United States Environmental Protection Agency

Office of the Chief Financial Officer

Center for Environmental Finance

Meeting Summary of the Environmental Financial Advisory Board (EFAB)

March 16 - 17, 2009

Held at the

Madison Lowes Hotel

Washington, DC

Environmental Financial Advisory Board Meeting

Meeting Summary
March 16-17, 2009

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Environmental Financial Advisory Board (EFAB)

March 16-17, 2009

Meeting Summary

Day 1-Monday, March 16, 2009

Workgroup Meetings/ 8:00 a.m. to 12:30 p.m.

EFAB Board Meeting ***(1:30 p.m.)***

Opening Remarks and Meeting Overview

Stan Meiburg, EFAB Designated Federal Official (DFO) welcomed members and guests to the Environmental Finance Advisory Board (EFAB or the Board) semi-annual meeting in Washington, DC. *DFO Meiburg* commented on the changes in the government and economy since the last Board Meeting in August 2008. Changes in the economy affect financial assurance and the State Revolving Funds (SRFs). Other changes with the new federal government administration are due to new policies regarding climate change, carbon capture and storage and sequestration

James Barnes, Chair of EFAB, and Professor of Public and Environmental Affairs, Indiana University**,** welcomed Board members, EFCN members, and guests and said that he was impressed with the work and commitment of the Board. He welcomed the five new members of the Board. He recognized the time and effort spent by members of workgroups and was pleased with the strong interactions with the Environmental Protection Agency (EPA or the Agency) at the workgroup meetings.

DFO Meiburg acknowledged the five new Board members: Mathilde O. McLean, Environmental Finance Consultant from Citi Bank in New York; Sharon Dixon-Peay, Financial Administrator, Office of the State Treasurer, Hartford, CN.; Douglas P. Scott, Director, Illinois Environmental Protection Agency; Leanne Tobias, Principal, Malachite, LLC, Bethesda, MD; and Chiara Trabucchi, Principal, Industrial Economics, Inc. Cambridge, MA. The new members bring a lot of experience and expertise in the areas of business and finance. Two members, now off the Board, are Sonia Toledo, who rotated off the Board, and Helen Sahi, who resigned. Two members who were not able to be present or delayed for personal and business reason were Jim Gephardt and Steve Thompson. Andrew Sawyers and Greg Swartz would be delayed.

DFO Meiburg noted the meeting agenda was very full for both days, but they would try to accomplish all there was on the agenda. Next, he introduced *Maryann Froehlich, Acting Chief Financial Officer*, *EPA,* who is an experienced and talented executive in EPA, who would discuss EPA funding and priorities, which may have changed with the new Administration.

EPA Funding: Recovery Act and Budget

Maryann Froehlich, Acting Chief Financial Officer (CFO), EPA, introduced three EPA staff members present: Joshua Baylson, Acting Deputy CFO; Nanci Gelb, Acting Deputy Assistant Administrator for the Office of Water; and James Hanlon, Director, Office of Wastewater Management, Office of Water, all of whom would be able to answer questions from the Board. She acknowledged the valuable insights and advice from the various perspectives of the Board to meet the challenges of financing implementation of environmental legislation.

Ms. Froehlich noted the good news of increased funding and a renewed focus on environmental protection. The new administration has expressed three themes including a renewed focus on science, following the rule of law, and increased transparency and collaboration, which would include the community, as well, as state and local partners. A high level focus would be on reducing greenhouse gas emissions, improving air quality, managing chemical risks, cleaning up hazardous waste sites, and protecting water.

The President's proposed 2010 budget of $10.5 billion is the highest level ever received in constant dollars and is compared to the 2009 Omnibus Budget bill passed by Congress for $7.6 billion dollars. The key parts include $3.9 billion, compared to $1.5 billion, for the Clean Water and Drinking Water SRFs, which could fund 1000 Clean Water projects and 700 Drinking Water projects.

The plan is to move towards sustainability for the long term and to look at equitable considerations for small systems. Also, $475 million dollars is proposed, compared to $60 million, for the EPA-led, multi-agency group restoration of the Great Lakes from invasive species, non-point source pollution, and contaminated sediments. There will be a greater focus on climate change and air quality policy with a cap-and-trade program. EPA has been given $19 million for a greenhouse gas inventory to collect data on climate change. The Superfund excise taxes, which expired in 1995, will be reinstated in 2011, if Congress passes the bill.

The other half is the American Reinvestment and Recovery Act (ARRA) or Stimulus package that allows $7.22 billion dollars for the Agency to be obligated by September 30, 2010. Of this, $6 billion is for SRFs: $4 billion for CWSRF and $2 billion for DWSRF. The new infusion of funds will help states improve the public water systems. Congress has waived the 20 percent match for states' SRFs; and 20 percent of the new funds are aimed at green infrastructure. Fifty percent is for subsidies in the form of loans and grants.

There is $600 million dollars for Superfund remedial action, and $100 million for Brownfields to help with training and to provide jobs. The focus is on jobs created and jobs retained, so projects need to be "shovel-ready." There is $200 million for underground storage tanks for states and for the federal government for clean-up on Indian lands; and $300 million for grants to state and local governments to reduce diesel engine emissions by retrofits and replacements. To make sure the money is spent wisely, $20 million is provided to the Inspector General's office to monitor the spending.

The Office of Management and Budget (OMB) has a website to increase transparency: www.recovery.gov. Each agency has its own Recovery Act website and will report to Congress. Challenges relate to Buy America for iron and steel and other manufactured products, and

defining job creation and job retention. EPA wants to get the money out to the states and localities.

Nanci Gelb added that this was an incredible opportunity to jump start the economy and create and save millions of jobs. Congress has put difficult restraints on the SRF funds to be obligated within a year, so the pressure is on the states and local government to get started or be under construction. EPA headquarters staff is working on helping states. Jordan Dorfman, EPA, wrote the guidance for states on the use of SRFs.

James Hanlon credited representatives of states in the room who implemented state revolving funds over the years. Congress has used that vehicle to move $6 billion of Recovery Act funds to local governments through the SRF. States are setting interest rates for loans, and deciding on how to make grants for the Stimulus programs. The key is implementing water infrastructure programs in the Recovery Act. In 12 months that ended in June 30, 2008, the two SRFs did about $8 billion of assistance. For Stimulus dollars to work they cannot just replace SRF funds; so the challenge in this economy is to make sure that there is a net increase over the $8 billion dollar base-line. The House of Representatives has just passed HR652 that re-authorizes the Clean Water SRF; and the Senate will mark up a Senate bill that reauthorizes for the CW and DW SRFs.

Langdon Marsh asked what has happened with states and tribal assistance grants. *Ms. Froehlich* just received the 2009 Omnibus Bill, and we gave some options to some state commissioners, the ECOS folks, and the Regions, so they could get the categorical grant money spent. One previous issue is that in some states the grants were being lowered. The 2010 budget and the Omnibus Bill for 2009 have some increases.

DFO Meiburg wants to make sure all of the grant money goes out to the states, which may require some shifting of staff in the Regions. *Justin Wilson* said that in Tennessee they would have to change the legislation, because they don't provide for grants. G*eorge Butcher* thought that some states would need to change the cap-and-trade legislation.

Joanne Throwe, U. of MD EFC, asked if money is going to diesel, and whether the amount of retrofits available would be sufficient. *Ms. Froehlich* was not sure about the supply of equipment, but will take that question back to the agency.

Sharon Dixon-Peay asked about the applications from states for their intended use plans. *Jim Hanlon* responded that there are a handful of applications in regional offices. Many states are refreshing their project lists and intended use plans, because of stipulations about grants and the green infrastructure set-aside that requires 20% for green infrastructure, water efficiency, energy efficiency or other innovative projects. States are re-soliciting their utilities for additional projects. The initial capitalization grants will be made within the next few weeks. The critical date is construction by February 17, 2010; if not, the funds will be reallocated to other states.
Greg Mason asked if there is any discussion of whether the Stimulus package would create too much debt. If the money stops, then there would be cash flow problems. *Mr. Hanlon* answered that all of the budget classes have projections for future capitalization for SRFs. If you take the Stimulus and the 2009 budget away, the 2008 capitalization grants were the last ones made. The clean water SRF would revolve in perpetuity at $3 billion a year, but that does not meet the need

for wastewater infrastructure capitalization. The SRFs have been successful for long-term capability, but this will depend on increased capitalization and on-going contributions.

Leanne Tobias said she gets a lot of questions from the private sector as to the timing of the availability of the funds. *Mr. Hanlon* responded that the amount going to each state is posted on the recovery website, www.epa.gov/recovery. The states decide who the recipients are, and they are updating their project lists and intended use plans, which will be publicly posted. *DFO Meiburg* added that there is a portion of the diesel retrofits that do go to states and a portion that are competitive grants. Superfund is site-by-site, and the Brownfields are using applications that were already in-house.

Mr. Meiburg asked everyone to introduce themselves and encouraged members to speak into the microphone and state their names clearly for the record. After the introductions, he introduced the subject of cap-and-trade on carbon emissions to be presented by *Kevin Culligan*, who has had 15 years of experience in working on cap-and-trade programs, including the Acid Rain Trading Program and the OTC NOx Budget Trading Program. As Chief of the Program Development Branch of the Clean Air Markets Division, Office of Air and Radiation (OAR), he is responsible for overseeing work on development of cap-and-trade programs and engineering analysis of air pollution control programs for the power sector.

Carbon Trading

Kevin Culligan, Chief, Program Development Branch, Clean Air Markets Division, Office of Air and Radiation (OAR) announced that *Bill Irving, Chief, Program Integration Branch, OAR,* was unable to be present because he was working on emissions reporting and rule-making, but that the subject of Greenhouse Gas Trading would be thoroughly covered with a slide presentation. First, *Mr. Culligan* would talk about the key features of cap-and-trade in general, and then go into more details about greenhouse gas trading not related to policy, but to the range of ideas being considered for program design.

The key elements of a cap-and-trade program include the emissions cap that establishes a fixed quantity of allowances for each compliance period. A cap is a market-based mechanism needed to ensure the environmental integrity of the program, not the market, and ensures that the goal is met. Markets play a key role in keeping costs down. Coverage is a large component that determines which sources or sectors are included and which are not. When designing the program, the concept of emissions leakage is important, because leakage could reduce the environmental effectiveness of the program. Coverage should minimize the shifting of production sources to non-covered services. An Emission Monitoring, Reporting and Verification Program requires complete, accurate, and timely reporting of emissions for accountability.

The market element includes an allowance distribution that provides the initial allowances to regulated communities through mechanisms, such as government allocation and auctioning. The allowance can have an impact on costs. Allowance trading lets companies choose compliance options to find the lowest cost for reduction. Allowance collection makes sure the program works by surrendering allowances to cover the air emissions in the compliance period. Sources hold accounts with the Clean Air Markets Division, which can be frozen in compliance accounts

at the end of the year. There are automatic penalties for non-compliance, which encourages high compliance. Assessment is done to measure the program's effectiveness.

The advantages of cap-and-trade includes offering an alternative to traditional regulation and credit trading. In the mid-90s, the program on low-sulfur coal was aimed at installing scrubbers, but companies switched to low-sulfur coal to reduce costs. Another important aspect is the ability to use this system with other mechanisms. The SO_2 program costs were much lower than predicted because companies found other ways to reduce costs. Building up the infrastructure of the types of reductions is going to require complementary measures to make it work. Cap-and-trade works better than credit-trading, because emissions can be quantified and governmental pre-approval is not necessary as the focus is on total emissions.

Key lessons from existing programs include the need for a strong enabling authority; cap-and-trade can be used with other programs; banking lowers the costs and helps to reduce price volatility; and transparent information helps reduce price volatility. Rigorous and consistent monitoring, reporting, and verification are the key to market integrity and performance. The more specific the legislation, the fewer lawsuits brought forward.

Key cap-and-trade design considerations include the ability to use this with other approaches. The concept of emissions banking is that if you have a cap in Year 1, and if sources reduced the emission below the cap, the allowances are kept. Keeping the extra allowances provides more incentive to do the reduction. For example, the European Union set up a two-year trial period before the five-year program under the Kyoto Protocol. They discovered that the allowances could not be banked, even if emissions were lower, which lowered the incentive. In Los Angeles, the REgional CLean Air Incentives Market (RECLAIM) emissions trading program set the initial cap too high and there was no ability to bank, and this caused a big increase in the price of allowances. If they could have banked the allowances, they would have installed equipment earlier.

In terms of timing and levels, it is important to remember that greenhouse gases are a different type pollutant, as there is not a daily health threat. The goal is to reduce the level in a 20-40 year time period by changing the way we generate electricity. Cap-and-trade programs perform well, but are less of a concern in greenhouse gases. Providing flexibility is important as the cumulative reduction is what is important. The interaction with other programs, such as air pollution is important. Over time, less efficient coal units will be retired and emissions will be reduced.

Choosing a cap is dependent on several factors, such as the quantity of global reductions, the economic and technical feasibility, international action, and other domestic policy decisions. The commitment of capital and building the infrastructure for the long-term means that certainty is vital. A cap can control costs over time. Reductions can also come from outside the cap. With a tighter cap, allowance prices could rise.

Michael Curley asked: If you set a cap of 100, what would be the period of time involved?
Mr. Culligan provided two examples. One was the acid rain program which had two phases. The first phase in 1995 covered the largest coal burning companies which set a higher cap. In 2000, the cap was halved for those sources and the rest of the power sector was brought into the program. *Mr. Curley* asked if the first cap was permanent. *Mr. Culligan* responded that in Title

IV a permanent cap was set in 2000. Later, there were small decreases, and then that cap would go forward in time. The greenhouse gas legislation is different as they are looking at setting caps for 2012 that extend to 2050 and are declining caps, but these become tighter over time. The amount of pollutant is declining over time and some allowances are banked over time.

In terms of who is covered by the cap, this may depend on whether they can quantify the emissions. For SO_2 and NO_x, the caps did not cause a significant increase in electricity prices. For greenhouse gases and cap-and-trade, there is more impact on energy prices. In home heating, given the variety of sources, all types need to be capped. There are equity issues for those who started heating with electricity vs. gas. Monitoring feasibility also influences who is covered and where the emissions are monitored.

Offsets are a big issue in cost containment. Offsets are emissions that are outside of the cap and some of these can be used for the amount under the cap. Offsets need to be limited to those sources that can be quantified. The focus should be on a short list of high quality offset projects and require that projects exceed a performance standard over time.

With cost containment there are several issues. If the overall cost is too high, then carbon capture will not happen. Another concern is about price volatility, not the long-term costs. It is best to go with what works and is the easiest to administer, as complications drive up the cost. If uncertainty is created, this can drive up prices. Cost containment mechanisms include banking and borrowing allowances for future years, domestic offsets, and international trading. A safety valve is needed for allowance prices to ensure it does not go above a certain price. A Carbon Market Efficiency Board has the authority to implement the types of cost containment measures that can be used.

Under allowance distributions, auctions or direct allocations or a combination of the two methods can be used. Allowance distributions can be increased or decreased over time. Market oversight is not just about greenhouse gases, it is about market changes and price fluctuations, identification of dysfunction, and fraud. Linkages with other countries are being done under the Kyoto protocol and this can be done under cap-and-trade. Competitiveness is important if one country gets ahead of others, and there are different ways to address this.

Questions and Comments

Rachael Deming asked if EPA was looking at existing state programs in the context of federal legislation. *Mr. Culligan* said that they would work with Congress to design the legislation. Some of the proposed allowances would bank from existing programs and could be used in the new program. Congress does not want to punish early adopters.

Jennifer Hernandez said that the South Coast program in the California cap-and-trade program had a very robust set of mandates, which were very vexatious. One of the most difficult problems for the cap-and-trade program for BFCs was monitoring the emissions. It is expensive to monitor and the equipment broke down. Many entities involved did not like the program or went bankrupt trying to meet the requirements. Total emission monitoring is a non-starter. How do you capture life-cycle emissions from raw material to refining, transportation, fabrication, assembly, transport to houses, and disposal, and how do you quantify all of those features?

Mr. Culligan answered that in the acid rain program a third of the emissions came from the power sector that monitors CO_2 and reports to the federal government. A third of the emissions are from mobile sources, and upstream monitoring of the 200 refineries could be done. One of the challenges in South Coast was it was very ambitious, and it covered very small units. Life cycle is another challenge. With a cap, the life cycle is less important, except for biomass and automobiles. Mobile sources are difficult to monitor.

Michael Curley asked for an example with numbers. When a coal-fired-plant switched to lower sulfur coal, they had allowances to sell. How did it work and where did the money go? *Mr. Culligan* said that in the acid rain program 97% of the allowances were directly allocated to sources. When they made reductions and sold allowances the first people were the sources themselves. There is a range of proposals, such as the President's, which is full-auctioning, because people would be bidding for the number of allowances as they needed them. The best way is to have an incentive that encourages sources to lower emissions; so direct allocations vs. auctions makes a big difference. In terms of numbers, EPA does annual compliance reports on acid rain and unit by unit allocations and emissions. For greenhouse gases, EPA and others are working on economic analyses to see the relationship between reductions and costs. (See the website.) The acid rain program does not collect cost data. *Jim Barnes* added that you can track the 2009 SO_2 allowances. *Mr. Culligan* said you could track allowances and estimate costs because the transfer information is published.

Linden Patton asked if the Agency was going to ask questions to the Board. There are scalability issues that do not translate from NO_x and SO_2, which was industry-directed, to a diffuse, non-sectoral goal. The theory and reality are not the same. Already markets are highly regulated for price and safety. If you are talking about multiple sectors, the impact of the trading structures is great. What are the implications of the applications in an already highly-regulated, non-academic, non-theoretical market place? *Mr. Culligan* agreed and said EPA is looking at how this impacts different industries, including the competitiveness issue. Also, the Agency has more practitioners, than economists.

DFO Meiburg reminded the Board that EFAB does not have a question from the Agency, so this presentation is an overview for future work. EFAB has a range of expertise and has useful perspectives. He thanked *Mr. Culligan* for the overview.

Financial Assurance at EPA

DFO Meiburg introduced the next topic by stating that the topic of Financial Assurance is an important issue now with the changes in the financial market, as the economic downturn limits alternative funding. He then introduced *Catherine McCabe, Acting Assistant Administrator, Office of Enforcement and Compliance Assurance (OECA)*, *Marcia Mulkey, Director, Office of Superfund,* and *Matthew Hale, Director, Office of Resource Conservation and Recovery (ORCR), Office of Solid Waste and Emergency Response.*

Catherine McCabe, Acting Assistant Administrator, OECA, said that in the early 1980's EPA was in the midst of drafting the RCRA Subtitle C closure and post-closure financial assurance regulations. During the development of the regulations, EPA considered whether or not to allow partial compliance with the financial assurance regulations when full compliance would render a company insolvent. EPA concluded that partial compliance would defeat the underlying purpose

of the regulations. Instead, EPA expanded the types of allowable mechanisms, which was thought to alleviate the need for partial compliance. The regulations became effective in July of 1982 when the country was in the midst of a recession similar to the one we are in at the moment.

In 1984, Congress amended the Solid Waste Disposal Act and included the Los of Interim Status provision, which required facilities to demonstrate compliance with both groundwater monitoring and financial assurance by Nov. 1985 in order to maintain their interim status. There were many companies who did not comply with the financial assurance requirements and EPA commenced enforcement actions against them. Several of these actions resulted in cases that went to court where the companies claimed either that it was impossible to comply with the financial assurance regulations given the insurance market at the time because there was only one provider or that they had, in good faith, tried to comply, but for various reasons were not able to. The courts in the 3rd, 4th, 6th, and 7th circuits found these arguments unavailing.

While there are some similarities between the early 80's and now, there are also quite a few differences. In the early 80s the risks inherent in financial assurance were not as well understood, costs were harder to determine, the financial assurance industry was smaller and just in its infancy. However, today, the financial assurance industry is much more robust, risks are known, and there are a wider variety of mechanisms available to comply with the financial assurance requirements.

Understanding the historical context of financial assurance is important, but it is also instructive to look at what is happening with respect to bankruptcy today. In the past few years there have been a number of high profile bankruptcies by companies with large clean-up obligations. Our goal is to guard against these obligations being transferred to the shoulders of the taxpayers. To further that goal, OECA is looking to include financial assurance requirements in its clean-up agreements wherever possible and to ensure facilities maintain compliance with their closure and post-closure obligations. To underscore the importance of the duty to provide financial assurance, courts have held that even bankrupt companies have a duty to provide financial assurance during the pendency of the bankruptcy.

Bankruptcy is a significant issue. For the 12 month period ending September 30, 2008, the Administrative Office of the U.S. Courts reported that total federal bankruptcy filings jumped by 30% and business filings jumped by 49%. We believe that this trend will continue. Just in the last few months, several major companies including Tronox, Flying J. Inc, and LyondellBasell have filed for bankruptcy. It is worth noting that Tronox and Flying J passed the financial test last year.

Given the increased bankruptcy filings and the overall state of the economy, we are monitoring the financial wherewithal of companies during these difficult times. Specifically, we are monitoring the bond ratings of those companies who we know are using Alternative II of the financial test to comply with their financial assurance obligations. We are also encouraging states and Regions to actively monitor financial assurance compliance. This is especially important for those companies using the financial test or corporate guarantee because these are not liquid instruments upon which EPA may draw in the event that the company goes bankrupt.

Ultimately, the regulations have not changed and EPA still expects that companies will comply with all of the RCRA financial assurance obligations. One of the key lessons from this priority is that significant competitive advantage can result from the failure to secure the required FA. EPA is particularly interested in ensuring that facilities without FA come into compliance thereby insuring a level playing field.

EPA anticipates that some facilities may face challenges in securing financial assurance for those companies that can no longer use the financial test or corporate guarantee, but the regulations allow a company to secure a mechanisms within 120 days, 4 months, of its fiscal year end. The regulations build in time to secure new instruments and we expect companies to be diligent in using that time to secure new mechanisms if needed.

As EPA works through these issues, EPA will look to what we have done in the past, but be mindful of the increase in bankruptcies and other effects of these challenging economic times and will continue to bring good governance and common sense principles to the table.

Matthew Hale, Director, Office of Resource Conservation and Recovery (ORCR), **(**formerly the Office of Solid Waste), ***Office of Solid Waste and Emergency Response (OSWER)***, ***EPA*** said that in 1986 some of the major pieces of financial regulation were in place, but they wanted to make sure that there was a viable waste management company and financial mechanisms that could be used. The basic requirements were not changed, but new mechanisms have been added. EFAB's recommendations were used in this regard.

On the Loss of Interim Status (LOIS), the RCRA financial assurance requirement was built into the statute. The 1984 amendments to the Hazardous and Solid Waste legislation required that by November 1985 land disposal facilities that could not meet ground water or financial assurance requirements had to stop managing hazardous waste. Up to the 1985 deadline, there was a concern about not meeting ground water financial assurance requirements due to liability for those who could not find other mechanisms for closure and post-closure.

The effect was that almost 1000 facilities stopped receiving hazardous wastes. The poorly capitalized facilities could not do hazardous waste disposal. The waste was still in the ground, however. By now, after 25 years of RCRA, except for commercial hazardous waste operators, nobody has a RCRA permit who cannot find a way to stay in business. The basic lesson of LOIS is that holding the line in the 1980s improved waste management in the United States.

Following EFAB's advice on captive insurance and the financial assurance test, a proposal was developed on the financial test and proposed to the Office of Management and Budget (OMB). This was during the administrative change and the proposal has come back to the Agency, so more work is needed. Some of the issues are in the regulatory area, but there may be recommendations from EFAB due to changes in the current economic climate. On the regulatory side, writing new rules takes almost five years. For the long term, is there a way to write them smarter, so they can be attuned to economic circumstance? On the program side, ideas take a long time to implement.

In the current economic climate for financial assurance, ORCR is looking at Section 108B of the Superfund statute from the 1980s. The concept was that within three years the highest class of facilities for financial assurance to prevent future superfund sites would be identified by EPA.

But by 1985, these regulations had not been written. In Northern California, the District Court ruled against the government and gave a deadline of May 4, 2009, to publish the list of the high priority class of facilities.

This decision raises the issue of which financial assurance mechanisms to use, such as Subtitle C mechanisms, and whether this is feasible in the present market. Another question is that back in the 80s and 90s, when people were concerned about the availability of alternate mechanisms; some people thought that if the program was implemented, the mechanisms would come. EFAB's opinion would be helpful on this issue. Some mechanisms, such as the financial test are more vulnerable today. If facilities cannot pass the test, then they have 30 days to come into compliance with another mechanism. March 31st is the deadline to see who cannot meet the financial test or to find other mechanisms.

Questions and Comments

Rachael Deming noted that in the 80s, there was a subset of the waste management industry where certain manufacturers had a waste treatment unit, but it was not their main business. For companies that have retrospective liabilities under the Superfund that end up on the balance sheet, it is a problem for long-term liabilities and cost estimates, because it is a full- cost, up-front estimate to provide financial assurance. It is not how much it would cost to provide financial assurance for each year. For the potential impact on companies in the current market, it is important to understand the differences. Many companies that provide financial assurance have to add up all or their obligations and have six times the net tangible worth and that amount of assets available to demonstrate the financial test. Related to Municipal Solid Waste (MSW), what was the difference between the six times net worth and the current RCRA regulations?

Mr. Hale did not know the specifics on that question. To clarify the LOIS status, most of the facilities did not go bankrupt, they just stopped receiving hazardous waste and may have closed, but they still had retroactive liability. He explained that when the agency did the test for municipal waste landfills, basically they dropped the requirement related to the current assets vs. the current liability, but increased the standard related to cash flow or debt equity ratios, which made the test harder for some companies. On the net worth side, companies must have $10 million more in net worth than the obligations they are covering.

Jennifer Hernandez claimed that in the Superfund area related to Brownfields and re-use, the RCRA rules do not work. If a facility used for defense purposes becomes a residential site, there are many different land owners each with different lenders, so financial assurance does not work. An up-front financial assurance mechanism for the entirety of the remedy cost is difficult for those who are trying to do Brownfield re-use under a RCRA voluntary program. Also, there is a huge impact in the financial assurance world in how RCRA or Comprehensive Environmental Response, Compensation and Liability Act (CERLA) remedies are styled. The consequence of a long-term stewardship requirement depends on whether the clean-up is a remedy or stewardship. If it is under stewardship, then there is a gap between what the financial assurance mechanism should be in the RCRA traditional sense and the post-closure and beyond issues.

Ms. Hernandez added that the Board has looked at innovative ideas across the country, such as in-perpetuity storm water management systems to solar systems, etc., that are financed through a range of options, such as assessment districts and public financing. The multiple ways of paying

for things needs to be recognized in the RCRA programs. To think about moving the RCRA list into a true CERCLA program would be the death knell for many Brownfield projects.
Ms. Hernandez suggested hiring an expert who knows which mechanisms would work best. The mechanisms are all subject to financial market ups and downs, and alternatives are needed for financial assurance under RCRA. On the CERCLA side, financial assurance cannot be required up-front. The Fish and Wildlife Service uses an annual letter approach asking about the amount to be spent. This is all coming out of operating income or assessments.

Mr. Hale said that on some of the issues in CERCLA, their group is talking about long-term stewardship issues. Financial assurance for RCRA in correction action and the Superfund work the same way. *Ms. Hernandez* thought both were equally deadly for Brownfield projects.

Marcia Mulkey said that in the absence of new regulations under CERCLA and RCRA, until the remedy selection, there is no regulatory requirement, so financial assurance is handled case-by-case. If there is a federal enforcement instrument, it is expected in major cleanups that parties will have financial assurance in their compliance plans, but in Brownfields there are common sense approaches when non-liable parties have to do the clean-up. Under 108B statutory requirements, the law requires identification of sectors with a history of financial problems, so it would not be expected that these would be available for Brownfield development. For the most part, long-term stewardship requirements are not unusually costly. There may not be any examples where financial assurance interferes with returning sites to the marketplace with re-use and clean-up sites or for non-liable party clean-ups. Liable parties have to demonstrate their ability and if they involve the federal Superfund program, they would review them. There is some flexibility regarding clean-up for the non-liable party. The regulatory requirement is at remedy selection, but otherwise there is no regulatory requirement.

Mr. Downard said that now the financial storm has affected the entire financial system. He used an example of a company that has lost their interim status and had passed the financial test, but now cannot pass the test; and they may have a corporate guarantee bought out by a company that is in financial difficulties, which in turn was insured by a large company that borrowed from the government, and so on. The best laid plans may not work in times of financial crisis. *Mr. Downard* believes that the financial companies will come back, but we cannot rely on them now.

Chiara Trabucchi said the challenge of financial assurance is that you have the timing of cash flow when obligations come due. A single mechanism does not fit all parties and options are needed, such as constant dollars vs. discounting for 108B. Can CERCLA allow for the discounting of cash flows, so that riskiness is mapped? Some companies may warrant a higher discount rate, because of their financial strength. You could then balance the risk profile against the financing profile. Under RCRA, it is all current dollars and this rule needs to be more flexible. If 100 percent of capital needs to be available right now, it is not available in the present market.

Peter Meyer said that the discount rate means you are dealing in a realm where a level of expertise in the Agency does not exist. If you talk about the risk status of today in regard to future obligations, then you need to know when the obligations would take place. Going back to the successes of LOIS, this is a situation that none of the experts in this room is capable of addressing. If a company is no longer receiving hazardous waste, then from the RCRA standpoint they are a success, but then they become a Superfund site. The problem is that we are

looking at stovepipes. EFAB could suggest ideas about how to avoid the CERCLA and OECA stovepipes.

Cherie Rice agreed with *Mr. Downard,* but all of the financial mechanisms have some risk. There is no way to know who is going to get hit the hardest. Having a wide variety of mechanisms is important if one mechanism is not working.

Rachael Deming added that there is a presumption that we want to re-think the self-test. Having another person give financial assurance is a benefit—the third party instruments vs. the self-test. If we look at the failures, Safety-Kleen is still functioning, for example. In financial assurance corrective actions, a better time frame is needed. This does not happen with the Consent Degree at the Superfund sites, but there are not enough RCRA corrective action examples to know whether it works or not. Multi-party sites take a lot of lawyer time trying to come up with the financial assurance for those sites and people are looking for the most cost-effective options.

Mary Francoeur asked if EFAB's advice on financial assurance is still valid. EFAB could look at our model and see whether it needs recalibration. Our recommendation came from having third party analyses with respect to the financial test and captive insurance. An independent analysis is needed. On the fundamental analysis of corporations and municipalities that have been doing it for a hundred years, they have validity. The recommendations with respect to third party review remain valid, but the workgroup could review this issue.

Lindene Patton said that a lot of what we have done is predicated on the underlying financial system in which the focus is on maximizing the return on individual asset investments. In the broad underwriting field, the discussion is on matching assets to liabilities. Can the financial assurance structure be looked at in terms of matching assets to liabilities? This might be an opportune time to do this. *Ms. Rice* asked what was meant by assets. *Ms. Patton* said that it is the assets being used to match to the liability. The asset could be liquid or anything. However, if you try to match an asset that is different than the liability, this creates discontinuity.

Mr. Wilson asked if a failure rate greater than zero is satisfactory. *Mr. Hale* replied that they were not expecting zero failure rates when they wrote the regulations. But the regulations assumed that there would be a certain amount of failures that would have to be dealt with by the Superfund or the taxpayers. *Ms. Mulkey* said that zero failure is when the taxpayer has to pay.

Leanne Tobias said she is hearing more about private investment in Brownfield clean-up and the possibility of being able to get a substantial return. Is private capital moving into the Brownfield financial assurance area and does that help stimulate the financial assurance market? *Ms. Hernandez* added that a lot of the Stimulus package dollars are being spent in Superfund and Brownfields clean-up, but if sites used public money to get clean-up, what happens next? If you set up an assessment and sign-off on that as financial assurance that leaves a gap between when the project starts and when it is ready for use. One good use of the Stimulus money would be for gap financing for early sites prior to an assessment district. If sites were not burdened with financial assurance up front, then that would be better for circulation of money in the economy.

Mr. Hale said that his office does not receive Stimulus money. One of the best assurances for retrospective liability is to move the clean-up aggressively, which is the benefit of the

Brownfield financial assurance. The liability would be reduced, so that someone could use the property.

DFO Meiburg thanked the presenters for coming and gave them an opportunity to ask questions to the Board. *Ms. Mulkey* said she would look for the Brownfield barrier for re-use of sites and is aware of the multi-party issues.

Adjournment: The meeting was adjourned at **4:55 p.m.**

Day 2-Tuesday, March 17, 2009 ***(9:02 a.m.)***

DFO Meiburg welcomed everyone to the full day session of the EFAB, which would consist of two presentations, one from *Joanne Throwe, Director, Environmental Finance Center Network,* and the second from *James Horne, EPA Office of Water.* After the presentations EFAB workgroups would report including Water Loss Reduction, SRF Investment Options, Innovative Financing Tools, Carbon Capture and Sequestration, and Financial Assurance Subgroups: Commercial Insurance and Cost Estimation. A period of public comment would follow the reports.

Environmental Finance Center Network (EFCN)

Joanne Throwe, President, EFCN, announced that *Jeff Hughes*, who had provided amazing leadership as President during the past year. For this session she would report on a project of the Maryland Environmental Finance Center in Region 3. Several other EFC Directors would briefly present projects under their jurisdictions.

The EFC at the University of Maryland has a project in the Occoquan District in Northern Virginia that has a population of 400,000 and a lot of development and natural resources. It is the site of the large Potomac Mills shopping center. The District asked the EFC for help in doing a community vision exercise for future growth and development focusing on preserving trees and parklands near the Occoquan River. The growth for 2030 would include 2,500 new households added to the 13,200 existing households. The EFC did a survey of the residents to find out what they really wanted for community development and improvements in transportation. EFC made a report to the County Supervisors to amend the County development plan. Some of the changes included new bus routes, areas for open space, tree protection, and walking and bicycle paths.

Heather Himmelberger, EFC Director, National Institute of Mining and Technology, Albuquerque, NM, and the longest serving EFC Director with 15 years of service, would show an example of effective utility management (EUM). EFC thought that asset management could be done for any size community, so the Arenas Valley, NM, a small community in southwestern NM, was selected. Arenas Valley has 430 service connections, 20 miles of PVC pipe, and a system that was built in the 1980s. The community wanted to apply for a grant of $5 million dollars for the first phase of a project to install new piping because a number of breaks increased the cost of repairs. They would ask for more funds for Phase 2.

The EFC investigated the actual repairs in terms of numbers and costs. The number of repairs was small and primarily due to faulty construction techniques. There were 10 main line leaks and 14 service line leaks costing from $1200 to $1500 dollars to repair or $6000-$7000 per year. The cost of replacement was $5 million. The community decided not to replace the pipes, but to utilize the grant money for other projects, such as a loop line, additional isolation values, and to repair the road crossing damage. The President of the Arenas Valley Water Development Authority praised the EFC for their assistance which changed their point of view and the type of work needed and saved money for consumers.

In EFC9, *Sarah Diefendorf, Director, Dominion University of California,* reported on three projects. The first project with the Torres Martinez Tribe in Riverside, California identified and evaluated potential technologies to convert local green waste, from the golf courses' removal of

sod that was deposited downstream into the tribal area, into economically viable products. Students brought this to the attention of EPA by making a movie, so EPA cleaned up the site and asked the EFC to provide options on how to improve the situation. Suggestions for projects were composting waste to energy, tire shredding, and ecotourism. The Tribal Council will decide on the plan and students will help. EPA Region 9 helped using Title C to go after the illegal dump sites.

The second project was with the Shoshone and Paiute tribes in Nevada on developing financially viable recycling programs for both rural and urban areas. There is a lot of land and a very sparse population. One tribe is near Reno, which does not have recycling, so the tribe might be able to make recycling economically viable. The EFC will provide support to help them develop financial, marketing, and business plans.

The third project was in American Samoa on coral reef protection to prevent bleaching caused by climate change by providing shading protection from sunlight. The focus was on community education by setting up a Coral Reef Protection Partnership Program that emphasizes green business practices and reduces industrial waste impact on coral reefs. In Samoa, a coral reef farming project is being developed to replace damaged coral reefs. The EFC is assisting farmers with their long-term financial, business, and marketing plans. The cultivated coral can be sold to aquariums.

Jack Kartez, of the New England EFC at the University of Southern Maine in Region 1, is working on COAST, Coastal Area Sea Level Rise Tool, to help coastal communities adapt to sea level rise and increased storm surges. Region 1 has shifted from land conservation to climate change and energy issues. The project involves assisting local communities with the costs and benefits of adaptation strategies and uses GIS-based and FEMA modeling tools. The goal is to develop a template that can be used by several governments. The report would be available in the fall. Several partners include Tufts University, Maine Geological Survey, Industrial Economics, Inc., the Southern Maine Regional Planning Commission, and Casco Bay Estuary Project. Another project related to climate change is the development of a climate change toolbox. In Freeport, Maine, the site of L.L. Bean, the EFC is offering consulting and community building services for renewable energy, using a public-private partnership model.

In Region 2 at Syracuse University, *Sara Pesek*, Director, EFC, reported on three projects in conjunction with the Maxwell School MPA students related to sustainability. The first one with the City of Oswego, NY, is to make short-term recommendations on street lighting reduction, a midtown garage for vehicle fleets, and water resource management. Long-term projects recommendations include wind energy, solar energy, lake source cooling, and green roof. As a result of their efforts, the City of Oswego received a high-priority planning grant for lake source cooling.

Many communities want to be green, but cannot measure what is needed. *Ms. Pesek* showed a complex slide depicted all of the sustainability projects over the country. All were different, and used different units of measurement. The EFC is collaborating with ICLEI-Local Governments for Sustainability, the U.S. Green Building Council, and the Center for American Progress to develop the Star Community Index, a framework for communities to use for climate change issues, social equity, energy, affordability, economic development and prosperity, and sustainability. *Mrs. Pesek* is on one of eight technical advisory committees that address different

components of the plan. The plan will develop the credits and the background for the credits. The goal is for a completed plan by the fall of 2010, so communities have a framework to use for a sustainable city.

Lauren Heberle, Director, EFC, University of Louisville, in Southeast Region 4, reported that their EFC had taken on more research and technical assistance on climate change. One example is the Louisville Climate Change Committee (LCCC). The LCCC was convened by the Green City Partnership, which is made up of Metro Louisville government, Jefferson County Public Schools, and University of Louisville. Over 100 participants were included over a period of two years. The EFC served on the full committee and subcommittees. The result was a process for developing policy recommendations for a plan for each partner and for the community-at-large. The report will be available in April 2009, and will provide advice to partnerships in developing and integrated climate action plan.

Under sustainability and energy efficiency, the EFC is offering technical assistance to the University of Louisville, with the goal of reducing their carbon footprint. The focus is on operations related to coal trucked into the power plant. The Department of Psychology is involved in implementing pilot programs related to behavior. EFC co-sponsored with the U. of Louisville a national teach-in on climate change. EFC has a sustainable city series and the series will be re-produced in Lexington, KY. A new project developed by former director, *Mr. Meyer*, on climate change economics is geared towards educating state legislators and policymakers. The website is www.climatechangeeecon.net. EFC also has practice guidelines on climate change related to adaptation, energy efficiency, green conferences, green buildings and land-use planning.

Jeff Hughes, former President of EFCN, provided a personal perspective on EFCN that involved providing technical assistance to many consulting firms and governments by stating that they are based in a University and involve students in planning and carrying out projects. About 45 students have been involved over 10 years. Students are working in EPA, state regulatory agencies, local governments, and in academia on financial management and environmental policy. Public policy and planning students are working with MBA students in collaborative projects.

William Jarocki, Director, EFC, Boise State University, said that the EFC teaches utilities, better management, and the best service to the most people at the least cost for the longest period of time. The EFC builds tools for effective management, like the Dashboard. To measure the impact, they can find out who is using the Dashboard. The website has had 3500 registered visitors on the site. They can find out if the tools are being used and if they are effective. While the EFC operates in Region 10 with at a satellite office in Region 7, people from many different states and countries have used the website. The annual report to EPA would be able to show the effectiveness of the organization.

Mr. Meiburg thanked the Center Directors for their presentations. The Board benefits from the hands-on experience of the Centers. All of the activity demonstrated and the engagement of communities is the result of a $2 million investment in nine centers by EPA. These funds are heavily leveraged by the Centers, and this is a great return on investment. The Directors have built a large network of support for communities across the country.

Comments

Lindene Patton thought the EFC work was phenomenal. She works for a large firm and climate change is a big issue. She welcomed the progress being made in public policy measures. There is an unseen barrier because climate change projects cannot get insurance. Insurance regulators refuse to allow certain scientific and rational models related to climate change into property and casualty coverage for consumers. Insurance needs to be used to prepare people for climate change and to reduce risk-taking behavior by getting price signals. The national flood insurance program and the Army Corps of Engineers need to be looked at, before reconstruction of beaches. The EFCs have a convening power that a private insurance company, such as Zurich North America, does not have. The EFCs might be able to provide a link for communication to state insurance commissioners to educate them about the impacts of climate change, because it is independent and verifiable. If you want the insurance industry to be involved, she would be glad to discuss with her colleagues to get involved and to share the data they have collected.

Effective Utility Management (EUM)

James Horne, Utility Management Project Director, Office of Water, EPA, has worked on asset management related to water sustainable infrastructure strategy. One of the key elements of the strategy was working effectively with industry partners who manage water and wastewater utilities to promote policy and practices and systems to manage sustainably.

The current state for water and wastewater utilities are facing challenges, such as aging infrastructure, continuing regulatory changes, unclear prospects of future federal funding, increasing customer and community demands for service, and the short-term perspective of elected officials. Officials have a three-to-five year time horizon, but most problems need a 20-30-year perspective. Funding may be improved from the Stimulus, but the future federal contribution is unknown.

An initiative begun in 2005 on EUM focuses on sustainable operations using a collaborative strategy between water and wastewater utilities to define best practices. A meeting was hosted for a number of leading utilities in the U.S. to engender a discussion on utility management and to agree upon a common framework. The group developed a list of *Attributes of Effectively Managed Utilities*. The best advice at follow up was to establish a steering committee consisting of EPA, and a wide-variety of utilities and private service providers: the Association of Metropolitan Water Agencies (AMWA), American Public Works Association (APWA), the American Water Works Association (AWWA), the National Association of Water Companies (NAWC), Association of Clean Water Agencies (NACWA), and the Water Environment Federation (WEF).

The Steering Committee was charged with making recommendations to EPA within one year to develop attributes to promote EUM in the future. The recommendations came from the group, not from EPA. Two focus groups were convened, one in Las Vegas, and the other in Chicago, to review the recommendations, which they approved and then added additional attributes. Subsequently the Committee made a series of key recommendations to EPA and the Associations as follows:

1. The water sector should adopt *10 Attributes of Effectively Managed Utilities* and *5 Keys to Management Success*.
2. Collaborating organizations should identify a cohesive set of targeted, generally applicable, individual water-sector utility measures, and
3. A resource toolbox identifying management resources available to utilities and based on the 10 Attributes should be developed.

In May 2007, six major water and wastewater associations and the EPA Office of Water signed an historic agreement pledging to support Effective Utility Management collectively and individually throughout the water sector. This was a unique agreement for EPA and these associations. A wheel chart of the Attributes identified the key elements designed to identify outcomes that a EUM should achieve, from financial management to infrastructure stability, regulatory compliance, and community sustainability, etc. *Mr. Horne* stated that attributes equal outcomes.

The Keys to Management Success are overarching themes and define the Attributes. These include leadership, strategic business planning, organizational approaches, measurement, and continual improvement management. Not all utilities do strategic business planning. Keeping the best people is an important element. Performance measurement was emphasized strongly.

In the future, collaborating organizations have completed three key implementation tools, which can be found at WaterEUM.org.

- EUM Primer to help utilities get started
- Targeted performance measures based on the Attributes
- On-Line Resource Toolbox

The Primer for EUM helps companies to assess their current conditions and priorities, rank important attributes, document the results of ranking, choose attributes to work on, and establish performance measures.

Effective Utility Management: A Primer for Water and Wastewater Utilities (PDF)

Outreach is the important next step. There are 16,000 wastewater plants and 60,000 drinking water treatment plants, and the Guide can be used for utilities of any size to assess their operations and become more sustainably managed. EPA and the partners are working on an interactive, web-based presentation on the Attributes and the Primer and on an initial set of case studies documenting utility experiences to be used in presentations.

EFAB can help in the following ways:

- Share information with colleagues, clients, and other utilities.
- Encourage EFCs to become strategic partners with EPA to promote adoption of the EUM Attributes and Keys to Success
- Indicate EFAB's support to EPA leadership and the new administration.

The long-term vision is to obtain acceptance of the Attributes, Keys to Management Success, and Performance Measures as the norm for utility management. All utilities, regulators, and service

providers unite around the EUM as the common management framework for defining excellence. Utility excellence should be recognized and rewarded through a national award program. The goal is for water and wastewater operations and infrastructure to be sustainable in the future.

Scott Haskins added that the purpose of the presentation today included awareness, feedback to the Office of Water, and to encourage future collaboration with the associations and the public agencies.

Questions and Comments

Bill Jarocki added that the goals for the national Dashboard are related to EUM. A strategic component of the Dashboard is asset management. The early information from the EUM process was used to indicate parameters that should be measured by communities. The turnover of officials in small utilities is tremendous, so the Dashboard provides continuity over the long-term. The Water Dashboard is completed and the Wastewater Dashboard will be done in 60 days. The EFCs would like to link the formal EUM website information into the Dashboard website.

Mr. Horne agreed and said the EUM primer website is in process and the Dashboard linkage is the next step. It would be important for the EFCs to encourage utilities to use the Primer. *DFO Meiburg* said that some people would start with the EUM site and find the Dashboard site, and others would start with the dashboard and then go the EUM site. *Mr. Horne* said he would be glad to look into this linkage.

Heather Himmelberger mentioned an initiative in New Mexico of an informal partnership with two engineering companies The first step is to take the Primer around and set up meetings with utilities to become more effectively managed. This will be a framework to put together ideas for effective management for the engineers, which are usually not involved. The engineering firms need to see the advantages to them.

Ms. Throwe thanked EFAB's staff for working with the EFCs and for doing an excellent job of cooperating with the EFCs for the environmental improvements

Workgroup Report Outs:

Water Loss Reduction

Terry Agriss, Chair, noted that the Water Loss Reduction Workgroup started as the "leaky pipes" problem, which can cause large drinking water system losses. The Workgroup thought that leaky pipes could be easily addressed. The Workgroup would make recommendations on the way to finance corrections to the water loss systems. The first decision was to address drinking water systems and later decide whether to add wastewater systems. The goal is to have a substantial outline of the paper by August 2009.

Their perspective is that reducing water loss saves water, but also, if the water is treated, then it would reduce chemicals going into the environment and the costs of water treatment. In the EFAB folder, there is a scope of the problems and the list of activities for the Workgroup. *Scott*

Haskins has worked with the American Water Works Association to obtain information and research reports from this source. *Heather Himmelberger* will provide information on a water leak repair project in New Mexico. A website is used to exchange information between workgroup members. People can comment on the information and on a future draft document. With *Vanessa Bowie's* help, a small amount of money was identified to hire a graduate student to help with abstracting research information and available reports.

Yesterday the workgroup discussed the issues in the final report. The first was to identify the social and environmental benefits, in addition to the economic ones. Some areas have a wealth of water resources and reasons to repair leaks need to be identified. Since areas of the country are so different, one template would not work. We decided not to include water used for irrigation. The key area that needs to be addressed is the problems with water meters, as well as leak detection, and other ways water is lost, such as in accounting methods.

Issues that face small systems differ from large systems, especially in the type of financing. The use of SRFS to finance projects might not be appropriate for operation and maintenance. Other methods of financing would be needed. A proposal related to asset management would be to look at whether, prior to financing, an asset management review or EUM would need to be undertaken by the company. No consensus was reached on the use of guaranteed energy savings contracts.

Private water companies vs. public companies and small vs. large would both have significant differences. Large private companies are probably minimizing water losses better, as small private companies often lack access to capital. The National Association of Regulatory Utility Commissioners is a possible source of data or ideas on partnerships. *Karen Massey* noted that Missouri and New York have programs to help small, private water companies.

Andrew Sawyer suggested that under the Stimulus package 20 percent of the $2 billion dollars needs to be spent on a green component on infrastructure, so there is an opportunity for EPA to provide support to utilities for green infrastructure projects. In Maryland, they are looking at water detection equipment. *Mr. Sawyer* offered to join the workgroup. *DFO Meiburg* added that Agency is discussing guidance on how to define green projects.

Leanne Tobias noted that energy-saving projects also affect the real estate industry and she has several contacts with the industry and would be able to provide assistance to the workgroup. *Bill Jarocki* said that EUM is all voluntary, but the workgroup would like to provide some expanded cost-benefit data about the savings. *Ms. Agriss* responded that the workgroup discussed the Stimulus package in terms of immediate projects, but the consensus was that the states were already selecting their project; however, we could have a conference to call to discuss this possibility.

Jeff Hughes added that there will be projects we cannot influence, but we can capture their experiences regarding the use of the Stimulus package. *DFO Meiburg* agreed that due to the transparency of the Stimulus package a lot of data would be available later, but he suggested the workgroup pursue the subject. *Mr. Sawyer* said the green infrastructure funds are in a reserve and that non-green funds could not be transferred to green projects until after August 17, 2010.

SRF Investment Options

George Butcher, Chair, reported that the first workgroup activity was to respond to a GAO questionnaire related to establishing a national clean water trust fund options for an annual expenditure of $10 million dollars. *Terry Agriss* completed the form, which was edited by the workgroup, and then sent to EFAB members for comments. There was a number of differing EFAB comments, so the questionnaire was not returned as an EFAB paper, but as a variety of different perspectives.

DFO Meiburg noted that on the questions of whether there should be a trust fund, some Board members were skeptical of a trust fund and thought SRF funds would be a better use of assets because it existed in perpetuity. The Board's position about the size of the capitalization grants was that this was a political position, and the Board's role was to make sure the SRF funds were being used effectively.

Mr. Butcher said the main work of the subgroup was an examination of alternative investment options that came out of the Leveraging Workgroup. The idea was that SRFs should consider setting aside a portion of capital by investing it to grow equity. The SRF program is like an endowment, which invests funds in municipal bonds. The workgroup wondered if EFAB should make any change in its recommendations on SRF investment practices. State treasurers are managing SRF investments differently, some without reference to program needs or investments by the independent authority that manages SRF funds.

Initially the workgroup worked on whether to frame the issue narrowly on existing law or to examine the possibility of recommending something more like pension-style investing. The group decided to focus on the entire spectrum of alternatives without bias.

The workgroup is gathering information regarding existing practices, especially the best practices used for SRFs. *Jim Gebhardt* has circulated a paper on practices used by the New York State Environmental Facilities Corporation, which has strategies to leverage program income.

At yesterday's meeting, *Keith Hinds* suggested talking to two persons that he works with, who have expertise in the investment area. One colleague, *Pat Gamin*, who has worked with the Yale Endowment on that type of investing, presented various endowment-style investments used by pension funds around the world. One question related to expectation of returns, and the response was that returns were five to seven percent after inflation. The returns would be more stable than the stock market, but this approach also is down in the current market. The approach is valuable in terms of the portions that are invested to earn income in perpetuity. Differences in the SRFs would influence the decision, such as the larger SRFs with over $1 billion in funds, which would require expertise and operational flexibility to manage. The workgroup's charge is to continue the process and to try to have something in writing as a draft for the August meeting.

John Boland spoke as an economist and was suspicious of any investment that states it is going to earn more than a risk-free rate of return over the long term. Five percent is what pension managers have been targeting, but in the last year have been getting 40 percent less than that. In the actuarial field, the advice is that pension funds should be invested risk-free, because they are invested for decades. *George Butcher* said that if that is true, then we are bankrupt because no

one can afford the pension obligations. *Mr. Boland* said over the past 30 years the funds have earned three percent over inflation. *Mr. Butcher* said this was not universally true.

Ms. Tobias suggested the workgroup explore the option for state SRFs to pool funds to be able to get the best management. *Mr. Butcher* agreed and *DFO Meiburg* said that the Board had recommended that there should be more joint management of SRF funds between the drinking water and wastewater funds. The Board believes that pooling of assets would provide more flexibility.

Mr. Hinds provided an explanation related to the risk of rates of return and managing expectations and liabilities and assets. The risk-free rate of return is what the U.S. Treasury would provide. Risk involves volatility, but the other risk is not meeting objectives. A future rate of return is needed beyond the risk-free rate of return. Pools of assets have different objectives and need to be managed over time, and the rates will change. If funds are invested for perpetuity, then a perpetual return is needed, so different asset investment is needed to meet different objectives. Risk is what you are expecting in 20 years.

Mr. Sawyers added that the states are having difficulty in terms of types of investment. The workgroup needs to decide whether to continue with this in the current economic and political environment. The State of Maryland law requires that they invest the money. The reality is that decisions would be difficult at this time. *Mr. Butcher* says that the spectrum is up for debate, but the workgroup will stay on the narrow end of the spectrum. The potential value is having EPA take positions that create pressure at the state level to allow SRFs to operate more flexibly.

Innovative Financing Tools

Michael Curley, Chair, said there were two documents in the EFAB folder; the first was the draft letter regarding the *Innovative Finance Award*. In 2005, EFAB had called to the attention of the Administrator of EPA, the *Bay Restoration Fund Act*, which was a radical and innovative type of environmental financial legislation under the Clean Water Act of 1987, because part of it was on septic tanks and the other part said that all of the proceeds from the tax would be leveraged.

In the course of the work on Air Pollution, the workgroup has found other innovative methods, such as the Berkeley project on solar panels, and the one in Pendleton, Oregon, related to removal of wood stoves. The idea is a no-cost loan because the loan is not due until sale, so the new owner is essentially paying the loan. The focus is on low-income families living in double-wide trailers, who use wood stoves that are environmentally harmful. A loan of up to $3500 would be given to purchase an EPA-certified wood stove or a gas installment. The workgroup would like the letter to go to the administration citing these as possible examples for an award for outstanding innovative financing. One change in the draft letter would be to change the wording to give the award to the City of Berkeley, not the Mayor.

Mr. Hinds suggested waiting for comments until after the discussion on Voluntary Environmental Improvement Bonds (VEIBs). *Kelly Downard* thought that giving a loan that is not due on sale is like a sub-prime loan; and it is important to know that the value is there to repay the loan.

Mr. Hinds reported on the draft report: VEIBs: *A New Innovative Local Environmental Finance Concept for Climate Change through Greenhouse Gas Emission Reduction; Air Pollution Reduction; and Reduction of Non-Point Source Water Pollution.* In 2008, EFAB submitted a report to the Administrator on an innovative finance program for air pollution reduction, but this report goes beyond the 2008 Report by identifying specific state and local initiatives in financing programs to retard climate change through the reductions listed in the title of the report.

In August of 2008, the workgroup looked at the concept of special tax districts and heard about the Berkeley program to reduce the city's carbon footprint by helping individual's reduce their own carbon footprints by installing solar panels on their homes. Berkeley had a special provision in its city charter but now there is a state-wide law for doing this and a dozen cities have signed on. An article in the New York Time wrote that Palm Desert has started the program to allow a 20-year loan at 5 percent by going through the City of Palm Desert, which made it possibly to finance the solar panel installation.

Several members, plus *Amanda Aldrich* from EPA, visited the City of Berkeley and the result was that the types of financing had implications for more than a solar program and could be used for environmental improvements on residential or farm property. Berkeley had to change the city charter, but the Governor signed off on the laws. Now there is a state-wide law for doing this and a dozen cities have signed on. Colorado passed a state law which broadened it to geothermal, insulation, and new doors and windows that would save energy. The City of Annapolis in Maryland set up a program through community banks that have community-lending criteria where the banks would lend to a foundation for residents who want to install solar panels or other energy saving devices. These loans are insured by tax liens against real property. Since 1985, Massachusetts has been providing loans for improving septic tanks without a special district, but by borrowing money from the State Clean Water SRF for 20 years at a low rate and without a bond. The tax lien is paid by the new owner when the property is sold.

EPA should look at any environmental program for residents or farm real property to use this type of financing. A list of the types of environmental and energy efficiency programs that could use VEIBs is in the Report. Other federal agencies could get involved to address other problems, such as non-point pollution, air pollution, energy, and wastewater.

Questions and Comments

Mr. Downard said that the idea of the payment going over to the new owners is a good one, but banks are looking at value and have to worry about 80 percent loans that turn into 94 percent loans, which could effect pricing and credit. You may have areas where mortgages are at higher risk. *Mr. Curley* said that Berkeley and Palm Desert do look at the value of the home and the improvements and the mortgages financing them. *Ms. Downard* said the person making the decision is the city. *Mr. Curley* responded that when you go to finance, the bank looks at the value.

Ms. Tobias added that, with respect to underwriting, it is being addressed in a public financing context, because localities want to be able to issue bonding authority to back the improvements. Financial people want to be able to borrow at a lower rate, and some underwriting is being done. This is a good mechanism to involve HUD and the Department of Commerce, which are expanding economic development in distressed areas under the Stimulus package.

Ms. Patton agreed with *Mr. Downard*, although she thinks that VEIBs are a good idea. She wanted to focus on the reservations on Page 6 that are in parentheses. First, the pilot programs have been deployed with a proven technology, such as septic tank improvements and solar panels. Getting a city employee to underwrite several technologies, which may not be proven, would be more problematical. It is important to look at how to define the approved list and a caution note that the loan needs to be underwritten, because public funds are being deployed to improve the environment. If it turns out that some innovations do not work or the contractor was faulty, then guidance is needed about the importance of underwriting. She would like to see the parentheses removed on Page 6 and even make it stronger for consumer protection and environmental performance.

Mr. Hinds strongly stated that this is consumer debt or a backdoor home equity loan. Home equity loans are secondary loans for the purpose of adding value to the house, so why replace them? They are made to highly qualified buyers. The credit quality of the bond depends on each individual home owner, and how that is assessed. Who will insure this? The first-lien mortgage holders would be placed in a secondary position. Would a foreclosure stand without a court test and who would pay the cost of adjudicating this? The city would have a problem with foreclosure and if the property taxes and state income taxes have not been paid, would the state take a second position? This worked when property values were rising, but in a time of downturns in values and people walking away from mortgages, this is a real problem. The idea of VEIB is tremendous and Annapolis's method where the bank assesses the risk is much better. He would not want to put an imprimatur on this now.

Ms. Tobias added that the report states the need for well-defined programs with training for verification of contractors with widely used standards. Most localities with these programs have a method of validating contractors. On the cash flow problems and the mortgage, with most programs the payment for the upgrade is less than the utility savings for the buyer, so the available cash flow to the lender is a plus. Underwriting is needed for this to enhance the security of the mortgage loan on the house to ensure that the energy savings are at least equal to the payment. All the energy costs are not offset, but the payment for the energy upgrade is less that the energy savings. *Mr. Curley* disagreed with this statement.

DFO Meiburg suggested three more comments and then to resume the discussion after lunch, since consensus has not been reached.

Greg Swartz made the following comments based on his experience in special tax districts:

- Most states have a form of taxing districts, but not all do.
- Even though these could be home equity loans, special tax districts do get a better interest rate than individuals.
- Most states have the authority to do what is being done in Maryland.
- All states can use the tax-exempt capability and some can use taxable interest.
- As far as property liens, most states do not have the authority at the local level for property taxes to be differential; they are based on the value of the property, not on benefit-derived.
- California used a special tax where there is a benefit-derived and it is collected like a property tax, but it is based on the benefit-derived.
- Some states would call it a special tax with a lien behind property taxes.

- This is not a property tax or a property-secured loan; and this does not work if the second property owner does not want the benefit.
- As far as due diligence, it would be the classic methods used by banks for underwriters, which is a value to lien that is 5 to 1 compared to the debt.
- This is not an innovation as states have been doing this in other areas, but we could emphasize that this could be used for other environmental and energy projects.
- If EPA pushed this, states would need the authority to allow localities to do these types of loans.

Mr. Sawyer said that special taxing districts reduce user costs. But if people in low-income residential areas cannot afford the 5-6 percent loan, this could be problematical.

Ms. Dixon-Peay said this needs to be discussed further. The state of the economy and the value of homes today are the reasons cities and states are looking for guidance for what really works. The issue of valuation needs to be looked at. Cities have not accepted the voluntary part, which might be a problem, but this would be an equitable approach. Ideas need to be consistent with state and local government roles, not just for a politically attractive agenda.

Mr. Curley responded that the Berkeley and Palm Desert programs were oversubscribed and have been funded. While these are innovations, the thrust of the paper is on not wasting resources by limiting this type of financing to solar energy.

DFO Meiburg summed up the discussion by saying that he was hearing reservations, but also hearing from members that this is an interesting mechanism; so input is needed to the report. He said that if members wanted to have input on the language, then a mechanism needed to be set up to accomplish this. A time limit needs to be set for further comments, and a revised draft circulated. EFAB needs to give useful advice to the Agency and the Agency needs to respond.

Ms. Patton, responding for the Workgroup, thought that this was a good idea. Based on the previous discussion, text could be added to tighten up the paper to show that the benefit is a public good in the context of climate change. It is innovative from the standpoint of broader applications. *Mr. Myer* added that for the public good the climate change benefits go beyond the home and the city. Also, the borrower is the city, not the home owner. Even though the home owner is the basic payer, this is a municipal default. *Ms. Patton* and others disagreed with the latter statement. *Mr.* Meyers had provided some of the material to a state legislator, who had a team of lawyers trying to figure out it if was legal. This was a state that created a special assessment district to revitalize the downtown, but this idea is very different.

DFO Meiburg recommended that comments be given to *Mr. Curley* by March 31, 2009. The separate matter of awards from the Administrator could be included. *Mr. Curley* would prepare a revised draft and send it to the Board via email to see if it can go forward and be approved before the August EFAB Meeting. If there are too many comments then, more discussion would be needed.

Ms. Hernandez asked if this idea was really innovative. She has done this in many communities. Before the property is subdivided, she can burden those lots with a variety of obligations. There are lots of tools to be used in a geographically contiguous area, such as a park district or a utility and lighting district, if a majority of the owners approve. What is unusual is a non-contiguous

area. One problem with an assessment district is the environmental justice issue, where wealthy communities can pay for this, but low-income communities cannot. She wanted to know if there was an example of a non-continuous, voluntary program that is tied to an assessment district. *DFO Meiburg* wanted to focus on whether this was a good idea, not on whether it was innovative.

Ms. Francoeur asked if bonds had been issued. *Mr. Curley* replied in the affirmative. She would like to review the offering documents for debt, if they are not private. The obligation is an assessment, so the lien on the property would come before property taxes. The city is the collection and enforcement agency, and that is not a small issue to a bond holder. The failure of a city to recognize that obligation falls far short of any recommendation for investment or bond insurance. The obligation of the city for its role as the insured entity for the debt is not reflected in the document.

Mr. Downard said the good thing about this is that it could be used for a variety of activities that are not presently used, but it did not seem like a special taxing district. He will reply within the next two weeks to the Workgroup Chair.

DFO Meiburg noted that a memorandum was submitted to *Chairman James Barnes* from *Stephen Page, Director, Office of Air Quality Planning and Standards*, regarding the use of voluntary assessment programs to finance reduction in greenhouse gases, air pollution, and non-point source water pollution. The finance mechanisms are called VEIBs. *Amanda Aldridge,* who works on an EPA wood stove program, explained that there was urgency about this program. A federal tax credit is available to pay for 30 percent of the cost of a new wood stoves or hydronic heaters that need to be replaced. *Director Page's* memo stated that the his Office was in favor of the VEIBs, such as the one used in the City of Berkeley, which could be helpful in replacing old wood stoves with EPA-certified devices that would improve air quality. His office would be willing to participate in an intra-agency or interagency task force to assist this effort.

Ms Hernandez discussed a new idea about micro loans from charitable donations that can be aggregated into a $5000 payment for wood stoves. These are non-governmental loans. *Ms. Deming* added that the University of Michigan law school started a program using microfinance, and they are providing legal advice to those providing the loans. She could provide the contact information for the legal clinic director. *DFO Meiburg* added that EFAB had approved micro loans for the Smart Way program.

Carbon Capture and Sequestration (CCS)

Jim Tozzi, Chair, stated that the Carbon Capture and Sequestration Workgroup was established in August 2008, to develop recommendations for financial assurance for UIC Class VI geological sequestration (GS) wells and to develop principles for long-term stewardship of GS wells. (Report revised January 2009.) At the first meeting of the Workgroup yesterday, and due to the vast amount of materials and the complexity of the subject, the usual process for developing reports to EPA may need to be changed. The Board met several times with EPA representatives from the Office of Water and the Climate Change group.

The Board would need to discuss the intermediated work product. The Workgroup will present real options and be very specific. The immediate need of the agency is for is for EFAB recommendations on financial assurance for the UIC Class VI geological sequestration (GS) wells related to EPA regulations which have been proposed and are ready to be finalized. The second issue is long-term stewardship of the site after sequestration, closure, and post-closure. EPA policy could result from this Workgroup's recommendations.

The Carbon Capture and Sequestration (CCS) literature is vast and the subgroup that is working on this thought the main issue is that the organic statute that authorizes the program is a drinking water statute, but EFAB is looking at RCRA fixes. The question was whether we would be constrained by RCRA or drinking water statutes? The Workgroup does not want to be inhibited by the organic statutes of EPA, because of the need for new statutes related to long-term storage. *Mr. Tozzi* asked *Ms. Deming* to add her comments.

Ms. Deming thought this charge was related to EFAB's work on RCRA. The proposed rule is a subset of CCS and first input is for geological sequestration and underground injection wells. The first task is to set up a comparison of the RCRA rules vs. underground injection sequestration as compared to the proposed new rule. The focus is not on the operational phase, but closure and post-closure that is called plugging and abandonment. The third activity is long-term stewardship, which is similar to abandonment or "walk-away." The UIC material could be hazardous waste or a Class I well, which has a RCRA overlay, and other wastes related to production of oil and gas. There is a lot of state structure and regulations on the different classes, so there are a lot of basic presumptions to recognize.

Ms. Deming added that financial assurance in RCRA is not a good model. The RCRA basis needs to be challenged and go beyond this. When the proposed regulation was set up, there was a reference to pattern it after the regulatory structure for Class II production wells, which are not proscriptive regulations, but are guidance. This would allow for flexibility for new technologies. In the proposed rule, "EFAB" is a defined term, EFAB's work was cited, and EPA will come to the Board for advice.

Mr. Tozzi then discussed long-term stewardship. Yesterday the Workgroup heard a discussion on cap-and-trade, but this is not completely market-based because it starts with a governmental mandate and is based on the idea of complete transparency in reporting. Cap-and-trade does not remove anything from the environment, so EPA statures are needed that require certain detrimental pollutants to be removed. If they do risk assessment, the risk profile needs to be known. In the EPA materials, the CCS risk is high at first and then goes down. *Mr. Tozzi* thinks that this assumption needs to be verified. The profile may delineate the frequency of the malfunction, but not the magnitude of a malfunction, so the risk profile may be very different.

In this process, CCS is defined as the injection of liquefied CO_2 into sub-surface rock. Fluids in the cavity are moved out in the geological process, but not into the ocean or space. Several sub-decisions are needed, for example, CCS is looked at as a solution, but the USGS has a study underway that questions how much CO_2 could be sequestered even if it could be afforded. The second issue is the cost of sequestration, which involves liquidation, transport, and injection at high pressure. Initially, the Workgroup will accept the assumptions, with reservations.

The database on this subject if huge and is up-to-date in the last 3 to 5 years. The Workgroup cannot conduct basic research, so they are reviewing lots of documents from academia, NGOS, states, and foreign governments. The bottom line is not a detailed legislative proposal for long-term stewardship, but a set of operating principles for long-term storage. The operating principles should very specific, and be set forth in a paradigm that states what should be done and what should not be done.

Mr. Tozzi reviewed the use of the Price Anderson Act of 1956 that set up a liability scheme for nuclear reactors. The usefulness of the Act is not to use the contents of the Act, but to use the metrics. When the decision was made for the Act, there were three considerations: on long-term sites (1) the responsibility for one generator or source; (2) the collective responsibility for all generators; and (3) the responsibility of the U.S government. The metrics used for these considerations would be determined.

The Workgroup found two studies focused on CCS long-term liability and stewardship. Pushing for the most environmental protection as possible may be very costly. One study was from the U. of Minnesota Law School Study, and the second one was from Carnegie Mellon that involved many law schools and public interest groups. *Mr. Tozzi* compiled a chart to see if the Price Anderson model could serve as an analytic metric to measure regulation of liability for damages from CCS activities as applied to the other two studies' recommendations.

Mr. Tozzi invited EFAB members who were not on the Workgroup to provide comments to the various subgroups. The Workgroup members who were working on the UIC Class VI part of the report were *Rachael Deming, Mary Francoeur, Jennifer Hernandez,* and *Cherie Rice*. The review of states that have passed organic statutes will be done by *Cherie Rice*. *Scott Haskins* and *Jim Tozzi* will write a report on foreign governments' activities. *Lindene Patton* and *Chiara Trabucchi* will write a paper on trust funds.

There is a need for peer review by governmental offices, such as the Department of Agriculture, the EPA Offices of Air and Water, and the comptroller of the state of Tennessee, for example. The bottom line is some strong principles, which should be written throughout the process. *Steve Thompson* and *Jennifer Hernandez* will keep a running record of the principles. Finally, the Workgroup will scale down the database, so anyone can input data for the archives, with dates and names of each person inputting data. The Workgroup will also meet more often with EPA staff.

Questions and Comments

Lang Marsh commented on the principle of pushing the limits for protection in the long-term. He asked: What is the full cost and who would bear the liability? The ultimate decision-makers that would do a full-life cycle of the technology need to know the impact. *Mr. Tozzi* said the full impact as related to the two studies and the individual, collective, and long-term liability were so inclusive that implementing them would be too costly. On the risk profile that is currently used, there would be a lower probability of costs.

Ms. Trabucchi said that in looking at financial liabilities in other contexts, such as Price Anderson, the Alaska pipeline, oil spill liability, and others, the financial consequences and the price structures of these should be reviewed. If you focus on CCS in the climate context, with or

without cap-and-trade, there are huge economic implications for rate payers, the distribution network, the generators, the sequestors, and the industry sector, such as oil and gas and electric utilities. Economic analysis must be included in review.

Ms. Patton agreed that it was necessary to look at the breadth of options in regard to risk profiles. In developing the financial assurance structure, the risk and the financial assurance solutions will have to be mapped and the other reasons for loss need to be recognized, such as seismic events. Trying to make the right recommendation is dependent on the life cycle and breaking this up into operational, closure and post-closure, and long-term impacts is correct. The risk profile needs more clarity.

Mr. Hinds asked about the thought process on ownership. Is this private or public ownership of the disposal sites? *Mr. Tozzi* said that on the third cell which is whether a government or a trust fund is involved, whether it would be operated by the federal or state governments is a very important issue.

Mr. Tozzi added that another issue is that CO_2 is a precursor to carbonic acid which has an affinity for other elements on the periodic chart, called metalloids, such as Polonium and Arsenic. The chemical engineering profession has harvested arsenic using carbonic acid by washing with CO_2. If CO_2 is injected under high pressure at 3-5000 feet, what effect would it have on the fluids that are displaced? *Ms. Deming* said that EPA asked about the operational phase and the financial assurance for leaks and remediation.

DFO Meiburg commended the Workgroup for undertaking this ambitious project. This is not a report where the Workgroup would prepare a draft for the Board. The Board will have to be involved during the process. *Chair Jim Barnes* added that the Agency needs a first draft report within the next year. The Workgroup could give part of the report to EPA, and then complete the larger concept beyond the one-year Agency advice request.

Vanessa Bowie, Acting DFO, after *Mr. Meiburg* had to leave for another meeting, introduced the Chair and Co-Chairs of the Financial Assurance Workgroup who would discuss Commercial Insurance and Cost Estimation.

Financial Assurance

Mary Francoeur, Chair, Financial Assurance, noted that yesterday's discussion indicated how complicated the issue of financial assurance is and she was glad that the new Board members had expertise in the area of financial assurance. She thanked both Co-Chairs in bringing together people with very different opinions to bear on the issues. She thanked the EFAB staff for their assistance.

Commercial Insurance

Justin Wilson, Co-Chair, said this sub-group has been working on commercial insurance for both closure and post-closure activities under RCRA. The Workgroup has validated the use of commercial insurance for financial assurance where it is appropriate. The paper has gone through 4 drafts and has received many comments that dealt with the strengths and weaknesses of insurance and minimal ratings. The Workgroup is prepared to answer the questions from the

Agency. Some areas of disagreement remain, but the paper should be ready for EFAB's August 2009 meeting. Basically, we realize that anything that is done requires good cost estimation.

Ms. Deming added that the Workgroup discussed commercial insurance, letters of credit, and surety bonds that are all third party providers. Other third party instruments will also be reviewed. *Mr. Wilson* said that there was some reluctance to use the financial test, because it would be hard to tell whether there was more financial assurance from one instrument compared to another, because the advantages and disadvantages depend on the circumstances.

Ms. Francoeur said one recommendation stated that the provider of the commercial insurance have a minimum credit quality rating from a well-known company such as A.M. Best. Discussions involved whether or not standardized policy language should be used and whether insurance is a guarantee or not. *Mr. Wilson* said that the latter issue has been resolved in the current draft of the paper for purposes of making decisions about whether to use insurance or not.

Cost Estimation

Kelly Downard, Chair, said that the original mission was to develop and promote consistent cost estimation principles and standards. The EPA and state governments are seeking guidance on how to improve the accuracy and reliability of cost estimates. If the cost estimate is not good, then financial assurance would not work. The Workgroup suggested a Cost-Estimation Consultative Group/Team (the Team) be developed that would involve Agency, state regulators, and entities in closure, post-closure, corrective action, and remediation. They also would add providers of financial assurance, because of their failure analysis expertise, and vendors who support the costs estimation process. There are some entities who can estimate costs and we will try to get them together to solve problems.

The Workgroup has listed an outline of future work, but yesterday two items were added. The first is that the methodology of cost estimation means that there is a process to analyze the cost estimate of a particular activity that is not written down in a book. So for each situation, you have to use principles. We will need people on the Team who can recalibrate the methods for each type of project. We can analyze the failures and the successes to extract what worked and what did not. There is a problem of proprietary information, but if you are discussing process or failure analysis you can look for certain things that affect the outcome.

The Consultation Team needs to be defined in terms of who operates it, who facilitates it, and who is involved. The Team needs a leader and ideas for participants, such as vendors and people in the industry. The end result is that the process gets better and the cost estimates are more reliable.

Ms. Agriss asked who would be the user of the outcomes of the Consultation Team. *Mr. Downard* said the body of knowledge would go to everyone who needs it, so everyone will improve. *Ms. Agriss* asked if anyone would be able to rely on this information from a regulatory perspective. *Mr. Downard* responded that the regulators would be involved, but reliance on an estimate is difficult. Reliance on the process would help to get through a regulatory system faster, so it would be a good idea to use the process they have helped to develop.

Mr. Barnes thought the discussion was divided between the methodology to make sure you had feedback mechanisms, and the second level on how to assist state-level people who would be making the cost estimations and who may not have the background to do this. *Mr. Downard* agreed that training was needed for some state people. Several states could share an expert. States need to participate in the process of developing the principles.

Mr. Boland asked if this was like construction cost-estimating and would there be a cost-estimating manual. *Mr. Downard* said there would not be a manual, but principles that could be used on cost estimates for projects that have not been done before. The cost units are already available, but the process needs to be described.

Ms. Francoeur added a tool that has been in use that could evaluate or guide the inputs into the analytics of the model. The Consultation Team is advisory, not regulatory, and informs the discussion.

Ms. Agriss asked whether state regulators would participate and would they be bound by the discussion. *Mr. Downard* said that the process was not rule-making, so the regulators are not bound by the discussion.

Ms. Hernandez would want to redact out information about specific facilities, so they would not be playing a regulatory role, and there would be no administrative record. The focus is on methodology and the use of case studies. It is important to engage the state level. The issue is whether the model is less than accurate or whether the model is not being applied well, so that training would be needed.

Ms. Deming asked if the cost estimate is static and set at one price or whether the timing of payments could be looked at over time. *Mr. Haskins* thought it would be useful to look at what problem is trying to be solved. Describing the problem in a precise statement would be useful. Trying to describe the principles is difficult and the ones listed look like the characteristics of the advice. The details of the methodology may not be proscriptive, but the principles to be used could be described. *Mr. Downard* said there is a lack of confidence in the numbers that are available. The Agency said they want to make sure they will be paid and paid the right amount. Every operation is distinct, so there has to be a process to determine the best cost estimate.

Public Comment

Scott Stone, Hunting and Williams, said he was there on behalf of the Carbon Capture and Storage Alliance. The Alliance was put together a year ago to look at risk and legal liability issues, how to remove barriers, and encourage the commercial-scale deployment of CCS. The Alliance filed comments on the UIC rule-making on the public docket. The government should do no harm by discouraging financial instruments. A broader array of financial instruments is needed to encourage long-term financial assurance.

The government should encourage various instruments for financial assurance such as trust funds for long-term stewardship, and insurance as a risk-management tool. Insurance provides full coverage for the financial assurance risks. Surety bonds and letters of credit should be used to ensure the performance of the bond holder. The regime should encourage the role of private

market-risk management. Financial assurance mechanisms should be cost-effective. The Agency should consider the financial cost in designing a regime.

Wrap Up and Next EFAB Meeting

Ms. Bowie announced that the next EFAB meeting would be August 10-11, 2009, in San Francisco and the facility would be the OMNI hotel in the financial district. Any new members, who would like to volunteer for a workgroup, could send her an email indicating their interests. There will be lots of conference calls between now and the August 2009 meeting. *Chiara Trabucchi* volunteered for the Cost Estimation sub-group. *Ms. Bowie* thanked all of the members and experts for their service to the Board.

Adjournment: There being no other business, *Ms. Bowie* adjourned the meeting at **3:30 p.m**.

Appendix

***EFAB Members Present*:**

- A. James Barnes, Chair, Professor of Public and Environmental Affairs, Indiana State University, Bloomington, IN
- Terry Agriss, President, TAgriss Advisory Services, New York, NY
- John Boland, Professor Emeritus, The Johns Hopkins University, Department of Geography and Engineering, Baltimore, MD
- George Butcher, Managing Director, ButcherMark Financial Advisors, LLC, Cambridge, MA
- Donald Correll, President and CEO, American Water, Voorhees, NJ
- Michael Curley, Executive Director, The International Center for Environmental Finance, Towson, MD
- Rachel E. Deming, Partner, Scarola Ellis LP, New York, NY
- Kelly Downard, Chairman, Louisville Metro City Council, Louisville, KY
- Mary Francoeur, Managing Director, Assured Guaranty Corp. New York, NY.
- Scott Haskins, Vice President, Global Water Business Group, Bellevue, WA
- Jennifer Hernandez, Partner/Co-Chair, National Environmental Team, Holland and Knight, LLP, San Francisco, CA
- Keith Hinds, Financial Advisory, Merrill Lynch (Bank of America), Albuquerque, NM
- Mathilde O. McLean, Environmental Finance Consultant, Portland, OR
- Langdon Marsh, Fellow, National Policy Consensus Center, Portland State University, Portland, OR
- Gregory Mason, Assistant Executive Director, Georgia Environmental Facilities Authority, Atlanta, GA
- Karen Massey, Deputy Director, Missouri Environmental Improvement and Energy Resource Authority, Jefferson City, MO
- Lindene E. Patton, Chief Climate Product Officer, Zurich North America, Great Falls, Virginia
- Sharon Dixon-Peay, Financial Administrator, Office of the State Treasurer, Hartford, Ct
- Cherie Collier Rice, Treasurer and Vice President of Finance, Waste Management, Inc. Houston, TX
- Leanne Tobias, Principal, Malachite, LLC, Bethesda, MD
- Dr. Andrew Sawyers, Program Administrator, Maryland Water Quality, Financing Administration, MD Department of the Environment, Baltimore, MD (Day 2)
- Douglas P. Scott, Director, Illinois Environmental Protection Agency, Springfield, IL
- Greg Swartz, Vice President, Piper Jaffray & Co., Phoenix, AZ (Day 2
- Dr. Jim J. Tozzi, Director, Multinational Business Services, Inc., Washington , DC
- Chiara Trabucchi, Principle, Industrial Economics, Inc., New York, NY
- Justin P. Wilson, Controller of the Treasury, State of Tennessee, Nashville, TN

***EFCN Members*:**

- Sarah Diefendorf, Director, EFC, San Francisco, CA
- Lauren Heberle, Director, EFC, U. of Louisville, Louisville, KY

- Heather Himmelberger, Director, EFC, NM Institute for Engineering Research and Applications, Albuquerque, NM
- Jeff Hughes, Director, EFC, U. of North Carolina, Chapel Hill, NC
- William Jarocki, Director, EFC, Boise State University, Boise ID
- Kevin O'Brien, Executive Director, Great Lakes EFCN, Cleveland State University, Cleveland, OH
- Sam B. Merrill, Director, EFC, U. of Southern Maine, Portland, ME
- Sara Jade Pesek, Director, EFC, Syracuse Center of Excellence in Environmental and Energy Systems, Syracuse University, NY
- Joanne Throwe, Associate Director, EFC, U. of Maryland

EPA/EFAB Staff and Management

- Stanley Meiburg, EFAB Designated Federal Official (DFO), Deputy Regional Administrator, U.S. Environmental Protection Agency, Atlanta, GA
- Vanessa Bowie, Director, Center for Environmental Finance, Washington, DC
- Analysts: Alecia Crichlow, Susan Emerson, Pamela Scott, Timothy McProuty, Sandra Keys

Expert Witness:

- Peter B. Meyer, Director, EFC, University of Louisville, KY
- David Miller, USDA, Syracuse, NY

Presenters: Maryann Froelich, Acting CFO; Kevin Culligan, OAR; Catherine McCabe, OEC; Matthew Hale, OSWER; James Hanlon, OW; Nanci Gelb, OW; Joshua Boylson, OCFO; James Horne, OW; Amanda Aldridge, OAQPS; Jordan Dorfman, OW; Marcia Mulkey, OECA;

Attendees March 16, 2009: Michael Bellot, Jim Berlow, Ann Codrington, Michael Dean, George Faison, John Helturan, Terri Johnson, Khanna Johnston, Jack Kartez, Bruce J. Kobelski, Bruce Kulpan, Ben Lesser, Casey Massino, Bob Maxey, Gary McNeill, Mindy Nigoff, Patricia Pfeiffer, Dave Reazin, Dale Ruhter, Diana Saenz, Sonya Sasseville, Nena Shaw, Timothy Sherer, Ryan Smith, Erin Smith, Bob Stewart, Chrisna Tan, Joe Tiago, Larry Zaragoza, Steve Crookshank, API; Mike Chang, Joe Dillon, UMD; Emily Sanford Fisher, Edison Electric Institute; Pat Gammon, Institutional Business Development; Craig A. Hart, Alston & Bird LLP; Nick Hart, Office of Management and Budget; John Helturan, Inside EPA, Matt Holtman, GPA; Ben Lesser, David Mann, Daila Shimek, Great Lakes EFC; Joanne Stone Wyman, PhD., The Lapidus Group LLC; Eva Rippeteau, Syracuse EFC; Larry Silverman; David Miller, USDA, Rural Development; Bill Weber, Holly Wooten, Cadmus Group

Attendees March 17, 2009: Vicki Ellis, Jack Kartez, Casey Massino, Bob Maxey, Gary McNeil, Dale Ruhter, Timothy Sherer, Joe Tiago, Dawn Champney, Water and Wastewater Equipment Manufacturers Assoc., Inc., Joe Dillon; UMD; Fred Eames, Hunton & Williams LLP; Craig Hart, Alston & Bird LLP; Nick Hart, OMB; Larry Silverman; Erica Martinson, Inside EPA; Karen Obenshain, Edison Electric Institute; Daila Shimek, EFC; Scott Stone, Hunton & Williams LLP; Bill Weber; Holly Wootten, The Cadmus Group

U.S. ENVIRONMENTAL PROTECTION AGENCY

Environmental Financial Advisory Board

March 16-17, 2009

AGENDA

March 16, 2009

8:00 am – 12:30 pm **WORKGROUP MEETINGS**

12:30 pm – 1:30 pm **LUNCH**

1:30 pm **OPENING REMARKS AND INTRODUCTIONS..... Jim Barnes, Chair**
Stan Meiburg, DFO

1:45 pm **EPA FUNDING: RECOVERY ACT AND BUDGET.....Maryann Froehlich**
EPA, Acting Chief Financial Officer

2:30 pm **CARBON TRADING.....Bill Irving, Chief**
Program Integration Branch
Climate Change Division
Office of Air and Radiation

Kevin Culligan, Chief
Program Development Branch
Clean Air Markets Division
Office of Air and Radiation

3:15 pm **BREAK**

3:30 pm **FINANCIAL ASSURANCE AT EPA .....Catherine McCabe**
Acting Assistant Administrator
Office of Enforcement & Compliance Assurance

Matthew Hale, Director
Office of Resource Conservation and Recovery
Office of Solid Waste & Emergency Response

4:30 pm **Day 1 Summary.....Jim Barnes**
Stan Meiburg

4:45 pm **ADJOURN**

U.S. ENVIRONMENTAL PROTECTION AGENCY

Environmental Financial Advisory Board

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AGENDA

March 17, 2009

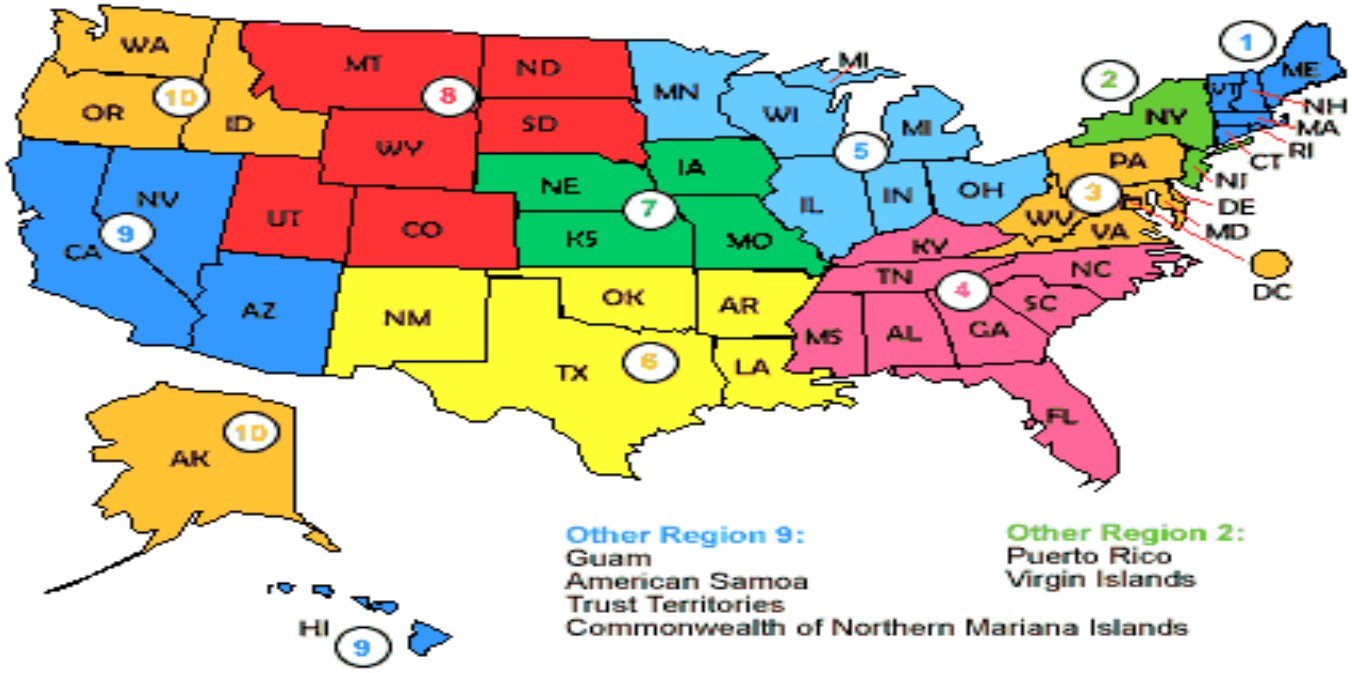
9:00 am	**OPENING REMARKS.....Jim Barnes** **Stan Meiburg**
9:15 am	**ENVIRONMENTAL FINANCE** **CENTER NETWORK .....Joanne Throwe** **President, EFCN**
9:45 am	**EFFECTIVE UTILITY MANAGEMENT.....James Horne** **Utility Management Project Manager** **Office of Water**
10:30 am	**BREAK**
10:45 am	**WORKGROUPS REPORT OUT**
	WATER LOSS REDUCTION.....Terry Agriss
	SRF INVESTMENT OPTIONS.....George Butcher
12:00 pm	**LUNCH**
1:00 pm	**INNOVATIVE FINANCING TOOLS.....Michael Curley**
	CARBON CAPTURE & SEQUESTRATION.....Jim Tozzi
2:45 pm	**BREAK**
3:00 pm	**FINANCIAL ASSURANCE .....Mary Francoeur** **- COMMERCIAL INSURANCE.....Justin Wilson** **- COST ESTIMATION.....Kelly Downard**
4:45 pm	**PUBLIC COMMENT**
5:00 PM	**Meeting Summary.....Jim Barnes** **Stan Meiburg**
5:15 pm	**ADJOURN**

Environmental Finance Advisory Board

March 17, 2009

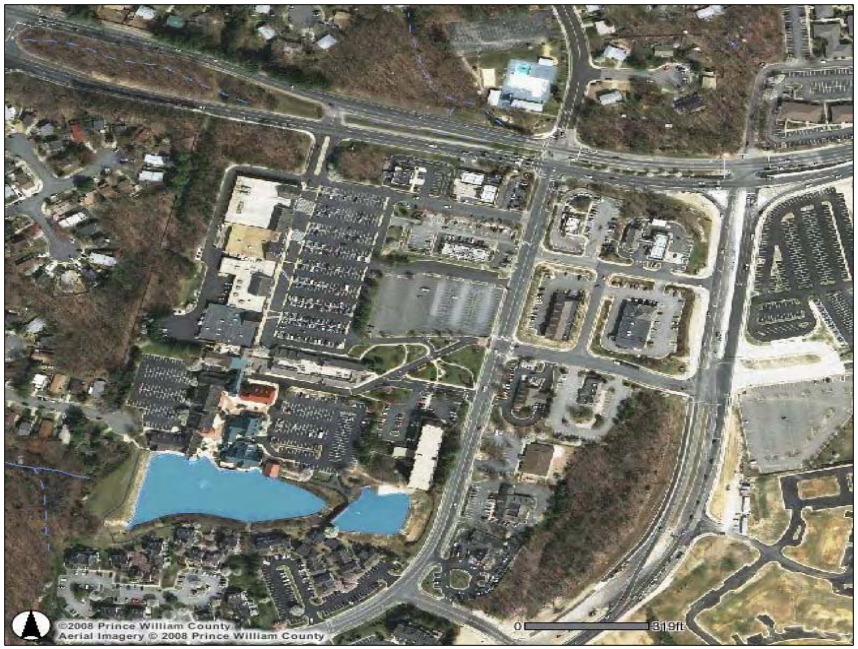
Environmental Finance Centers

EFCN
environmental finance center network



The Occoquan District

- Northern Virginia region
- Military bases
- I-95
- Natural resources
- Public parkland



Sector 5 & 6

Potomac Mills:

- Commercial center
- Under-utilized properties
- Transit opportunities
- Significant impervious surfaces
- Little green open space
- Weekend traffic hotspots

Future Growth and Development in the Occoquan District

Current Conditions	Planning for 2030
13,200 Households	2,500 New Households
16,000 Jobs	6,500 New Jobs

Create, implement and sustain the vision of Occoquan District communities today and in the future.

New Mexico EFC

New Mexico Tech

Heather Himmelberger

Arenas Valley, NM

Small community in southwestern, NM

430 Service Connections

Approx. 20 miles of PVC pipe

System built in 1980s

Mostly residential with some commercial development on main street

Arenas Valley, NM

Issue: Felt that they needed brand new piping because their number of breaks increased and costs of repairs increased; believed pipe was old and needed replacing

Action: Applied for a grant/loan for $5 million dollars to replace piping as a Phase I project; looking to get more money to do the rest of the system in Phase II.

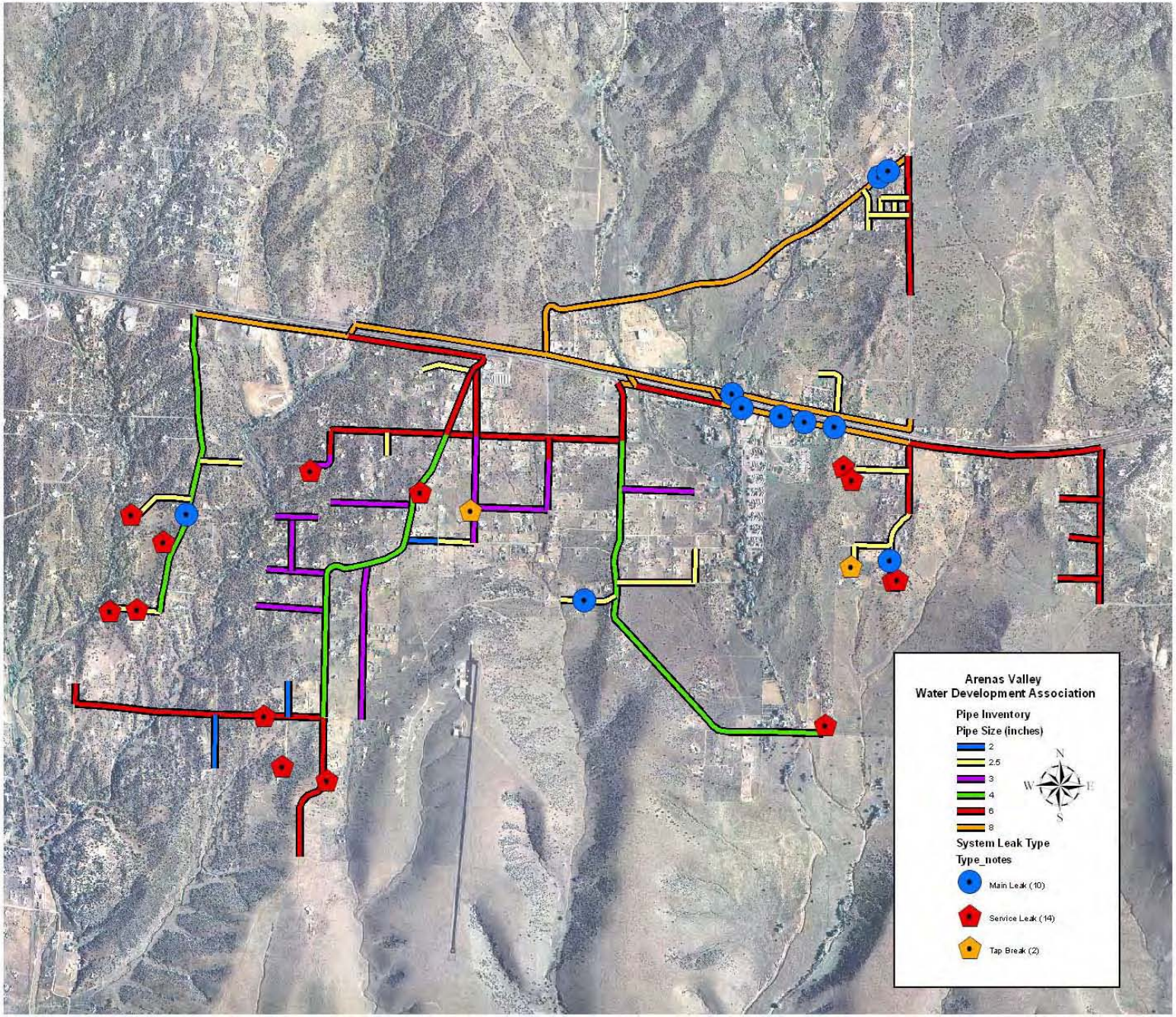
EFC Assistance: Investigated actual repairs in terms of numbers and costs

Result: Determined that the number was small and the reason for breakage was not age or deterioration related; primarily due to new construction (hitting pipe w/ backhoe during construction) and a faulty installation of a road crossing

In two years:
Number of Main Line Leaks = 10
Service Leaks = 14

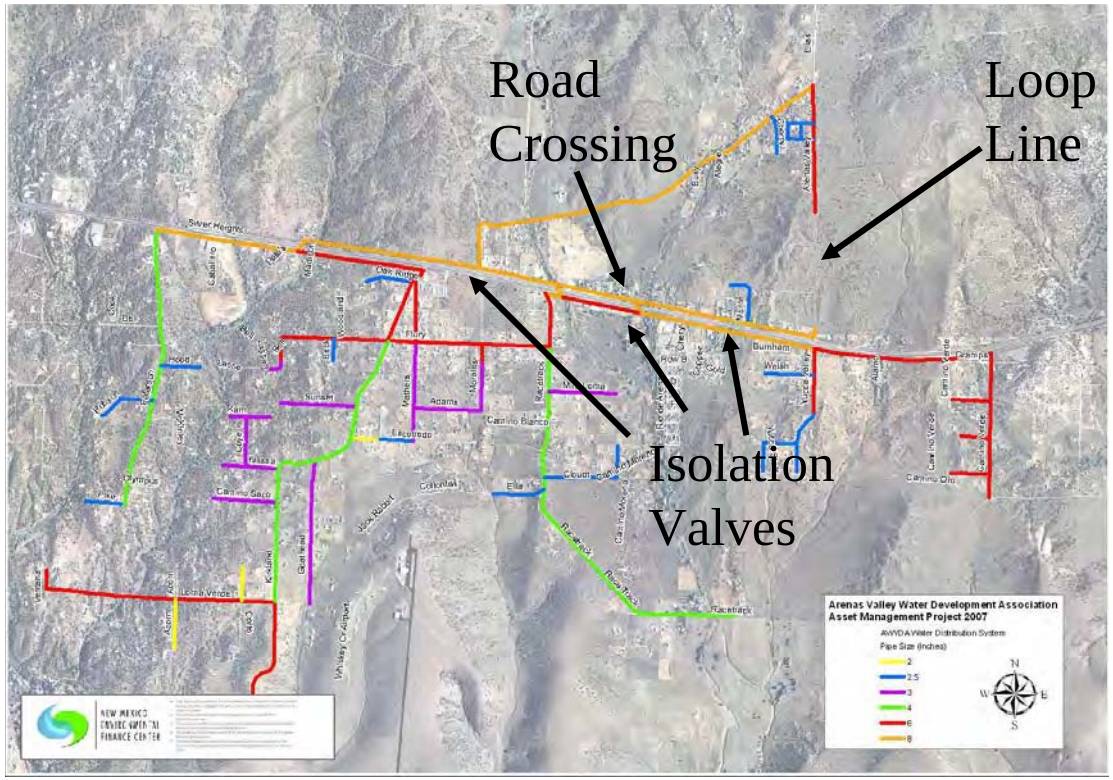
Cost rose from $1200 per repair to $1500 per repair

Cost of Repair in no way justifies cost of replacement ($6,000 to $7,500 per year compared to $5 M)



Bottom Line

- Community did not go forward with pipe replacement project; funders could apply the $5 million to a more worthy project & community would not have to pay back unnecessary loans for Phase I and II pipe replacement
- Community is investigating a project to only include a loop line, additional isolation valves, and repair of the poorly designed road crossing (less than $1 million in total cost)



Quote from President of Arenas Valley Water Development Authority

"It's [the assistance from the EFC] been great. It was a very helpful process and we can now plan loop lines and other needed replacements. The discussions on criticality helped change our point of view."

EFC9

Dominican University of California

Sarah Diefendorf

Tribal projects

- Torres Martinez Tribe (CA)
  - Identified and evaluated potential technologies to convert local waste streams into economically viable products
  - Provide support to develop financial, marketing and business plans
- Shoshone and Paiute Tribes (NV),
  - Developing financially viable recycling programs for tribal communities across the state.
  - Recycling plans include rural and urban approaches.
  - We will provide support to help them develop financial, marketing and business plans.

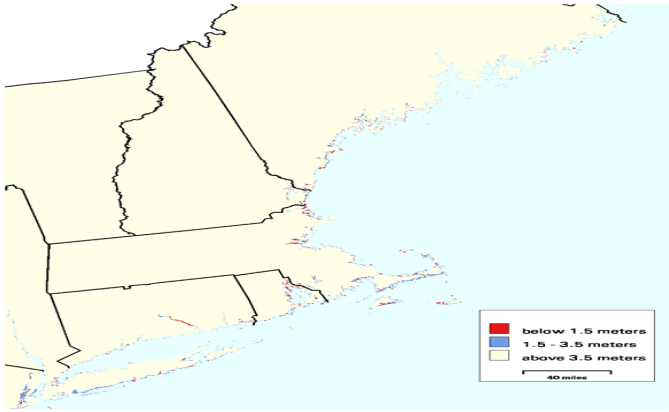
EFC9 Coral reef protection

- Shading + education:
  - Innovative approach to shade coral reefs to prevent bleaching, plus
  - Community education: Set up a Coral Reef Protection Partnership Program that emphasizes green business practices and education that reduces the local industrial impact on coral reefs.
- Coral farming:
  - Development of a coral farming program in Samoa
  - EFC9 assists the coral farmers with their long term financial, business and marketing plan.
  - Cultivated coral used to supplement damaged reefs in Samoa, also available for sale to individual and commercial aquariums.

New England EFC

University of Southern Maine

Jack Kartez



New England Environmental Finance Center

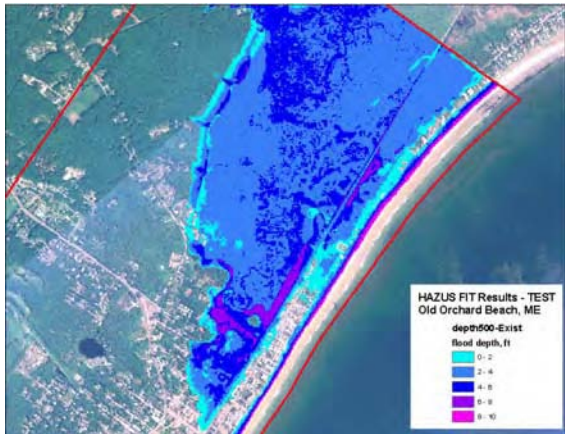
A Cooperative Project of the EPA/New England and the Edmund S. Muskie School of Public Service

COAST

Coastal Area Sea Level Rise Tool

New England Environmental Finance Center – University of Southern Maine

- **Helps coastal communities adapt to**
  - **sea level rise**
  - **increased storm surge**
- **Informs local planning for future flood impacts**
  - **Costs / Benefits of adaptation strategies**
- **GIS-based Modeling Tool**
  - **SLR / storm surge flooding maps**
  - **Economic overlay from census data**



COAST - Status

New England Environmental Finance Center – University of Southern Maine

- **GIS mapping tool under development**

- **April meeting in Old Orchard Beach, Maine**
  - **Display maps to local residents, city staff, and neighboring town planners**
  - **Gather feedback on COAST tool**

- **Partners**
  - **Maine Geological Survey**
  - **Tufts University**
  - **Industrial Economics Inc.**
  - **Southern Maine Regional Planning Commission**
  - **Casco Bay Estuary Project**

2007 Patriots Day Storm – Saco, Maine

Energy Work for EFC Region 1

- Offers consulting and community building services for renewable energy project facilitation in Freeport, Maine using a public/private partnership model

EFC Region 2

Syracuse University

Sara Jade Pesek

Local Government programs

Syracuse University Maxwell School MPA :

- City of Oswego, NY Sustainability Planning
- Wind Energy Regulations in USVI

City of Oswego, NY

- *<u>Short Term Recommendations:</u>*
  - *Street Lighting*
  - *Midtown Garage*
  - *Vehicle Fleets*
  - *Water Resource Management*
- <u>Long-term Recommendations:</u>
  - *Wind Energy*
  - *Solar Energy*
  - *Lake Source Cooling*
  - *Green Roofs*

Themes

LOCAL GOVERNMENT LEVEL	Environment (& Nature)	Water (& Stormwater)	Air Quality	Urban Forests (& Biodiversity)	Resource Management	Infrastructure & Utilities	Waste Management (& Resour	Hazardous Materials (& Risk Mi	Green Building	Energy (& Renewable Energy)	Climate Protection (& Ozone De	Transportation (& Mobility)	Ports & Marinas	Green Fleets	Land Use	Brownfield Redevelopment	Parks, Open space & Recreatio	Leadership & Innovation	Government Operations & Adm	Education & Outreach	Tax Collection & Property Appr	Economy (& Economic Develop	Tourism & Hospitality	Retirement Economy	Clean Technologies	Local Food (& Agriculture)	Health (& Access to Health Car	Healthy Community (Neighborh	Public Safety	Emergency Management	Arts & Culture	Society (Civic Vitality & Engager	Social Equity	Environmental Justice	Human Services	Affordable (& Workforce Housir	Employment & Workforce Wage	Poverty & Homelessness	Educational Excellence (& Child	Human Capital (& Social Well-E	Youth (Wellness & Life Skills)
Albuquerque, NM		■		■		■	■		■	■		■																											■		
Austin, TX	■				■							■		■	■																								■		
Boston, MA						■			■	■				■																											
Burlington, VT	■				■									■																											■
Cape Cod, MA		■	■			■	■			■		■			■																					■			■	■	■
Chicago, IL					■	■			■	■				■																											
Denver, CO		■		■			■		■	■	■	■		■																											
Jacksonville, FL	■											■																											■	■	
Marin County, CA	■								■																																
Milwaukee, WI		■								■																															
Minneapolis, MN	■																																								
New York, NY		■	■							■	■	■			■																										
Northampton, MA	■											■																								■	■	■	■		
Olympia, WA	■	■					■			■		■																											■	■	
Pittsburgh, PA	■																																				■			■	
Plano, TX														■																											
Portland, OR							■			■	■																														
Racine, WI																																									
Salt Lake City, UT		■		■			■		■	■		■																													
San Francisco, CA		■	■	■			■	■		■	■	■																													
Santa Barbara, CA	■	■		■			■				■																														
Santa Monica, CA	■						■					■		■	■																									■	
Seattle, WA		■		■							■																														
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Seattle, WA				■				■		■	■	■			■																										
Sierra Nevada	■																					■																		■	
Tucson, AZ	■	■	■		■							■			■		■		■										■	■	■					■	■	■	■		
SustainLane		■	■				■	■	■	■	■	■	■					■	■			■			■	■									■					■	

Usage of terms and themes do not share common definitions.

This diversity makes it difficult to compare progress between one locality and another.

Reduces opportunity to leverage change and share lessons learned.

FOUNDING PARTNERS

- A collaboration between:
  - ICLEI – Local Governments for Sustainability
  - U.S. Green Building Council
  - Center for American Progress
- Inspired by the success of LEED Rating Systems
- ICLEI will administer the program

STAR
COMMUNITY INDEX

Southeast Region 4 EFC

University of Louisville

Lauren Heberle

Technical Assistance

- Climate Change Committee, Green City Partnership and assisted with developing detailed recommendations directed at partners and community

- Partners:
  - Metro Louisville Government
  - Jefferson County Public Schools
  - The University of Louisville

What's unique about this process?

- Committee open to anyone in the community who had an interest in developing policy recommendations for community
- Included over 100 participants over two years period
- Used an open and transparent process to develop recommendations that make sense for the community
- Process produced a true community action plan for climate change

Sustainability and Energy Efficiency

- Offering Technical Assistance to University of Louisville
  - Will reducing the University's carbon footprint
  - Focus on operations
  - Pilot project to address individual behavior changes
  - Co-sponsored University participation in the National Teach in on Climate Change

- http://www.climatechangeecon.net

  New website geared toward educating state legislators on economic issues surrounding climate change
- Practice guides on climate change related issues
  - Adaptation
  - Energy efficiency
  - Green conferences
  - Green building
  - Land-use planning.

Google Analytics

| Settings | My Account | Help | Sign Out

Analytics Settings

- Dashboard
  - Saved Reports
- Visitors
- Traffic Sources
- Content
- Goals

Custom Reporting Beta

Settings
- Advanced Segments Beta
- Email

Help Resources
- About this Report
- Conversion University
- Common Questions

Export | Email

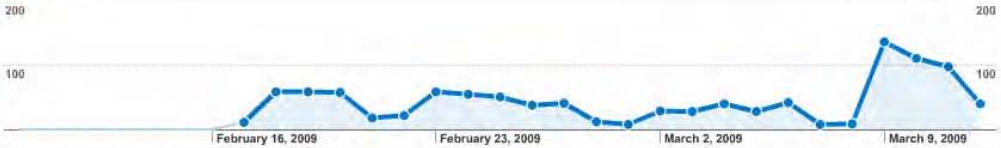
Beta Advanced Segments: All Visits

Dashboard

Feb 17, 2009 - Mar 12, 2009

Visits

Graph by:



Site Usage

1,061 Visits

43.73% Bounce Rate

6,557 Pageviews

00:05:01 Avg. Time on Site

6.18 Pages/Visit

70.03% % New Visits

Visitors Overview

743 Visitors

view report

Map Overlay

view report

Traffic Sources Overview

- Direct Traffic 536.00 (50.52%)
- Search Engines 318.00 (29.97%)
- Referring Sites 207.00 (19.51%)

view report

Content Overview

Pages	Pageviews	% Pageviews
/efc/	588	8.97%
/efc/Tools/tabid/58/Default.aspx	470	7.17%
/efc/Tools/Dashboard/tabid/154...	331	5.05%
/efc/Home/tabid/37/Default.aspx	251	3.83%
/efc/Default.aspx?alias=efc.boi...	247	3.77%

view report

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Export | Email | Add to Dashboard | Beta Advanced Segments: All Visits

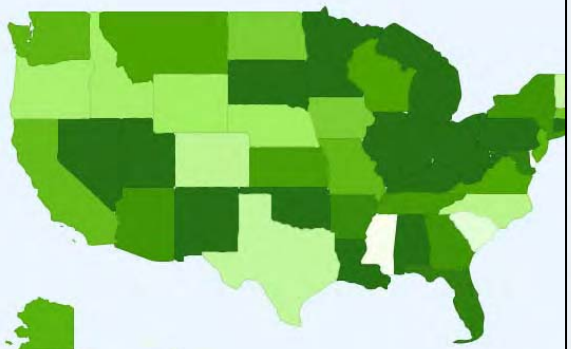
Overview »

Country/Territory Detail:
United States

Feb 17, 2

% New Visits

Zoom Out



% New Visits
33.33% 100.00%

This country/territory sent 984 visits via 48 regions

Detail Level: City | Region Dimension: None

Site Usage

Visits	Pages/Visit	Avg. Time on Site	% New Visits
984	6.45	00:05:20	67.99%
% of Site Total: 92.22%	Site Avg: 6.16 (4.68%)	Site Avg: 00:05:01 (6.21%)	Site Avg: 69.92% (-2

Export | Email | Add to Dashboard | Visualize | Beta Advanced Segments: All Visits

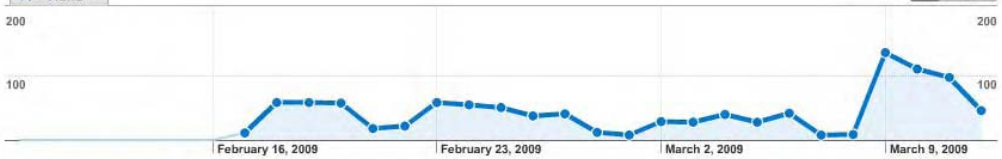
Overview »

New vs. Returning

Feb 17, 2009 - Mar 12, 2009

Visits

Graph by:



1,067 visits from 2 visitor types

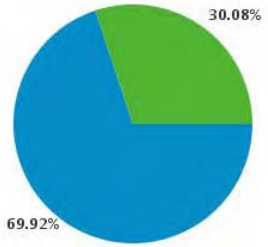
Site Usage

Views:

Visits	Pages/Visit	Avg. Time on Site	% New Visits	Bounce Rate
1,067	6.16	00:05:01	69.92%	43.96%
% of Site Total: 100.00%	Site Avg: 6.16 (0.00%)	Site Avg: 00:05:01 (0.00%)	Site Avg: 69.92% (0.00%)	Site Avg: 43.96% (0.00%)

	Visitor Type	Visits	Visits
1.	New Visitor	746	69.92%
2.	Returning Visitor	321	30.08%

Visitor Type contribution to total: Visits



Go to: 1 Show rows: 10 1 - 2 of 2

State Detail:
Idaho

Feb 17, 2009 - Mar 12, 2009

% New Visits

Zoom Out

This state sent 237 visits via 24 cities

Detail Level: City Dimension: None

Site Usage

Visits	Pages/Visit	Avg. Time on Site	% New Visits	Bounce Rate
237	10.84	00:08:12	54.85%	29.54%
% of Site Total: 22.21%	Site Avg: 6.16 (75.85%)	Site Avg: 00:05:01 (63.19%)	Site Avg: 69.92% (-21.55%)	Site Avg: 43.96% (-32.80%)

Effective Utility Management: The Key to Sustainable Operations

A Collaboration Success in the Making

The “Current State”

- Water/wastewater utilities are facing unprecedented challenges
  - -- aging infrastructure and workforce
  - -- continuing regulatory challenges
  - -- unclear prospects for future federal funding
  - -- increasing customer and community demands for service
  - -- short-term perspective of elected officials
- The list goes on and on . . . . . .

How We Got Here

- July, 2005– EPA hosts meeting of leading utilities to discuss future of utility management
- List of *Attributes of Sustainably Managed Utilities* developed at the meeting by utilities
- Follow up discussions with leading Associations and formal agreement to collaborate through *Statement of Intent* in May, 2006
- Utility Steering Committee then established to guide the effort

Utility Steering Committee—The Key to It All

- Committee selected from a wide spectrum of utilities and private service providers
- Committee charged with making recommendations to Collaborating Organizations (EPA + 6 Associations)
- Met twice in person and had several calls
- Two focus groups with other utilities, etc. held in Las Vegas and Chicago

What Was the Result?

- Committee made a series of key recommendations to EPA and Associations:

1. Water Sector should adopt 10 *Attributes of Effectively Managed Utilities and 5 Keys to Management Success*

2. Collaborating Organizations should identify a set of "*cohesive set of targeted, generally applicable, individual water sector utility measures"*

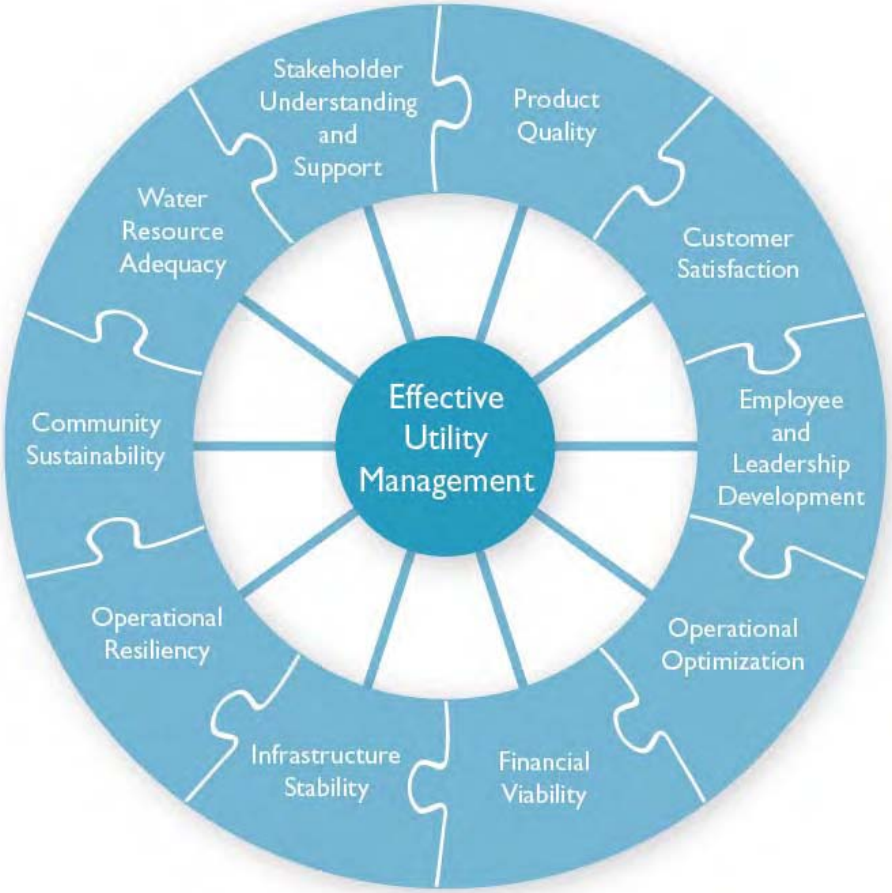
3. Finally, a "resource toolbox" identifying management resources available to utilities, based on the Attributes should be developed

All of these should be key elements of a sector-wide strategy to encourage effective utility management and "identify, encourage, and recognize excellence in water and wastewater utility management"

Effective Water Sector Utility Management (EUM)

- In May, 2007, six major water and wastewater associations and the U.S. Environmental Protection Agency (EPA) signed an historic agreement pledging to support Effective Utility Management, collectively and individually throughout the water sector.

Attributes of Effectively Managed Utilities



Keys to Management Success

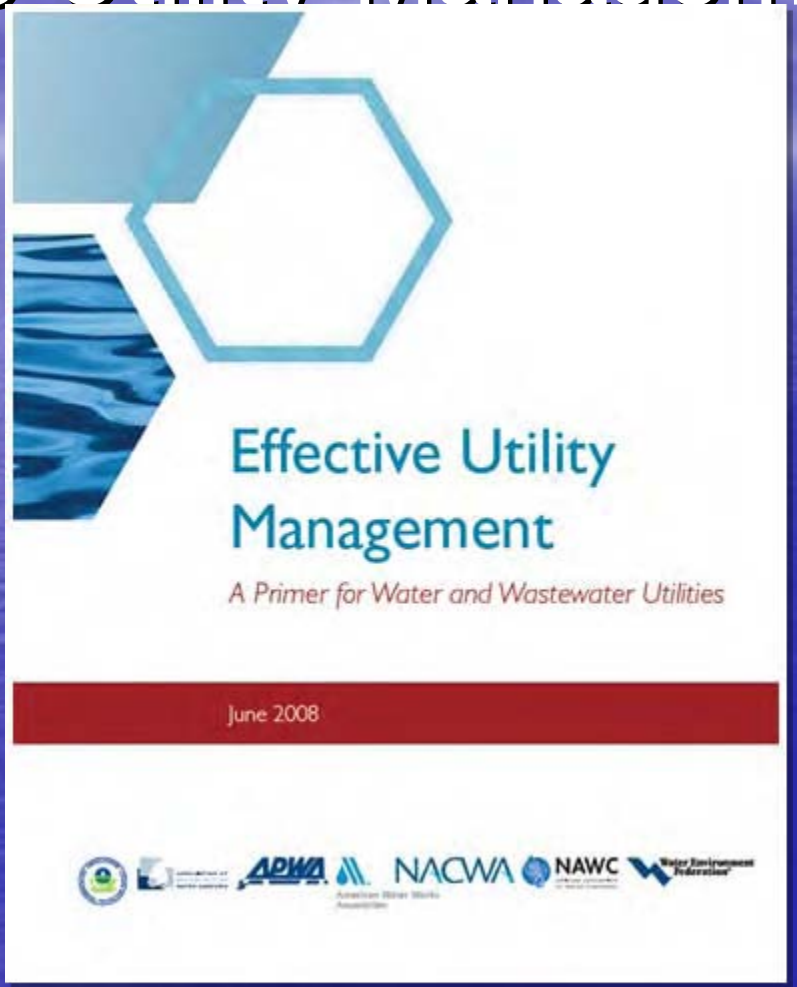
- Leadership
- Strategic Business Planning
- Organizational Approaches
- Measurement
- Continual Improvement Management (Plan-Do-Check-Act)

Where Do We Go From Here?

- Collaborating organizations have completed three key implementation tools:
  - -- EUM *Primer* to help utilities get started
  - -- *Targeted performance measures* based the *Attributes (included in Primer)*
  - -- *On-Line Resource Toolbox*

All three are now available at http://watereum.org/

Effective Utility Management *Primer*



The “Go To” Tool for EUM

- Takes a utility through series of steps to:
  -- Assess current conditions and prioritities
  -- Rank Importance of Attributes
  -- Document Results of Ranking
  -- Choose Attributes to Work On
  -- Establish Performance Measures
- Developed by group of utility advisors
- A great way to get started

Its Now All About Outreach

- Spreading the word is essential
- EPA and partners are now beginning work on:

  -- an interactive web-based presentation on the Attributes and Primer

  -- initial set of case studies documenting utility experiences

- Both are expected in early to mid-2009

What Can the EFAB Do to Help?

- Get the word out-- Share information with colleagues, clients, other utilities, etc.
- Encourage the EFCs to become strategic partners with EPA to promote adoption of the EUM attributes and keys to success
- Indicate EFAB's support to EPA leadership

What's the Long-Term Vision?

- Attributes, Keys to Management Success, and Performance Measures are accepted as the norm for utility management, not the exception
- Utilities, regulators, and service providers united around EUM as the common management framework for defining excellence
- Utility excellence recognized and rewarded by associations, regulators, and others
- Water and wastewater operations and infrastructure are sustainable in the future

For More Information

- http://watereum.org/

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horne.james@epa.gov