Sustainable Financing Webinar Recording

OK. So welcome everyone. I am Darcy Path with Ross Strategic. We are contractors to EPA. Welcome to today's webinar, Sustainable Financial Management Planning for Water Utilities. I'm going to go ahead and begin the webinar.

Here's our agenda for today. We're going to just do a quick welcome and then an overview of how to use the Zoom. Then we'll have three presentations from Tara Johnson at EPA, Rod Kappes at BDM Rural Water, and Jay Bernas and Ted Henifin at Hampton Roads Sanitation District.

Couple of reminders, the recording from the call will be posted to the EPI web-- EPA website within a few weeks. And as a reminder, the webinar is sponsored by EPA's Office of Waste Water Management. The opinions expressed in the webinar are those of the guest speakers. They don't reflect EPA policy, endorsement, or action. And EPA does not verify the accuracy or science of the contents of the presentation.

And today's webinar is being recorded. It will be made available. And as soon as we have heard from all of our presenters, we will then have our Q&A session at the end of our time today.

Quick overview of how to use the Zoom. The Zoom menu bar appears at the bottom or top of the Zoom window once the meeting begins. So you can just wiggle your mouse to get that to appear. You can adjust your audio by clicking on the small arrow next to audio settings.

You can chat any technical issues about connecting to the webinar by clicking on that chat option in the toolbar. And that sends a chat message to the webinar host. And finally that Q&A button allows you to ask questions about the presentations of the host and the presenters. We will read your question aloud, time permitting, during the Q&A portion at the end of the webinar.

And we do ask that you use the Q&A button for your questions. That helps us to monitor all the questions that are coming in and make sure that we answer them in the order that they came in. And reserve the chat just for technical issues, if you don't mind. Thanks.

OK. Our first presenter is going to be Tara Johnson. Tara works at EPA's Water Finance Center. Tara leads communications and outreach for the center and manages EPA's water finance clearinghouse. During her over 20 year career at EPA, Tara has worked on a variety of water sector issues, including water infrastructure security, strategic planning, and support for small and rural waste water systems. We'll hand it over to you Tara.

OK. Thank you Darcy. Thank you again to everyone for joining us today on this first webinar that we're having. OK. We can go forward. A little background on the sustainable financial management case studies and what we found for this webinar today.

Water sector utilities across the nation face mounting financial challenges, aging infrastructure, changes in population, and demand for water services. And new environmental and public health

challenges drive utilities to look for innovative approaches to ensure they are on sound financial footing for the future.

Some utilities are embracing sustainable financial planning practices by projecting revenue expectations, capital improvement needs, and expenses years into the future. In the process, utilities are examining the adequacy of their capital and operational budgets to meet desired service levels.

These forecasting methods support developing a revenue approach to help ensure there will be sufficient funds to address needs that arise in the coming years. Financial planning can be a key component of overall system preparedness, including laying the groundwork for response to crises such as the current COVID-19 pandemic.

This planning can help ensure continued access to clean water for drinking and handwashing, which is essential during the pandemic, and can also help justify requests for relief funding. Some utilities are already experiencing this.

For example, Hampton Road Sanitation District, who you'll hear from later in the webinar, was able to freeze rate increases for 2020 to give relief to rate payers during the pandemic. This was possible due to careful long-term financial planning. Next slide.

We spoke with individuals at several utilities around the US to ask them about how they are tackling sustainable financial management planning where they are. While the utilities used an array of approaches to sustainably manage their expenses, several key themes and lessons emerged. OK.

Our first key theme was a forward thinking planning horizon. Sustainable financial management planning is grounded in an approach that ensures all costs are budgeted at an appropriate level, and that utilities can embrace this philosophy through financial forecasting and cash flow modeling.

Utilities that have developed these forward thinking visions have seen substantial benefits. Financial forecasting helps utilities manage near-term operational budgeting, focusing on cost control and boosting efficiency. Ensuring annual budgeting is consistent with financial planning has helped utilities cover necessary expenses, both anticipated and unanticipated, as well as structure capital expenses over time consistent with strong financial health.

Some utilities benefit from decades long planning horizons. Several of the profiled utilities moved out to 10 or 20 year forecasting to provide a backbone for their financial management efforts. Other utilities may be better suited to shorter range planning, especially those who are in the early stages of sustainable financial management planning.

To build out the planning forecasts, utilities developed tailored approaches for modeling future revenue and expenses, examining several factors. They studied their expenses and whether they were adequately covering costs consistent with desired service levels. From this information, some utilities determined whether they needed to enhance their budget in any areas.

They gathered data on factors influencing future revenue and long-term capital planning needs and associated costs. Some develop detailed year-to-year models displaying how revenues could potentially play out under different scenarios. Many of these utilities established their forecasting efforts as quote, unquote living models, undergoing an iterative process to improve and update them to provide more comprehensive and accurate modeling into the future.

All right. These costs that factor into future modeling include capital and operations and maintenance costs, as well as other factors like labor related costs, for example, increasing medical costs or retirements. Several utilities decide to take a close look at long-term capital planning and incorporate those anticipated costs into rate modeling.

Developing a long-term capital improvement plan and an asset management program proved to be an essential cornerstone of the effort for these utilities to improve their financial sustainability. Several utilities built on their long term forecasting and formalized their improvements into adaptive policies.

Many of those policies, particularly those that impact accounting and budgeting decisions, helped utilities create a foundation for sustainable financing and ensure that changes will persist into the future. Utilities used policy changes to set minimum fund balances, set spending targets, stipulate a fixed relationship between budgets and expenditures, and more.

These policies will ensure that sustainable financial management will remain a priority through future changes in utility leadership and through future events that might otherwise impact budgeting decisions. The benefits of these financial forecasting efforts and associated policy changes have been substantial.

Utilities enjoy greater financial predictability, address areas of historic underinvestment and unmet needs, and work toward financial self-sufficiency. Stability and predictability are significant advantages for utilities. They are able to plan for future needs with much less fear of surprises, improving relationships with local decision makers and with customers.

All right. Another key theme that emerged was gradual and predictable rate increases. Enhanced asset management, capital planning, and financial forecasting efforts have provided some utilities with the ability to understand the scope and future pattern of capital and operating expenses and the impacts on different future revenue conditions, such as water conservation measures, population changes, and wide-ranging economic conditions.

For various reasons, many utilities have concluded rates would need to increase to ensure they fully fund capital and operational needs consistent with financial sustainability. Sustainable financial management planning has enabled utilities to learn when and where they could anticipate rate increase pressures over their forecast period, and then to proactively construct an incremental annual rate increase approach that would help avoid spiking future rate increases.

Many utilities take the opportunity to closely examine their revenue needs and ultimately find it necessary to increase rates to some extent. Utilities use different approaches to raising more

revenue, including creating a new rate structure, exploring additional revenue sources, or increasing rates within the existing structure.

Alongside those increases, some utilities used financial management planning and budgeting policies to establish stability, predictability, and reasonable incremental increases in those rates. They instituted annual rate increases designed to [? meet ?] and gradually impose impacts on the customer base, consistent with long term modeling and compliant with what near-term budgeting required to fully cover annual costs.

They ensured rate increases would be steady and predictable and, therefore, less likely to be disruptive to customer affordability. But approaches to health insurer rate increases are relatively low and predictable over time is a significant component of many utilities approach to affordability.

Overall, strategies for affordability have fallen into three approaches, working to keep incremental rate increases as steady and as low as possible, implementing direct customer assistance programs, and trying on other low income assistance programs within the community. All right.

Our final overarching theme was the need for communication. Communication efforts can ensure that the utility and community understand the need for and benefits of smart financial planning. Some utilities have placed a high priority on both internal and external communications as their financial model evolved and found it to be essential to employee, customer, and local decision maker support.

Early and frequent collaboration with the local governing body helps ensure decision makers fully understand the basis for needed rate increases and are positioned to respond to the questions raised by the community. Some utilities have found that customers are more likely to understand the transition to sustainable financial management if they remember the need to avoid major problems, such as outages caused by failing infrastructure.

Those utilities also found that improving communications between different utility departments was an important building block of success. Opening and maintaining these internal communication channels ensured information needed to support financial forecasts was available on a timely basis and helped to improve the efficiency of what is inherently an iterative modeling process.

Utility efforts to proactively engage with customers and decision makers in order to raise awareness of the need for and timing of rate increases has created a solid path to success for sustainable financial planning. This strategy helped utilities overcome historical resistance to rate increases by providing a clear basis for the need, avoiding substantial rate shocks, and helping rate payers to prepare. Darcy.

Thanks very much Tara. Appreciate that. We are going to go ahead then and move on to our first utility presentation. We are going to hear from Rod Kappes. Rod Kappes was hired to be the

general manager of BDM Rural Water in January 2016. He previously spent 24 years in the finance industry.

Rodney is a graduate of South Dakota State University with a Bachelors Degree in economics and a minor in computer science. I'll hand it over to you Rod. Go ahead.

Thank you Darcy. Could I have the next slide please? Uh, next slide. Just a little bit about BDM Rural Water. We're a non-profit corporation owned by our members, organized under a 501 C 12 structure. We serve four counties in Northeast South Dakota.

Initial construction had started on BDM Rural Water in 1984. That was completed in 1986 with an additional project in 1996, and then a pretty major build-out in 1999 to 2006 which was done in four phases. Currently we have about 2,274 customers, about 8,000 connections with about 8,000 customers. And in that, we serve 17 communities, bulk water to communities individually.

And our footprint covers about 2,040 square miles. We have one treatment plant. Our source water is ground water, 15 reservoir pump stations. And we'll average around 1.1 million gallons per day. And within the summer months May, June, July, we'll get up to about 1.6 million gallons per day.

We do have 1,575 miles of pipeline. And that would be the equivalent of a pipe running from New York to Dallas, Texas. And that does entail anywhere from an inch and a half up to 14 inch PVC pipe. Some of the initial stuff was glued pipe. Most of the latter stuff is all gasketed pipe. Next slide, please.

So we had-- within BDM when I became the general manager, we had about $3.9 million unfunded depreciation expense in the previous 10 year period. And that was very concerning. However, that was only part of the picture that we were dealing with. The other part of course is the cost of inflation to get to full cost pricing.

If you look at two and a half percent inflation rate, that asset [INAUDIBLE] place that's going to double in about 28 years. If you use 2.75 inflation, it's going to double somewhere just shy of 26 years. And the other issue we were dealing with, rates had not been raised from the 1986 to 2016 time period. Except for one time, there was one tier adjusted.

So you can see it was very difficult to run a company on a 1986 revenue budget with 2016 expenses. So the questions we started talking about in the boardroom was, what kind of rate adjustments were we going to need? What was our true cost of production? And how were we going to communicate to our-- that to our customers and why?

And what would be the benefits for BDM moving to a sustainable rate structure? And some of the definite benefits are listed on the screen there. And that would be moving to a proactive versus a reactive decision making process. The landscape had been such that in the morning our meetings with our operators, we would talk about what went wrong yesterday or last night and what kind of emergency situations did we have to deal with today.

It was very reactive. We didn't have time to be proactive and go out and do things before they were an issue. It would definitely give us more flexibility around better planning. We could make better and informed decisions. We could do things, invest in a hydraulic model that would help us understand where some of those choke points were in the system.

It would help us make long-term decisions, which could help us correct the operational and the capacity issues we were having in the system. It would help us with improved customer relations. We'd have less unexpected outages, increase our customer's confidence in BDM. We would definitely have a better work environment for our team and our operators.

Our operators are our ambassadors. They're out there talking to our customers on a daily basis. And the environment they were working in, they just had to answer to issues, why things weren't working the way they were supposed to, why we were having the issues we were. And moving to more sustainable, they could be out there talking about the proactive things we're doing instead of what they were.

It would definitely lead to more operational flexibility. It would allow us to make enhancements to the system, increase our reliability. We could increase our redundancy where possible. And certainly it would help present our sustainability of the system.

It was going to allow us to invest in a SCADA system that would make the system make adjustments without having to have operators involved in all those decisions and allow us to do such things as install BFDs, which would be electrical cost efficiencies, and should help us in our not having the issues with the pipeline breaks.

It would also help us on a better credit standing with our creditors. We could have shorter credit approval. And we could take advantage of some of the market conditions that would be out there. An example of that was one of the bigger projects we had done. The engineers had engineered it, said it was going to cost about $3.6 million to do the project.

However, they said they were getting calls from contractors that were looking for projects of our size. And they said they would bid aggressively to be able to get a project to have-- fill in for the gaps that they have in their work schedule. Ultimately, that project was bid. And it came in at $3.1 million.

We were able to get our credit approval on that particular project in not much over 30 days. And we were able to have the project start that fall and again had significant savings. And into that, getting to a sustainable rate structure is going to allow us to recover our expense of asset depreciation which, in effect, will match the incremental cost of that PPE utilization to the revenue that's required to offset that. Next slide, please.

So our conversation was, where do we start? Why are we having all this conversation around long-term sustainability when we still had positive cash flows, although significantly declining positive cash flows? And the questions by our customers were what's changed from our first 20, 30, 40 years of operation in the system to today.

And we basically broke it down to there's two basic revenue generating components in BDM. We have our monthly base fee income. And we have our water usage income. And one source can and may subsidize the other. And that-- and later on in the slide presentation, you'll see that that is what was happening within BDM.

But we basically broke it down to those two income buckets and explained that when the water rate covers our operational expenses, it's basically our expense to pump, treat, and deliver the water. And our monthly base fee covers depreciation, which would fund our cash finance cap ex, fund our term principal payments, and fund our capital reserve bills.

Then in general, if our water rate isn't set at an appropriate level, you would feel that in the monthly cash flow. And likewise in general, if the monthly base fee was inadequate, the cash flow may not be impacted for many years due to the long term nature of those system assets. Next slide, please.

So our conversations were to evaluate our base and water usage rates, where we wanted our base rate to fund 100% of our depreciation, which in effect that would fund cash finance cap ex, term principal payments, and fund our capital reserves.

And our water usage rate would-- would be set at a level that it would come-- cover all of our O&M costs, which again would be the cost to pump, treat, and deliver that water plus our term interest expense. And with an eventual plan to get to a point where we were going to handle those inflationary replacement costs in our long term plan. Next slide, please.

On this slide, I received permission from AE2S to use this slide from their study. And they did a study recently on water system depreciation, a capital planning tool for the well-managed utility. And that is available to the public. But on this slide basically they used about a 2.85% inflation rate. And they had a $500,000 asset which had a 20 year lifespan.

And in a nice snapshot, it shows you that what that asset does over time as it is wearing out that you have that depreciation over time. It indicates the inflation increases the cost over time of the asset replacement. And the other thing we were dealing with was the decrease in the grant dollars and how that was going to have to affect your rates going forward.

And again, this is a very simplistic model. But it was one that really showed in a snapshot to our customers what the cost is to replace those assets. Now at 2.85% inflation over 20 years, that $500,000 asset is going to cost $876,000 to replace. So it's not just the initial cost of the asset, but what does that inflation do over time to replace that asset.

And the other thing that we brought into the picture and explained to our customer base, and we just built some models that we shared with them. And I'll just briefly share some of the numbers out of that is initially in 1980 when the system was built, and it was built with around 50% grant dollars, the base rate, the principal portion, just to service that amount of money was around-- it took about $20.

And again, this is just assuming that all those assets-- these loans were set up for 40 years. Assuming that in this simplistic model, all those assets would last for 40 years, when we know there's assets in there that are 10, 20, 30 year assets. But assuming they all last for 40, the base rate had to be $20.

If you fast forward to 2020 and you assume instead of 50% brand funding, we would only be at 20% brand funding, the base rate would have to go to $94 to be able to service that principal amount for the next 40 years.

And if you were so fortunate to be in a state where there are still significant grant dollars, if you could have still got 50% grant money to replace all those assets, just to the same type of assets you had before, your base rate would have had to go to $59. So a significant increase in base rates in order to replace those assets, again in this scenario where they would just have lasted 40 years. Next slide, please.

So we were to the point of determining that our rate structure breakdown as follows. So does our water usage rate cover our O&M of cost plus our term interest expense? Was the base rate appropriate to cover 100% of our depreciation expense? And ultimately, and this is a work in process, to have a plan to fund a future replacement value with a combination of debt and system reserve financing long-term. Next slide, please.

So these next two slides I'm basically going to share where we were back in 2015, '16, the decisions that were made by the board. And then we'll look at '17, '18, and '19. So in 2015 you can see we had underfunded depreciation of about a half a million dollars. Our average water revenue rate was $2.51 per 1,000 gallons of water purchased.

We didn't go back and figure what our O&M cost was in '15. We were training that in '16. But it was running at about the same level. So if we assume that our cost, O&M cost, plus our term interest expense was running at about $3.66 per 1,000, we had a negative. Every gallon of water that we were pumping, treating, and delivering we were losing money on.

And so in 2015, if you use $3.66 cost, we were losing about $1.15 for every 1,000 gallons of water that we were pumping, treating, and delivering. Well, where was that deficiency? Because those monthly bills had to be paid, that deficiency was coming out of our base rate of $28.40.

At that point in time, the $28.40 was $12 short of covering 100% of depreciation. Thus you can see, we were using some of our base rate money to cover some of our O&M costs, which in turn was causing the unfunded depreciation of a half a million dollars.

2016, we were halfway through the year. The board made the decision that we needed to get to about a $4 average water revenue rate in order to be able to cover all of our O&M costs with term interest expense and start moving our base rate up to get closer to covering 100% of our depreciation.

So in June, from June through December of 2016, we increased all of the tiers in our water rate by $1.50 per 1,000. That was a 60% increase in our water usage rate. At the same time, we increased our base rates by $5. And that was a 17% increase.

So we ended the year, and we still had a negative $0.48 margin in our-- between our water revenue and our water usage rate. And we were still short. But we certainly started closing the gap in our unfunded depreciation. Next slide, please.

So 2017, you can see the results of the rate increases that we started in the second half of 2016 to be able to close that depreciation gap. So in 2017, we had completely closed our gap and our unfunded depreciation. Our average water revenue was $4.16 per 1,000. Our O&M cost was $3.80. So we had a $0.36 margin per 1,000 gallons of water in our water usage rate.

We were still short about $6 per user per month of 100%-- 100% covering our base-- or our depreciation with our base rate. But with the increases that we did, we want to do that over time as long as we can stay in a state of having enough margin in our water usage rate to be able to cover that deficiency in the base rate but yet fund 100% of our depreciation expense.

So 2017 to 2018, you can see that our margin in our water usage rate dropped from $0.36 to $0.15. We had fully expected that that was going to happen with some of the things. We completely redid our IT in the office. We added another operator. We were running with three operators. And with the system aging and the miles of pipeline, we needed to add another operator.

So we were hoping we were going to settle in somewhere around 2018 numbers with our water usage revenue margin being positive. And then over time, moving up our base rate to be able to get to where base rate completely covers 100% of our depreciation.

Going into 2019, we did do a $0.20 increase per 1,000 gallons. Again, that was-- that went into effect June through December. So we won't see the full effect of that until 2020 numbers. And you can see our margin in our water revenue dropped from $0.15 down to $0.06.

And that was primarily due to some significant leaks that we had-- some significant expense on those leaks in an area that the soil conditions aren't conducive to going in there. And we had very high water levels. We've been extremely wet for the last couple of years. So our margin data decreased further than we hoped.

And unfortunately some of those significant loss-- or significant leaks had carried over into 2020. So we're seeing the same type of scenario start in 2020. But as of late, those issues in that area, those leaks have subsided. We've been able to get all those fixed. And hopefully after 2020, some of that will settle off.

But again, as the system ages, we're going to have more and more of those leaks that we're going to have to deal with. So where we were in 2019 after we had made the rate adjustments on our MHI and right now depending on the county, we are running at about 1.3 to 1.9% on the water usage for 6,000 gallons what that charges to our customers based on our MHIs.

Next slide, please. So here's where we really wanted to have a tool that we could monitor our progress. Are we reinvesting back into the system and maintaining basically our assets over the long-term? And ideally the perfect scenario would be is if our assets, our PP&E, debt PP&E, over time that that would grow at least by the level of inflation, showing that we're maintaining those assets.

So initially we were just going to graph our net PP&E. But we were starting to make some significant increases in contributions to capital reserve accounts. And again, we're not going to reinvest those dollars every year. So really to get a true picture, we needed to include the net PP&E plus our reserve accounts.

And then looking at our total assets, our total assets with those two account asset categories pretty much moved in relationship to what we were doing as far as reinvestment into those assets. Now, the part that you have to continue to look at also is what's happening on the liability side.

Because if you go out and you borrow a bunch of money, or if you take some of those capital reserves and accelerate and pay down on debt, it may not look this good. So there's multiple graphs we're going to continue to watch to make sure that we're continuing to maintain our PP&E asset base.

When you look at these numbers, the number in 2008 and 2009 where we showed the significant increase in our total assets that is really misleading. Because really what happened in those two years is there was significant increase in capacity that was built in the system. And the increase in the assets was not due to replacement of existing assets, that was addition to assets in the system.

So that's a little bit misleading. But when you look from 2010 on, you can see what was happening to BDM's assets, which pretty much mirrored our PP&E. There was not replacement, or there was not reserves filled to maintain the assets used to pump, treat, and deliver this water. And there had to be some changes made to correct that.

In 2019 actually our total assets went up by $2.2 million. However, there was a large portion of that was assets that were added to the system, which was financed with about $2 million of borrowed money. So when you pull that back out, and I'm going to say normalize it, we did start bending the curve in our net PP outside of the assets that were added to the system.

Our net PP&E went up by about $280,000. So we grew that asset category by 1.4%, probably not quite what inflation is. But this is going to be very challenging as we go forward to at least try to maintain but trying to grow those assets at the rate of inflation or maintain your PP&E will be a continuing challenge for us. Next slide, please.

Rod, this is Darcy. I just want to check the time. I just want to make sure we are going to have enough time for a third presentation. So just letting you know that.

Yep, I am about ready. I'll just wrap up with this slide. So the keys to our success was communication with our rate payers. And again it was mentioned earlier by Tara, we have a quarterly manager, a quality on tap magazine, annual meetings, in-person meetings with municipalities. We now plan for depreciation. We include that in our budget, in our capital improvement plan planning process.

It has provided us financial stability. We were able to refinance all our debt. Our interest expenses decreased. We did [INAUDIBLE], where we [INAUDIBLE] all of our existing debt. We kept the payments the same and shaved off four to five years off those term loans.

And then this last point is very key for us. We have a commitment that we are going to finance the new assets that we finance will only be financed for the life of those assets. Today, we've got 20 years left on our original loan on 40 years. Those assets are wore out. And so we're starting to replace assets that we have 20 years of payments left on.

That's all I have Darcy. Thank you.

Thanks so much Rod for that excellent presentation, really appreciate it. I'm going to go ahead and introduce our speakers on for our next presentation. So Jay Bernas is HRSD's Chief Financial Officer and has served in this role since 2015. He's been with HRSD since 2005 serving as Chief of Planning and Analysis.

He's a professional engineer with a degree in civil engineering from Old Dominion University and an MBA from the College of William and Mary. Ted Henifin joined HRSD in November 2006 as General Manager. He previously served as Director of Public Works for the city of Hampton.

Mr. Henifin holds a bachelor's of science and civil engineering from the University of Virginia. His career has spanned more than 35 years with a focus on public works and utilities in federal, regional, and local government and Hampton Roads. We'll head over to the two of you, Jay and Ted.

Thank you Darcy. So this is Ted. And I'll be starting off. And Jay will fill in, like I said, in the middle part. And we'll wrap through these. So next slide please. And that is where we're going from here, and we'll go to next slide. So for those who aren't familiar with Hampton Roads, we're in southeastern Virginia. We're at Norfolk and Virginia Beach area.

We cover that-- right at the mouth of the Chesapeake Bay in the mid-Atlantic. Next slide, please. Large service area, about 3,100 square miles, we serve 1.8 million people. About 20% of all Virginians are our customer. Next slide, please. We're a wastewater only organization. And water issues challenging us are many.

As Tara pointed out in her early presentation at the beginning of the introduction, the challenges including aging infrastructure and new regulation really are driving us. The new regulations focused on the compliance clean-up at the Chesapeake Bay and wet weather sewer overflows, along with a number of other things. Next.

So this is a nutrient issue. This is our plan as of 2010. We had-- each of those blocks represent a major investment in the existing treatment plant, as we were trying to reduce the amount of nitrogen being discharged in Chesapeake Bay. And each one of those blocks represents anywhere from $50 to $150 million of investment. And that's what we were facing in 2010. Next slide, please.

At the same time, we were negotiating with EPA on a consent decree for wet weather overflows. Even though the overflows weren't a huge issue for our region, we fit the block for EPA. Sorry about that EPA, but essentially the enforcement was on all systems greater than 100 million gallons were going to be under federal enforcement as a result of overflows. Next issue-- next slide, please.

So the budget I inherited when I got here in 2-- fiscal year 2007 had no forward looking aspect to it. It was purely a operational budget that looked back and that maintained some pretty low rate increases going-- in the past. Next slide, please.

So our first long range forecast, long in quotes, was really looking forward at 12 years. I mean, 5-- 5 years going up from 2008 to 2012 and really trying to understand what we would be spending on capital, and what would be available to spend, and how to finance that. Next slide, please.

So this gives you a little idea of the history. If you look pre-2007 time-frame on this to the far left, you see the capital investments were pretty small. And again, this is a system that serves 1.8 million people over-- treats roughly 150 million gallons a day and were spread out over a large area.

We were definitely not keeping up with the required capital investments. And then you add new regulation and SSO. So when we look forward, and again this was as projected in 2008, that's what we thought we'd be spending annually in our CIP going forward to meet the new regulations as well as replace aging infrastructure. Next slide, please.

So that was going to require rate increases. And again, this is projections from 2008. This was the slide we were working on at that point in time, showing our average monthly bill as compared to NHI which we were projecting forward. Next slide, please.

And similar to Rod, what he mentioned with BDM, we hadn't really done any rate increases. We'd stayed right at CPI up to about the 2006 timeframe. And then this was our-- the green line shows our projected monthly bills going forward as opposed to inflation. So significant impact, so while you were stressing the idea of steady rate increases, it doesn't always-- if you don't do it early enough, they aren't necessarily reasonable. They were steady but high. Next.

So we brought in a financial manager, PFM, which has been working with us since then. Next slide, please. And first thing we ask them to do is, how do we compare to other utilities? And so they developed a list of comparable utilities for us to look at and really benchmark [INAUDIBLE]. Next slide, please.

And we found in some areas we were, you know, we were bigger than a lot of the comparisons. That's us in the dark blue bar. So a number of customer accounts, we were one of the largest. Next slide, please. And total debt, we didn't have much debt. Because as, you know, you saw our capital plan, we weren't really investing much in our system. So we were doing most of that with cash and had very little debt outstanding. Next slide, please.

And the debt per customer, really small when you combine those two. Next slide, please. Debt service coverage, it was a little bit better than some. But again, we weren't investing a lot. Next slide, please. Though what was interesting is we had very low reserves compared to our peer group. Next slide, please.

Very low working capital, like the bottom of the peer group. Next slide, please. Operating margin, terrible. Next slide, please. So all that led to our commission. Based on that information, we were able to bring to them the idea that we really needed a financial forecast that would target metrics across a 20-year period, that would be consistent with a rating agency strong, double A rated credit.

And our idea there was we didn't want to set a credit rating goal. Because you really can't control what the rating agencies ultimately decide. [INAUDIBLE] but we could set it based on metrics that we knew were comparable to other similar rated agencies. So that's where we started. And I'll turn it over to Jay to talk about how we got there-- moved on from there.

Next slide, please. Good afternoon everyone. And just taking a big picture step back in terms of what I'm going to be talking about today in terms of our financial model is it essentially takes the revenue we project, subtracts the expenses, subtracts projected debt service, and what you have left over and, you know, other private companies might consider profit or retained earnings is cash for our capital program.

And I'll talk about each one of those individually. Next. So in terms of our revenue, there's two major variables. It's water consumption and our wastewater rate. Over 90% of our operating revenues comes from water consumption. Next. And just like many utilities in the country, we're seeing-- we're seeing a declining trend.

But at least in the last three years, it looks like it's flattening out. But let's take a little bit of a deeper dive into that. Next. So if you look at the 5/8 inch meter data, which is a surrogate for residential meters, you know since 2009, the average decline is like minus 2.7. But in the last six years it's been a little bit less than that.

But big picture that if the average residential consumption is down 1.8%, we're thinking that the new accounts are offsetting the declines. And so in our-- in our forecast, we assume a 1% decline in water consumption.

And that was a change, too. I mean--

Yeah, that was a change--

--the forecast flat.

Flat.

--looking forward.

Yeah.

It really distorts the model. If you aren't looking at what your billing consumption's going to be based on, you're really going to mess yourself up over 20 years.

And it's very sensitive to water consumption as you can imagine. Next. And these are our historical and projected rate projections. As we talked about before in 2021, we're projecting no rate increase. It was supposed to be a 9% rate increase.

But, you know, because we have such a strong financial plan and a really good financial model that we have a lot of confidence in, we feel comfortable that we could forego that and rebuild the model to take it-- take all of that into account. Next. And just see this is another slide that Ted did.

In terms of projections from 2008, we're actually pretty close to where we thought we'd be, in terms of average residential bill. Next. Now in terms of forecasting expenses, you know, we keep ours at a high level in terms of our account codes and budget items. But the most important thing on the expense side is make sure you include new O&M costs for new facilities. We're going to talk about that in a little bit. Next.

And there was a question about, do you use a flat inflation rate? But we use as historical data, we've been-- we feel good about how we've been accounting for our major account codes since 2000. And so we just look at historical CAFR data when we come up with inflation rates. So we assign an inflation rate for each one of those major account lines instead of using a flat 3%. Next.

And one of the things we saw was, if you look from 2008 to 2019, just looking at chemicals and utilities, it's been actually pretty close to flat. And one of the reasons why we think is because we created a research and development division in 2008. And if you compare that to inflation data, we saved gross amount of $39 million.

And that's really led by two PhDs and an army of interns that they have doing research projects. And so this is just the L&M savings that we've seen. There's also been a huge capital savings as well. Next slide, please.

In terms of our capital program, we've been doing project prioritization since 2008. So once a project gets into our CIP, the question then is when is the most appropriate time to do that project, so we do the right project at the right time. So we're using-- we recently implemented a risk based project prioritization. Next slide.

We've also implemented, several years ago, a concept of program contingency. Because what's the theoretical likelihood that every project with a 20% contingency would use up all of that contingency in that given year? So we stripped all the projects just for a capital cash flow projection, we stripped all those contingencies out. And we assigned contingencies at a programmatic level. Next slide, please.

And in terms of contingency, it's not about how much you spend. But it's also about when you spend that money, when you're doing these cash flow projections for CIP. So we looked at the data. And based on a different project type it is, we'll assign a schedule contingency. And this is using our level [? four ?] work breakdown structure. Next slide, please.

And when you put it all together, we get a capital spend projection. And it's really an iterative process in terms of where the regulatory deadlines are, priorities, and what we can afford to spend relative to our targeted debt service coverage ratio. Next slide.

And so one of the most-- the biggest thing that comes out of our financial model is the debt engine. This is PSM's model. It's called Future Perfect. And what the top graph shows is those blue column bars that's the capital spend. And that red line overlaid on that, that is our cash available for CIP.

So if you see the blue bar above the red line, that means we don't have enough to pay for our plan capital spend that fiscal year. So that's the amount we have to borrow. And so what the graph on the bottom shows is we're borrowing money. Those blue column bars are when we are issuing new debt. And the red line is our debt service. And so that's what really the model is calculating. Next.

And so this is just an example of our pro forma that gets built. It's a 20 year forecast. It's included in every one of our budget cycles. We also include a version of this in Excel online on our investor website for rating agencies and existing and future bond investors. Next slide.

And probably one of the most important financial metrics is our debt service coverage forecast. And so it really tells you a lot, what's going on behind the scenes. So between now and 2025, you see debt service coverage increasing. But once about 2025, 2026, the first SWIFT plant comes online. And we've just issued a lot of debt.

And so you see the coverage take a hit. It starts to level off. So we've got new SWIFT plants coming online out through the year 2032. And then it starts to level off as we continue with more capital expenditures in that time period to meet our consent decree requirements. Next slide.

And so we always compare our financial metrics to the medians. We're pretty much in line with large entities in double AA. Where we don't fall in line is in our days cash on hand. And we've told the rating agencies that, you know, we don't feel comfortable holding on to $300 million in our savings account when we're raising rates at 9%.

And so we have a financial policy that says that we would have a low of 270 and a high of 365 days cash on hand and from a liquidity perspective. Next slide. And so there's lots of benefits to having a model. Probably one of the biggest ones just big picture is capital planning.

So you can actually work the model backwards to say, you know, how much can you afford? Let's say you don't have any increases, how much can you spend in your capital program? Or you can do all kinds of different scenarios. And when you have a lot of confidence in it, it helps to bring it to your board.

That when you're planning something and kind of make big decisions, you can run it through your model. And you can run sensitivity analysis and all kinds of things with this model. Next slide. And so in terms of strategy execution, so, you know, we did a redo of what Ted talked about in terms of comparing ourselves to other rated utilities in 2015.

And one of the things that was lacking at the time was debt service coverage ratio. And so we rebuilt the whole financial model around that time. And we've just really been executing on that strategy in the last five years. And then in that time period, we've had three ratings upgrades and three in the last two years. Next slide, please.

And communication's so important between talk finance, talking to operations, engineering, and water quality, making sure that we all have a good understanding of what are the regulatory deadlines, what are the priorities, what are things that are going to affect finance, so we can make sure we can plan for that and make sure we have a sustainable utility in the future.

We're also one of the few utilities that publishes our financials on a monthly basis, both on Emma and our investor website. Next slide, please. And this is just a snapshot of our budget. And just to highlight our 20 year CIP has a planned spend of $5.7 billion. Next slide. Turn it back over to Ted.

I'm just going to wrap it up. Jay mentioned SWIFT. So one of the things that we're doing is that by having a strong plan we were able to pivot from this traditional sense of wastewater treatment-- next slide, please-- to one where we're adding advanced treatment making drinking water and heating that to recharge the aquifer.

And so the fact that we had a strong financial plan built a lot of trust with our regulated community, the regulators over a period of time. We showed we were willing to continue to do the rate increases that we had projected forward. The commission has stayed behind that plan the whole time and really opened the door to integrated planning. Next slide, please.

So we're in this integrated plan, hasn't quite been inked yet. We expect to get approval any day, where we're going to be doing some more environmentally beneficial projects first before we get to the wet weather work while we're doing some high priority wet weather. So again the financial plan was fundamental in making EPA really help see the benefits of this and the fact that we can afford to make it happen. Next.

And then the other thing is-- and this was mentioned, as Tara pointed out that there's lots of reasons to have a strong financial plan in place. And she mentioned the fact that we were able to postpone this planned rate increase as a result. And we'll use some other ways to adjust for that going forward. And I think that's all we've got.

We're-- I think we're believing that our financial plan has put us in a great position to deal with black swans, unicorns, or pandemics. I think we can handle any lions, tigers, and bears coming our way, because we've got a strong plan and a history of execution. So let's not leaving much time for questions. But I'll turn it over to you Darcy.

Appreciate it. Thanks so much Ted and Jay for that great presentation. Yeah, we only have just a couple of minutes left unfortunately. But we do-- we are going to take that time to answer a couple of the questions that have come in. What we're going to do first is there's two questions that came in that Ted actually typed in answers to very helpfully. Thank you Ted.

But I think these are really good questions, so everyone would benefit from hearing them discussed out loud. So I'm going to read the question. First one is, is there a rule of thumb for how much reserve funding an organization should maintain for a wastewater treatment system? And should it be a percentage of the total-- of the system total asset value? Ted, you want to reply to that one?

So we didn't think there's a hard and fast rule. Because you talk to rating agencies, cash is critically important. But I think it's-- at the end of the day, it's the utility evaluating the various risks you're going to face. And how much cash you need to have so you can overcome those without disruption of service.

So our rule of thumb is that 200 to 300 days, but it could vary. And when we did the comparison with like utilities, we found most of them had significantly more cash on hand. And we haven't allowed cash on hand to drive-- or ratings to drive how much cash on hand. As Jay mentioned, we think that would be too much for us.

But, you know, that-- I think the real piece utilities need to do is a serious risk analysis. If you're in a hurricane zone, is it going to wipe out your entire ability to treat? Or are you dependent on a contract operator that could go belly up and you need to go to a different contract. Trying to figure out what your immediate needs are for those reserves.

It really isn't about just a full reinvestment in your infrastructure. It's really your operating reserves are what's driving that.

Great and Rod, wonder if you want to respond to that one as well?

Yes, we currently have a goal. Outside of our capital reserves that we keep on hand, we have a minimum of 120 day cash on hand for our operating reserves. And we like to keep that north of that. We're running about 200 days. With our capital reserves, we might be up there around 425 days.

But again those capital reserves are very important to handle those operational issues that will come up. And again, our minimum's 120, but we try to keep that probably up there around 200 days from the operations side.

Great, thanks for that. Our next question is, for the financial forecasting cases described herein, does it need to be reworked now to forecast the COVID-19 impacts to utility and your customer base? And for how long, six months, 12 months, 18 months? Ted, you want to offer your response to that?

I think-- I don't even remember what I wrote for that. I think here it's really around the ability to have a model, so you can make adjustments for things like that and then figure out the various ways you could adapt to it. And I think we talked-- Jay talked a little bit about that.

But it's really-- you don't really rerun the model just for a couple of different projections. It's a tool that we use on a regular basis to plan scenarios and see what the impact would be. So that's another benefit of having a really robust model that you can do that with.

Great. And Rod, if you had any response you wanted to offer to that one too.

Yeah, pretty much what Ted mentioned. We've been very fortunate. Our water revenue has not dropped off. We're very [INAUDIBLE] dependent. So the COVID situation has not impacted us. But again it's just having a very healthy balance sheet, having the reserves, having the ability that if I did have to go borrow some money now with my creditors, I could do that in a very short period of time.

OK. I think we have time for just one more question. So I'm going to read one more for everyone to respond to. This one is, does either agency have programs intended to support low income residents? I live in Philadelphia, which has a very high poverty rate. And there's a lot of desire to provide relief for water bills for low income residents. I'm wondering if either of you two utilities face a similar problem and if you feel like you're in a financial position to address it.

Silence, Darcy. Sorry. So we've tried a couple of different aspects of addressing that. We haven't frankly been overly successful. We've got a regional program that has a voluntary donation bill pay assistance. But we're still wrestling with what to do around long term solution on affordability.

And if Philadelphia's got an income based rate, I don't see us going to that. But we continue to look for ways to help folks on the lower income side. Thanks.

Yeah, I would pretty much mirror Ted's comments. I mean, we don't have any current program. But we are always watching the affordability as far as where our rates are going. And as of now, we do not have any programs in place or available able to assist in that arena.

Got it. OK, well, unfortunately that is the end of our time together. We really appreciate everyone for participating, typing in your questions, and for listening. Very much want to thank our presenters as well.