set of concrete next steps.

Consistent with these objectives, the meeting addressed three content areas: review and discussion of eight utility profiles (based on a "cross-cutting" analysis conducted in advance of the meeting); identification and discussion of the possible "attributes" of a sustainably managed utility; and defining and developing the elements of a possible national strategy for promoting sustainable utility management. In addition to these content areas, there was a discussion on Day 1 of a draft EPA Strategy for Sustainable Infrastructure and further discussions with Assistant Administrator for Water, Ben Grumbles on the morning of Day 2.

Jim Horne, EPA project lead, kicked off the meeting with a welcome statement followed by introductions. Cynthia Dougherty, Director, EPA Office of Groundwater and Drinking Water, and Jim Hanlon, Director EPA Office of Wastewater Management, made opening remarks. Rob Greenwood, Ross & Associates Environmental Consulting,

Ltd., reviewed the purpose, agenda, and informal meeting ground rules, emphasizing the need to conduct an open and candid dialog.

The remainder of this summary is divided into two sections: Section 1 (a synthesis of discussions from the meeting); and Section 2 (verbatim transcription of notes taken during these discussions).

Section I: Discussion Synthesis

This section represents a synthesis of discussions from the two-day meeting. The meeting was not designed to reach consensus and, consequently, this synthesis does not mean to imply a full group view. Instead, the synthesis should be read as a collection of observations from meeting attendees. The synthesis does, however, attempt to reflect where multiple participants shared similar views.

This section is divided into five parts reflecting the meeting sessions:

1. EPA Draft Sustainable Infrastructure National Strategy;
2. Cross-Cutting Analysis Review and Discussion;
3. Attributes of a Sustainably Managed Utility;
4. Question and Answer Session with the Assistant Administrator for Water; and
5. Defining Elements of a National Strategy for Promoting Sustainable Utility Management.

EPA Draft Sustainable Infrastructure National Strategy

Jim Hanlon provided meeting participants with background information on EPA's current national strategy efforts. Mr. Hanlon explained that EPA's efforts were catalyzed by the infrastructure gap report in 2002, and EPA has been closely tracking and participating in improving the future of drinking water and wastewater utility sustainability in response. Through forums in 2003, EPA developed the Four Pillar framework to focus the agency's efforts on: 1) better management; 2) water efficiency; 3) full cost pricing; and 4) watershed approach. Recently, EPA has conducted an activity inventory organized around the four pillars. The inventory includes projects that EPA is directly involved in; initiatives that EPA participates in, but is not necessarily leading; and projects that EPA is aware of, but not involved with. Mr. Hanlon stressed that the current draft Four Pillar document is meant as a work-in-progress. However, the pillars approach and activity inventory is helping the agency begin to define its role in what is considered a high program. EPA is interested to take a collaborative approach to further development of its national strategy and hopes to utilize water sector partnerships to further it along.

Meeting participant observations related to EPA's strategy include the following.

- Out of an estimated 50,000 drinking water utilities and 16,000 wastewater utilities, there are approximately 500 leaders (based on major association membership) that are proactively implementing various programs to improve utility management. These 500 leaders have cumulative service areas that cover roughly 85 percent of the nation's population. In addition, there are likely a number of small, high performing agencies, which do not or cannot afford the time and resources to participate in the large associations. In this context, some participants urged EPA to be clear whether the strategy aims to address the so-called industry leaders, or whether it intends to address the entire sector.

- A few participants cautioned against the need for additional tools to assist utilities. It was their view that there is a full suite of tools explaining how to undertake a single management system or initiative (such as EMS, Optimized Asset Management, and QualServ), and they suggested EPA does not need to recreate these tools. Beyond any individual system, however, there is a lack of understanding of the overall performance improvement picture connecting a number of systems. In that context, participants identified two areas of need.
- First, the sector needs assistance in driving culture change to support the various management systems. Second, EPA could help provide a more full understanding of how various systems and initiatives can link together in a coherent performance improvement framework. Drawing on that concept, there was some difference of opinion with regard to small utilities' potentially differing needs. Some participants believe small utilities do not have the capacity to take on the same management approaches that large utilities do and therefore recommend tailoring some tools for small utilities. Other participants felt that small utilities are fully capable of making the management changes without additional and/or tailored tools.
- A number of participants expressed concern that a national strategy would focus on developing a single model or implementation approach for the sector. These individuals felt strongly that a "one-size-fits-all" approach would be unworkable given the highly varied and individualized circumstances most utilities operate under. In response, it was suggested that a potentially effective way to view the strategy is as a "pathway" that could help lead to a defined sustainability endpoint. While the definition of sustainability may differ from utility to utility based on size and other characteristics, there may be common elements or outcomes that define a sustainably managed utility. Similarly, the pathway would not likely be the same for each agency.
- Several participants suggested that a strategy should be less focused on institutions and systems and more focused on development of people within the sector. Several participants observed that managers in the sector have tended to have technical rather than managerial backgrounds. In this context, participants suggested that the strategy consider improved business management training for managers to improve their knowledge of more "scientific" management practices and decision making tools.
- A number of participants had observations related to EPA's "full cost pricing" pillar. Participants generally indicated the critical importance of utilities developing a complete understanding of their costs (on a full, life-cycle basis). Differences of opinion were reflected, however, when it came to strategies to recover costs. This led some participants to indicate discomfort with the term "full cost pricing" reflective of the perspective that cost recovery can involve rates, fees, and federal support. A few meeting participants questioned the idea of full cost pricing because it does not suggest understanding of a service area's ability and willingness to pay (for example, one utility suggested that its ratepayers are moving toward an average of 3 percent of income for combined utility costs, which was crossing the threshold of affordability).

One participant suggested that a more accurate term for the concept might be “appropriate pricing” rather than “full cost pricing.” In this context, one participant suggested EPA could adopt a “5th Pillar” of “federal funding assistance.”

- Several participants observed that many utilities may not have the “pre-conditions” necessary to adopt more advanced management approaches. Participants suggested there may be a need to drive sector consolidation if EPA hopes to achieve more sustainable utility management. Participants cited efforts in Australia to significantly reduce the number of utilities, moving to a more regional than local service model.
- One participant suggested changing “better management” terminology to “effective management.”

Cross-Cutting Analysis Review and Discussion

Rob Greenwood presented highlights from the cross-cutting analysis based on the eight profiles of leading water and wastewater utilities (Charleston, Eugene, Madison, Orange County, San Diego, Santa Clara, Seattle, and Shelby). The information was presented in three, fifteen minute segments (purpose, scope, and content of the profiles; utility management efforts; and management system measures and benefits) with participant discussions after each segment. Observations made by participants during this session (which will be used to supplement and refine the draft cross-cutting analysis) fell into three categories: challenges to implement management systems; measures supporting management systems; and benefits of management systems.

Challenges to Implement Management Systems

An important area of challenge that most participants believed was underemphasized in the cross-cutting analysis was the strain on management capacity and capabilities that management systems change represents. Specifically, several utilities suggested that new tools and management systems require a different skill set than many managers currently have and, therefore, are pushing the limits of some managers’ abilities. In particular, there is a new focus on team work and collaboration (especially between “silos”) that some managers struggle with. Furthermore, some managers struggle with the diffusion of responsibility that management systems introduce. While management initiatives often empower many employees, managers can view this as a loss of power. One participant suggested that an organization needs 4-7 years of concentrated effort on culture change before full management systems or initiatives can be put into place. Such changes are not likely to be a linear process and utilities have taken several different approaches. For example, one utility hired a management coach to act as an internal organizational development training resource. Although culture change was recognized as a mid- to long-term undertaking, participants also observed that management system implementation can (and usually does) occur concurrently with culture change. While culture change and management system implementation can happen at the same time, it may take several years for the management system to operate optimally. Some

participants added that, because the industry has traditionally been managed around silos (that is in separate divisions or responsibilities), career advancement has been based on expertise within a silo. As a result, there are few senior managers with a broad view of the whole utility enterprise, while management system efforts require a view across the silos to be effective.

In addition to strains on managerial capacity, participants identified several other challenges. These included: the expected retirement of knowledgeable employees (leading one participant to suggest the need for revamped apprentice program); the difficulty of the need to select among management system change opportunities (with one participant indicating that implementing just one management system change could significantly impact an organization's operating budget); and the difficulty potentially posed by the resources and capacity available to smaller systems to embrace management system efforts. Participants also identified the challenge of tension between short-term demands and perspectives taken by elected officials who operate on 4-year election cycles and a long-term decision-making view (e.g., 20 year asset planning time horizon). Several utilities believed it was important to stress that such local political pressure can come in a variety of forms. These include the ability to justify rate increases, the ability to effectively respond to privatization proposals, and the ability to objectively demonstrate utility performance.

Measures Supporting Management Systems

Participants had a limited number of observations relating to the picture of utility measurement efforts emerging from the cross-cutting analysis (for examples and details on measurement systems and specific performance measures, please see the EPA report *Managing for Excellence: Analysis of Water and Wastewater Utility Management Systems*). An important theme that emerged from the measurement discussion, however, was the relationship of measurement to achieving an effective balance and explicitly managing the tradeoffs among service levels, operating and capital costs, and business risks. A number of utilities have used their measurement systems as a framework for addressing this balance with explicit service levels set and associated performance measures established. Discussion also indicated a move to increased use of “dashboard” style measurement systems connected (often but not solely) to strategic business planning efforts. These measurement systems are helpful not only for internal utility management but also for educational tools for governing bodies, customers, and communities. One specific suggestion addressed the need to ensure environmental performance measure included other environmental media, in addition to water. For example, particularly in non-attainment areas, some utilities are tracking air quality issues (connected to fleet fuel type use, for instance).

A primary area of discussion related to the role of benchmarking in the measurement context. Several participants expressed concern over the direction of benchmarking within the industry. Efforts have been fragmented (for instance, there was a group of self-selected West Coast utilities that benchmarked among themselves) and programs such as QualServ are struggling to maintain robust participation. Several participants

observed they see performance benchmarking of limited value given the high degree of operational and community circumstance variability among utilities. At the same time, several participants indicated that process-oriented benchmarking had proved very useful. Several participants suggested that benchmarking within the U.S. water and wastewater utility industry did not fully reveal best practices for many functions. For utility specific processes, many utilities look overseas to Australia and New Zealand for best practices. Other participants suggested looking to other industries for best practices. For example, to identify top customer service, one utility recommended comparing performance to L.L. Bean's telephone service rather than to the utility industry.

During the benefits discussion, participants also observed the difficulty they face overcoming the "undervaluation" of the products and services provided by water and wastewater utilities. Participants indicated that this established a difficult context in which to seek rate increases consistent with future infrastructure investment needs. Effective measurement systems were viewed as an important, but not fully sufficient, tool to address this difficulty. In this context, trade association participants identified several emerging community and elected official education efforts designed to generate more widespread understanding of the value water sector utilities provide.

Benefits of Management Systems

In addition to the benefits articulated in the cross-cutting analysis, participants identified several others. These included: improved decision making and resource utilization resulting from management systems helping to better set and balance priorities; an improved business decision making process resulting from looking at the business from a full value chain perspective; and reduced regulatory oversight in the form of less frequent sanitary surveys. In addition to these benefits, several participants indicated sensitivity to the concept of promoting management system change efforts as reducing costs. These individuals believed that the real benefit was in better resource utilization overall. For example, a utility might spend more in the operating budget (for instance on employee training and/or information technology) to run an asset management program while reducing the capital budget. One participant offered an articulation of overall benefit as "delivering a defined level of service at the lowest life cycle cost" (where life cycle cost takes into account triple bottom line costs and benefits).

Part of the benefits discussion focused on a discussion of the relative merits of full, independent, third party certification. Certain utilities were unclear about the potential benefits and asked others to reflect on their experiences. Two participants indicated that, although they have seen significant benefits with management system implementation, they did not feel the benefit (particularly external benefits such as community recognition) of an external audit was commensurate with the cost. On the other hand, several utilities indicated they had found independent certification to produce significant benefits. In particular, these participants believed the external audit generated significant internal management system benefits such as identifying areas of opportunity for improvement, external validation of performance, and internal staff vigilance regarding their management responsibilities. For the most part, participants indicated that external

benefits from certification have been low or non-existent, though there is the prospect that the credibility provided to a utility's management efforts of external validation may help with reduced regulatory oversight, more responsiveness from the financial community, and greater public acceptance from community interests.

Attributes of a Sustainably Managed Utility

Meeting participants were asked to reflect on the cross-cutting analysis discussions and brainstorm a list of attributes of a sustainably managed utility. Participants were asked to respond to two questions: what are the outcomes a sustainably managed utility will strive to achieve (what) and what are the management efforts they will need to use to achieve these outcomes (how). After brainstorming, participants organized the ideas into "clusters" and discussed the "story line" that connected the clusters to each other. These attributes, as identified, can be used as a starting point to identify and promote the management direction of leading utilities. As mentioned at numerous points throughout the meeting, it is important to note that this set of attributes helps define a guiding pathway, or set of options, for a utility and note the use of one particular management system or tool exclusively. The implication is that there a variety of approaches, individually or in combination, that can be used to reach a similar end.

Outcomes to Strive Toward

Meeting participants identified nine outcome areas that a sustainably managed utility would strive to achieve.

- Community stewardship: Works in the public interest to contribute to economic vitality in sustainable communities.
- Stable, well-planned infrastructure: Understands the condition of and costs associated with its assets and has a program in place to maintain and enhance the asset condition over the long-term.
- Adequate, accepted risk: Understands and identifies the long-term cost of business in such a way that allows the utility to set predictable rates for a five to ten year projection and communicate this to rate payers and others.
- (Effective) risk management: Plans effectively and proactively in a legally defensible way consistent with industry trends; and creates an organizational culture that anticipates and avoids problems.
- Customer satisfaction: Communicates information and service levels, and meets customer needs while minimizing impacts on community resources.
- Quality product: Delivers consistent quality products in the form of clean effluent and safe drinking water.
- Natural resource protection and enhancement: Minimizes resource use, and protects and restores the natural environment.
- Human resources: Provides employees with resources to encourage creativity, develop leaders, and foster skills that drive employee loyalty and capture institutional knowledge.

- Decision body (board) understanding and support: Receives support from the oversight body for, among other issues, rate increase needs, operating budgets, and capital improvement programs.

Management Tools and Approaches To Achieve Performance Outcomes

Meeting participants, through their brainstorming and follow-on synthesis, identified a number of elements of effective performance improvement efforts, including the following.

- Strategic business plan: Identifies internal and external values, a vision of how the organization will operate within its values, explicit goals that drive toward a comprehensive, integrated, and will balanced set of performance outcomes, and alignment across the outcome areas to achieve short- and long-term objectives.
- Plan, Do, Check, Act framework: Imparts continual improvement management with a forward looking checking function to support all areas of utility management, embraces change, and has an ability to respond to internal/external catalysts.
- Decision making framework: Imposes explicit decision making processes that balance short- and long-term needs with accurate, full life-cycle, triple bottom line analysis across multiple outcomes and needs.
- Measurement: Includes routine and continually refined measurement of outcome areas to recognize change and effectively supports “fact-based” decision making.
- Asset management: Encompasses comprehensive asset management that crosses silos to better understand the asset value chain and empowers informed risk management.
- Operations: Engineering, operations and maintenance (re)performed to minimize flaws and optimizes operational processes.
- Environment: Requires regular, systematic environmental awareness to meet regulatory requirements, maintain water and/or effluent quality, develop and sustain environmental policies, and promote natural resource conservation.

Critical Success Factors

In addition to the basic elements of performance improvement, participants recognized several critical success factors required to ultimately achieve the outcomes identified through the performance improvement efforts. The critical factors include the following.

- Leadership: Long-term sustained champions capable of leading transformation while managing critical relationships.
- Empowered and enabled staff: Employees with the training, tools, and incentives to be technically competent with a broad understanding of the business.
- 360 degree communication: Regular and inclusive (non-hierarchical) communication within the organization and with customers and communities across multiple channels of communication.
- Information management: Innovative technology and systems with the required capacity to manage data effectively.
- Partnerships: Strategic partnerships with multiple stakeholders and interests including local government agencies, research universities, regulators, and industry to achieve common goals.

- Process technology: Know-how and use of leading process technologies and management techniques.
- Creative organization: Nimble and flexible organization that allows and promotes creativity to address challenges.
- Risk tolerance: Organizational culture that identifies and accepts calculated risks (e.g., deliberately running certain assets to failure) and supports such decisions when the inevitable consequences occur.

Question and Answer Session with the Assistant Administrator for Water

Ben Grumbles, EPA Assistant Administrator for Water, joined the meeting for a discussion on sustainable infrastructure. Mr. Grumbles began the session with comments before opening the discussion to meeting participants. Mr. Grumbles began by reasserting EPA's strong support and interest in sustainable infrastructure, starting at the top with Administrator Stephen Johnson. Mr. Grumbles referred to EPA's "Four Pillars and Three Tools" – the four pillars mentioned above in EPA's draft strategy and the three tools of Collaboration, Science and Technology, and Innovation.

With respect to the four pillars, Mr. Grumbles indicated EPA believes it can be an effective advocate for all areas. First, the agency sees many opportunities to promote water efficiency through innovation and collaboration. Second, while the agency is not going to be involved as a voice on rate setting, it can provide supporting information to suggest that clean water and wastewater is inexpensive in the United States compared to the value of the services provided. Third, the agency is a strong advocate of taking a watershed approach and can support collaborative efforts. Fourth, particularly as the focus of the meeting, Mr. Grumbles suggested that EPA can make a big impact on promoting effective management within utilities. Because of budgetary pressures, EPA urges constructive dialogue that looks beyond the supply of federal money. Mr. Grumbles expressed interest in getting input from participants on the direction for and the role of EPA in encouraging, but not mandating, management techniques.

During the question and answer period associated with this session, meeting participants made a variety of observations that provided additional information regarding their thinking on challenges faced by utilities, possible incentives, and suggested roles for EPA.

Challenges Faced by Utilities

A few utilities articulated a challenge to balance the demands of growth, regulation, and infrastructure replacement. Furthermore, most customers see a combined utility bill such that a community must consider both water and wastewater sides as one. Meeting these needs can create significant rate pressure on the community. At the same time, many participants believed that the service or product being delivered was undervalued as reflected in rates. The combination of multiple needs and undervaluation drives rate increases that result in negative community reaction. In addition, at least one participant

suggested that several utilities do not have the economy of scale to maintain viable rates and that a certain degree of consolidation is needed

Possible Incentives

Participants suggested principles to guide EPA's approach to incentives and identified several opportunities for the federal government to provide incentives to encourage desired outcomes. The guiding principles suggested include: encouraging collaboration and cooperation; rewarding long-term thinking; and supporting a continual improvement culture. Participants added the following as potential opportunities for incentives for high performing utilities: adopting a national certification program for performance improvement; lowering state revolving loan fund rates; and offering regulatory responsiveness (e.g., disinfection credits, enforcement matrix credit).

Suggested Roles for EPA in Promoting Sustainable Utility Management

Participants had a number of specific actions and roles to suggest to EPA including the following:

- Provide an external catalyst, potentially mimicking the community flood insurance rating program, to encourage longer-term thinking in local communities.
- Support a national center of management excellence around advanced management techniques and technology transfer.
- Help educate regional offices, states, and other regulatory bodies on the virtues of sustainably managed utilities.
- Require performance management disclosure focused on ecological enhancement rather than end of pipe monitoring.
- Change permit terms to better align with infrastructure investment time frames.
- Document empirical benefits of management systems to make the business case for investment more clear.

Defining Elements of a Possible National Strategy for Promoting Sustainable Utility Management

The final meeting session focused on identifying elements of a possible national water sector strategy for promoting sustainable utility management. To initiate this session, participants were asked to address two questions: what are the immediate next steps they believed would be helpful to push forward the concepts articulated at the meeting; and what are the mid-to long-term needs for increasing the rate and scope of adoption of these concepts?

In response to the first question, participants identified, in particular, the need to write the concepts up in a cohesive fashion and work to vet them with a broader audience. In this context, participants suggested EPA initially prepare a working draft concept paper and share it with meeting participants for further refinement. As a further follow-on activity, participants suggested obtaining focused input from associations, including input on how to move the concept forward. Participants envision a process that would provide for

obtaining broader input within the sector that would act to both refine the concepts as well as provide an initial wave of education and outreach to the sector. Participants further suggested that EPA update its own national sustainable infrastructure strategy efforts consistent with the discussions at the meeting.

With respect to more mid- to long-range efforts, participant observations focused on seven categories of activities focused on sustaining current motivation and generating more widespread interest and voluntary adoption of the management practices that enable better performance (sustainable management) at utilities.

- Tool Development: Participants identified the need to translate the general concepts articulated at the meeting into practical, implementation-oriented tools. One participant identified the need for a “primer,” while others identified the need to compile useful practices and measurement (and associated data) information, and develop self-assessment and self-audit protocols. In addition to specific tools, participants indicated the importance of tailoring tools to the phase of utility development (e.g., growing, stable, declining, etc.) and making tools as simple as possible (e.g., simple self assessment questions). Participants indicated that answering the question of “where do I start” will be important, with participants indicating there are many different ways to start and many different paths to follow.
- Understand Reluctance: Although expressed in a variety of ways, many participants focused on the need to better understand the factors that impede adoption of performance improvement opportunities. Participants suggested conducting market research (potentially using marketing professionals) to better understand current utility needs and motivators and how they relate to performance improvement opportunities. This research would inform and help to effectively tailor education and outreach efforts to the water sector. It was also suggested that such research could help to identify utilities that have an interest in (are willing to embrace) improved performance opportunities but are currently hindered in their ability to do so. These utilities could represent a next tier of adopters that could help the sector gain more experience with and confidence in these approaches.
- Overall Program Model: A number of participants suggested the development of a more formal, yet voluntary, program model could be an effective means to promote performance improvement initiatives. Participants cited the Partnership for Safe Water and the Baldrige Award as two examples. In this context, participants suggested that EPA could work to form a coalition of interests (e.g., EPA, water sector trade associations, etc.) that could develop and implement the program. Participants did add a number of cautionary notes to pursuing this type of an approach including ensuring that any “certification” program can meet a “value test” where the burden is commensurate with benefit (and the potential need to have a tiered program with lower burden equating to lower benefits), leveraging existing certification infrastructure through partnerships, and linking performance related to the EPA sustainable infrastructure pillars to current national (EPA) awards efforts.

- Educational and Training Efforts (campaign): Participants placed significant emphasis on potential future educational and training efforts in part through the sheer number of ideas they generated relative to this topic area. Participants suggested an initial roll out effort could include an endorsement by national associations (and/or a sector endorsement via an official position statement) along with a commitment to conduct education and training to their members, a national, high-level announcement by EPA, and use of association meetings to introduce the concept. To support roll out, participants saw the need to establish a “unifying theme” which, in part, would answer the “why” question, the need to keep an owners perspective in the forefront, and the need to more clearly establish the benefits associated with adopting the performance improvement initiatives. Regarding benefits, participants indicated a need to better define what a “high-performing” utility is and to conduct disciplined analytic efforts (including U.S.-based case studies) to establish benefits and reduce uncertainty.

In the mid- to longer-term, participants believed efforts to educate public officials who oversee utilities will be critical to creating a receptive context for making management changes. Moreover, participants indicated educating the next generation of utility staff (in, for example, related undergraduate engineering programs) in these techniques and establishing peer-to-peer mentoring networks will be critical to effective implementation. Finally, a number of participants provided ideas of how to “pitch” these efforts including focusing on a performance improvement theme, using environmental performance improvement as a rallying point, and taking care to position EPA’s role and visibility in an appropriate way.

- Incentives Development: A number of participants identified incentives development as an important element of any promotion strategy. One participant suggested the use of a stakeholder process (possibly through NDWAC or a like body) to develop incentives with follow-on outreach conducted to associations and a broader range of utilities to obtain input on the incentives. Observations made by participants suggested that some likely key motivators include: recognition as a top performer; affiliation with other top performers; the power to control the regulatory “destiny” of the organization; and longer term permits (more consistent with the 20-year investment horizon for utilities).
- Focused, Coordinated, Consistent Support and Attention: A number of participants observed that effective promotion will require establishing a highly focused and well coordinated effort. In this context, several participants suggested establishing a utility steering group (for example, a sector based National Center for Utility Management Excellence) that could guide research and implementation support activities. At minimum, participants believed a well orchestrated strategy with effective communication and role coordination among key interested parties (such as the major national water sector trade associations) will be important. One participant cautioned, however, against micro-managing promotion efforts, encouraging EPA and others to “let many flowers bloom.”

- States: In response to the question, “do the states have a role in this effort?” participants shared a variety of ideas and perspectives. Many participants weighed in indicating a clear role for the states highlighting the fact that the states “control much of the regulatory framework” utilities operate under. In this context, state involvement in incentives development was seen as crucial. Participants further observed that states currently have only limited knowledge of the performance improvement management initiatives, with limited or no capacity and/or training in this area. Furthermore, participants observed that states were operating under severe capacity constraints resulting in a narrow focus to their work and a limited ability to respond to utility performance improvement initiatives. Finally, one participant suggested it will be important for states to realize that current, large, capital investments (in response, for example, to a narrow regulatory driver) can preclude (crowd out) future investments, thereby placing pressure on the states and utilities to effectively leverage current investments to address generalized performance needs as well as specific regulatory requirements.

Part II: Verbatim Hexagon Notes

Throughout the meeting, ideas were recorded on “hexagons”. Some hexagons from sessions were arranged in clusters to capture common themes and other key points. In cases where hexagons were arranged in these clusters at the meeting, they are presented below. However, time did not permit clustering for other sessions and some hexagons are presented sequentially as they were recorded.

Overarching Themes

Several key themes emerged throughout the course of the two day meeting. These themes are repeated or echoed in various discussions as captured in the summary notes above and in the clusters below.

- Do not prescribe a fixed model for more effective utility management (describe pathway)
- Creating the contextual setting for embracing change
- Calculated risk tolerance
- Emergent tools
- Institutional pre-condition
- Low cost of service/product vs. value
- Resource productivity vs. lower cost
- Full cost analysis => cost recovery => full cost pricing
- Affordability equation across community
- Short-term perspective => long-term need

EPA National Infrastructure Strategy Observations

Infrastructure Strategy Refinement

- Need to understand cost side
- Pricing relationship to affordability
- Need for a 5th Pillar – Federal assistance?

Needs

- Six Sigma?
- Need for performance indicators in some areas (social, environmental...)

Cross-Cutting Analysis Refinements

Drivers

- Political response driver – e.g. rate support
- Political responsiveness (rate increase support)
- Regulatory driver and relationships to PDCA model
- Two drivers: how organized => will influence development strategy

Challenges

- Long term thinking challenge

- Limited formal management training
- Strain on managers level of competence/empowerment
- Work force skill set challenge – training
- Leadership demand
- Challenge to break down silos; different skill sets (team skills)
- Champions as critical
- Culture change development work – participative
- 4-7 years for culture change
- More refinement on start-up period
- Distinction between evolution and revolution
- Critical size/how organized

Benefits

- Danger of starting off with lower cost
- More appropriate clear on service levels
- Service levels as an anchor point – lowest life cycle cost
- Costs/benefits of different service levels
- Better decision-making
- Better resource utilization
- Verification => regulatory benefit
- SRF connection (self-audit)
- Bond rating sensitive
- Defining ownership of data/asset
- Sanitary survey from 1 to 5 year cycle
- Failure points cost walls (life cycle, operational cost, capital cost, environmental cost, staff => balance)
- Asset management value chain

Benchmarks

- Benchmarking dependant on robust participation
- Performance benchmarks limited value; process benchmarks have value
- Benchmarks – some reluctance to participate => look outside industry
- Benchmarks limitations => do not define acceptable risk or defects

Outcomes of a Sustainably Managed Utility

Community Stewardship

- Contribute to sustainable communities
- Driving like you own it – public assets
- Working in public interest and community understands
- Well managed workforce and assets that leads to community support
- Capacity to support economic vitality
- Linking supply/demand with community willingness to pay to get outcomes
- Produced Community Support Standing
- Support of elected officials and community

Stable Well-planned Infrastructure

- Understand conditions of assets
- What it takes to maintain and enhance asset condition
- Longer term view as service and assets (maintaining)
- Economic (pareto) efficiency?

Adequate, Accepted Risk

- Understands long-term cost of staying in business and recovers them
- Adequate rate setting (operating, capital, reserves, ROI) min 5 years projections
- Avoid rate shocks
- Long-term expansion of rate base
- Adequate capital; efficient allocation capacity operation; workforce
- Predictable rate increases over at least 10 years

(Effective) Risk Management

- Developed culture that anticipates problems
- Stable, legally defensible, consistent with industry trends
- Effective risk management proactive
- Risk of poor plans

Customer Satisfaction

- Meets customer needs while minimizing impact on community resources
- Identify/characterize/communicate/monitor/report on service levels
- Transparency of data, information, decision-making, and service levels
- Customer loyalty
- Marketing planning

Quality Product

- Consistent quality products - clean effluent and safe drinking water
- Safe reliable water source

Natural Resource Protection and Enhancement

- Minimizing water (resource) loss/leaks
- Pathway to restoring/protecting natural environment

Human Resources

- Effectively captures institutional knowledge
- Development of multiple leaders within the organization
- Employee loyalty
- Fosters and encourages creativity in the workforce
- Human resource skills and abilities

Decision body (board) understanding and support

Performance Improvement Approach of a Sustainably Managed Utility

Strategic Business Planning

- Establish core values
- Planning organization (vs. reactionary)
- In depth understanding of customer
- Understand: growth, stable, decline phase
- Clear vision; strategic; focused; adaptive; action plan; timeframe
- Create and communicate compelling, understandable vision
- Drive toward defined goals
- Align strategic, operational, and tactical goals
- Align CIP with organization mission and vision
- Work force career development training; and clear motivational packages
- Consider capital and operating decision-making together
- Aligning short-term and long-term decisions
- Alignment of manager and employee training to achieve system goals
- Linking actions, budgets and capital programs to goals and strategies (strategic plan)
- Master planning for expansion of service area

Supporting Mechanisms

Plan, Do, Check, Act (PDCA)

- Organizational culture that embraces change
- Using a continual improvement system (plan, do, check, act) to achieve appropriate performance outcomes in multiple areas
- Culture of continual improvement with a forward focus thinking aligned
- Strong check in the place
- Problem solving organization
- Recognizes change and evolve organizational to capitalize

Decision-making framework

- Process to define accurate costing
- Create incentives for effective long-term decision-making
- Explicit decision making framework
- Create a new mechanism to reflect and update best practice
- Optimizes triple bottom line costs/benefits
- Balance level of service, cost of service, risk, customer expectations
- Fact-based decision making using indicators
- Consider capital and operating decisions together

Measurement

- Customer, region, IT, infrastructure, workforce, finance
- Routine measurement of outcome areas to recognize change
- Financial planning element, customer, employee => key elements
- Outcome areas – products/services; leadership and social responsibility
- Continually refined measurement

- New mechanism to reflect and update best practice
- Hierarchy of measures – dashboard to operational

Asset Management

- Asset management value chain
- Comprehensive asset management outside silos

Operations

- Reengineer work flows to minimize flaws

Environment

- Define and implement biodiversity policy
- Routine environmental scan
- Stays on top of regulatory and H2O quality data

Critical Success Factors

Leadership

- Stubborn leader
- Transformational leadership support/champions
- Politically savvy – manage critical relationships

Empowered Enabled Staff

- Flatter organization; empowered staff
- Technically competent (ops, finance, regulatory, HR)
- Encourage contrarians and different views
- Develop supportive tools and training
- Employee development plans (group/individual)
- Broadening focus of teams to be more inclusive – get out of silos
- Capacity to learn and retain knowledge
- Match energy with energy – employee interests
- Work force career development training; and clear motivational packages
- Collaborative involvement with employee groups
- Effective coaching
- Cash incentives => Internal performance => Link to objectives and targets
- Enabled staff consistent with emerging tools

360 Degree Communication

- Inclusive (non-hierarchical, community input)
- Ensures an active parallel organization (outside the hierarchy)
- Clearly defined roles and responsibilities
- Effective multiple channels of communication
- Customer surveys and feedback mechanisms
- Public disclosure of performance (proactive)
- Marketing planning in place
- Community education on sustainable management

IT

- Implement innovative technology – technical capacity
- Capacity to manage data

Partnerships

- Strategic partnering (with parks department for bike path)
- Align regulators, industry, agency, and utilities to drive change
- Connection to universities

Process Technology

Creative Organization

Ben Grumbles Session

Incentives

- Tailor regulatory framework to local circumstances in response to implementation of performance system
- Use of Australian “hands off” model
- Encourage collaboration/cooperation (to help consolidation)
- National certification program
- Regulatory responsiveness (e.g., disinfection credits, enforcement matrix credit)
- Change culture of regulatory process consistent with continual improvement culture of “performing” organization
- Reward long-term thinking

Challenges

- Triple demands of growth, regulation, and replacement creates high burden
- Viable utility – is a certain degree of consolidation needed
- Marginal impact of rates drives reaction
- Service/product is undervalued

Role

- Cascade information to states
- Create incentives, facilitate collaboration, embrace affordability; advocate for long-term thinking
- Reconcile process versus regulatory prescription
- Document empirical benefits
- Support Center for Management Excellence
- Technical transfer, management transfer, performance regulations; longer term permitting, SRF responsiveness
- External catalyst
- Support to measurement
- Create utility condition disclosure effort

Meeting Participants

Rick Bickerstaff	Charleston Commissioners of Public Works
Roland Hoskins	City of Eugene Public Works Department
Scott Haskins	Seattle Public Utilities
Jon Schellpfeffer	Madison Metropolitan Sewerage District
Doug Stewart	Orange County Sanitation District
Stan Williams	Santa Clara Valley Water District
Diane Taniguchi-Dennis	City of Albany Public Works Department
Billy Turner	Columbus Water Works
William Bertera	Water Environment Federation
Matt Corson	American Water
David Rager	Greater Cincinnati Water Works
Brian Ramaley	Newport News Waterworks
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