

TABLE OF EXPERTS

INVESTING IN MISSOURI'S INFRASTRUCTURE

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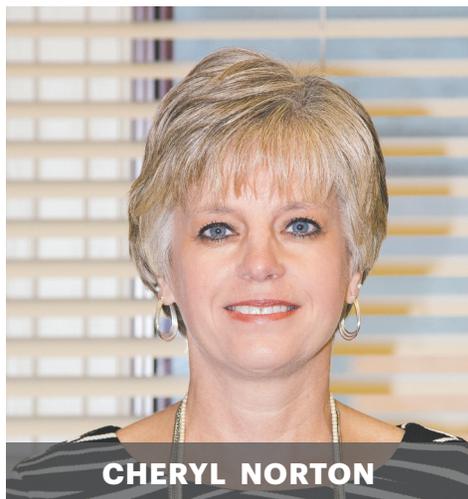
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MEET THE EXPERTS



BRIAN HOELSCHER

Brian Hoelscher, executive director and CEO of the Metropolitan St. Louis Sewer District, has over 30 years of engineering and management experience. He is responsible for overseeing all district operations and managing all financial, leadership and regulatory responsibilities, including the multibillion-dollar, multi-decade capital program for the district. Hoelscher began his career with the district in May 1995 as manager of construction. He has since held positions as assistant director of construction management, assistant director of engineering and most recently, director of engineering, prior to being named executive director in March 2013. Hoelscher holds a bachelor of science in civil engineering from Washington University. He is a licensed professional engineer in Missouri and Illinois. He is a member of the Water Environment Federation, the Missouri Water Environment Association, and the Engineers Club of St. Louis, the latter of which he is a former director.



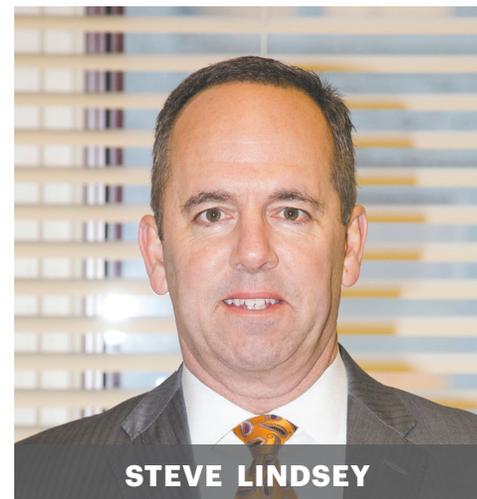
CHERYL NORTON

Cheryl Norton has been president of Missouri American Water, which provides high quality and reliable water and wastewater services to approximately 1.5 million people, since November 2015. She is responsible for overall operating and financial performance, as well as strengthening the company's customer, regulatory and local government relationships. Prior to becoming president of Missouri American Water, she served the same role for Kentucky American Water from 2011 to 2015, leading a business that served more than 500,000 people. A native of northwestern Missouri near Kansas City and St. Joseph, Norton started her career with American Water in 1988. Norton is a member of the American Water Works Association (AWWA) and in 1992, she was recognized by AWWA for the most notable contribution to the science of public water supply development. She was awarded the Professional Service Award from the Illinois Section AWWA in 2006. She also is a member of the St. Louis Regional Chamber of Commerce board.



MICHAEL MOEHN

Michael Moehn was elected president of Ameren Missouri on April 1, 2014. He is responsible for Missouri's largest energy provider in serving more than 1.2 million electric and gas customers across central and eastern Missouri, including the greater St. Louis area. Moehn, a CPA and former PricewaterhouseCoopers senior manager, joined Ameren as assistant controller in June 2000. He was named vice president of Corporate Planning in 2004 and, four years later, was promoted to senior vice president of Corporate Planning and Business Risk Management. In July 2012, he was named senior vice president, Customer Operations, Ameren Missouri. He holds a Bachelor of Arts degree in accounting from Saint Louis University, a master's in business administration degree from Washington University and a certificate in Nuclear Reactor Technology from the Massachusetts Institute of Technology. Moehn is dedicated to serving the needs of our community and serves on the boards of Directors for Christian Hospital, Concordance Academy of Leadership, Lewis & Clark Community College Foundation, United Way of Greater St. Louis and the Urban League. He is also an Eisenhower Fellow.



STEVE LINDSEY

Steve Lindsey is the CEO of five Spire-owned natural gas utilities, including Laclede Gas. He came to St. Louis in 2012 to lead distribution operations, which includes all facets of customer service and field operations across three states. Lindsey has spent his entire career in the natural gas industry. He previously spent 23 years at AGL Resources, where he served as president of three utilities and senior vice president of southern operations. Lindsey earned a bachelor's in mechanical engineering from Georgia Institute of Technology. He is the past chairman of the American Gas Association's Managing Committee and a board member of the Southern Gas Association. He serves on the boards of the Regional Business Council, Missouri Chamber of Commerce, St. Louis Children's Hospital, St. Louis Sports Commission, Kansas City Civic Council and Missouri Energy Development Association.



TABLE OF EXPERTS

INVESTING IN MISSOURI'S INFRASTRUCTURE

Talk about the current condition of your infrastructure.

Michael Moehn: We serve 1.2 million customers in the state of Missouri, which covers 24,000 square miles. It's a large territory with aging infrastructure. For example, we have 900 substations that are, on average, about 45 years old. The average age of our coal-fired energy centers is about 47 years old. We have 1 million poles on our distribution system. These poles, on average, are about 40 years old, and have provided service extremely well for 40 to 50 years. But now this infrastructure needs replacement, and at a time when homes and buildings are more energy efficient and consumers are conserving more energy. Energy efficiency is a good thing and saves customers a great deal of money. However, for the first time in utility history, there is less revenue to invest in aging infrastructure to help us build a smarter, stronger grid. Lighting was a game-changer for us as we moved from incandescent to CFL and now to LED. But lighting is approximately 10 percent of our overall sales. So when you have lower sales, you have less revenue to reinvest back in the system to build a stronger and smarter grid at a time when this is really needed. At the same time, people are more dependent on electricity than ever before, so it creates a challenge.

Cheryl Norton: Missouri American serves about one in four people across the state of Missouri. We have around 7,000 miles of water and sewer mains in the state. So it poses a similar challenge to what Michael was describing. We had approximately 2,600 main breaks in St. Louis County alone in 2016. Some of the infrastructure was put in place almost 100 years ago. We try to replace approximately 1 percent a year, but that means that all

the life of our pipes throughout the state are going to be 100 years old before it gets replaced. And in some cases, pipes don't last 100 years and you start to have various things happen that cause the main breaks, so infrastructure replacement is so critically important. Earlier this month, the American Society of Civil Engineers produced a report saying that the water and wastewater infrastructure across the United States was rated with a D or a D minus. That's an extremely serious situation. It's very costly to replace that infrastructure. And we're seeing similar things with the declining use of water because of the new appliances, and people conserving more. And so the balance of being able to replace all of that infrastructure and still keep rates as low as possible, it's a big challenge for us.

Brian Hoelscher: MSD's service area is the city of St. Louis and approximately 90 percent of St. Louis County. That's about 525 square miles. We are the fourth-largest wastewater utility in the country, with over 6,500 miles of wastewater sewers. As part of our stormwater management mission, we also own and operate another 3,000 miles of stormwater sewer. Our main concern is water quality in the local creeks and streams. We do have overflows coming out of the wastewater system during moderate to heavy rainfalls. Some of it's due to aging infrastructure; some of it is because of past building practices. You can fix the system. The way to solve the issue is for us to take care of past building practices on private property as long as it solves a public issue. On the stormwater side of our mission, the biggest issue is around climate change and building practices. There's flooding in the area, erosion on creeks and streams. Trying to put something in place to address that is always a challenge. We're not going to do a whole lot about climate change. We can

do something about correcting some of the past building practices.

Steve Lindsey: Laclede Gas serves the eastern side of Missouri, with about 650,000 customers. We also operate Missouri Gas Energy on the western side of the state and collectively serve more than 1.1 million customers in Missouri. A big challenge for us, as everybody has mentioned, is the aging infrastructure of the natural gas system, which is very similar to water. Many of these facilities were put in more than 100 years ago. We've made a lot of progress in upgrading and replacing these pipelines through the infrastructure system replacement surcharge (ISRS) that was put in place by the Missouri Legislature more than 10 years ago. This has allowed us to focus on accelerating our infrastructure upgrades primarily through replacing large diameter cast iron pipe which required high levels of ongoing maintenance. Another challenge for us, similar to the electric company during the summer, is reliability concerns during the winter, when there is a high volume of gas flow through the system on pipelines that were not originally designed for the increased demand. We're able to replace the cast iron pipes with the polyethylene plastic pipes that are smaller in diameter but can meet increased demand. Our customers are able to have safe and reliable service with these new pipelines that require far fewer repairs and general maintenance.

How does Missouri's infrastructure compare with other states?

Michael Moehn: I think the infrastructure issue is pretty much the same around the country, and it is similar with roads, bridges and airports. However, other states have taken more proactive action from an

electric standpoint. They've been looking at ways to update and modernize the regulatory structure so it promotes and accelerates some of the replacement of this infrastructure. That's why we've been working on trying to pass bills in the Legislature to modernize the regulatory structure to make sure that we're keeping pace with where other states are, so we don't fall behind on this. The one thing I'm absolutely certain about for a lot of us, is customers' expectations are increasing every single day. We need to make sure that we have the right structure that's keeping pace with those expectations. Regulatory reform to encourage investment would benefit customers and enable a stronger, smarter grid.

Cheryl Norton: The overall outlook for water and wastewater systems is, in the next 20 years we need over a trillion dollars worth of investment. And the water industry is so fragmented compared to even the gas and electric industries. There's about 55,000 different public water utilities that are active across the United States as compared to 3,500 or 3,600 electric utilities, and even less than 2,000 gas utilities across the United States. Because there are so many small water systems throughout the United States, you get into a lot of issues. Many communities can't afford to make the kinds of investments that they need to make. And Missouri is no different. So the fix is a long-term fix, and it really is something that we have to be prudent about and continue to make investments all across the country. We're starting to see efforts in other states where they're trying to pass legislation to say that utilities have to invest in their systems, because it's not going to get any better. And for water systems, that's the only utility that people ingest. So it's really important that those systems are well-maintained. We don't want to see

another Flint, Michigan, happen.

Michael, Illinois has been very progressive on the electric front.

Michael Moehn: Illinois is an example of a state that encourages investment in a stronger grid. In 2011, the state passed legislation to modernize its regulatory structure, which included a number of investments for the benefit of electric customers in the state. It's performance-based rate making, so there's a number of things on the utility side that requires energy providers improve reliability and make sure the utility is performing successfully. And today, it's working extremely well.

Brian Hoelscher: Wastewater systems in large cities throughout the country are all in the same place. The federal government has a strategy of suing those cities and reaching court-enforceable schedules for making improvements. We're one of 200-plus communities that are in that situation. One of the advantages in St. Louis, because of the large rivers we have – and that's kind of the driver for water quality in our area – we are amongst the last of the large wastewater utilities to be sued. And so we've taken the opportunity to learn from the large sewer agencies that were sued before us. It's been an opportunity to find out what has been done right and what has been done wrong. As far as the infrastructure investment, the federal government makes sure that's included the agreements that are put in place. Not

only do you have to fix the issues within the system that are causing the overflows, but invariably there are provisions to make sure you do a good amount of asset management – whether that's proper inspection and cleaning of the facilities, or other activities – but also infrastructure renewal to make sure you don't fall back to where you are today 20 years from now. It's the right thing to do, but it does help to have a court-enforceable document that forces you to do it and necessitates the funding for the repairs.

Steve Lindsey: I'd say from a gas infrastructure perspective, pipeline needs vary depending on the region of the country. The one thing you're starting to see consistently is regulatory bodies, like public service commissions, recognizing the need for these systems to be upgraded. I think one of the most challenging areas is in the Northeast, such as New York and New Jersey. Some of those systems would take more than 100 years to completely upgrade based on their current pace. Much of the Southeast is making good progress regarding infrastructure upgrades. Atlanta Gas Light, for example, has no cast iron remaining in its system. They aggressively deployed a replacement program years ago that took a little more than 10 years to complete. The farther west you go, many of those systems are somewhat newer and don't have as much need for upgrades. In the Midwest, there are many gas companies, such as Laclede Gas, that are diligently focused on infrastructure upgrades while

We're going to build a pipeline that goes into Illinois that brings gas to this area. It does a lot of things, but primarily, it gives a very low-cost option and access to gas that we would not have normally had.

STEVE LINDSEY,
Laclede Gas



at the same time balancing the impact these have on customer's bills.

Michael Moehn: The American Society of Civil Engineers' report card on the infrastructure across the country rated Missouri a D or D-plus – not a report card that any parent would be proud of. So I think that's where we have an opportunity in Missouri to create an environment that encourages investments and creates jobs.

Brian Hoelscher: MSD isn't covered by

the Public Service Commission. We have our own local rate commission that provides the public a voice in the MSD rate setting process. Thus, we run a little bit differently. And whether we had the consent decree or not, we are measured against an affordability rate that's established by the federal government; an affordability benchmark that continuously changes with legislation. All of our stormwater services right now are paid for through prop-

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We Are Invested in Missouri.

Missouri American Water proudly provides high-quality water service to 160 communities throughout the state. We invest an average of \$65 million every year in St. Louis County, and \$113 million statewide, to maintain and improve infrastructure as part of our ongoing commitment to the more than one million customers we serve.


MISSOURI
AMERICAN WATER



We just started an acoustic method of testing, where we take an acoustic transmitter, run it down the line and, based on the signal we get back, determine what the condition of that pipe is, both structurally and whether it's blocked. That's going to be a huge saving when it comes to our wastewater crews in our operations department.

BRIAN HOELSCHER,
Metropolitan St. Louis Sewer District

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erty taxes. It's not a rate structure. The rate structure is for wastewater services.

Steve Lindsey: Michael mentioned the Missouri Energy Development Association (MEDA), that we're all members of this organization. That's one way we work together as utilities.

It seems that you have to constantly beat the drum to get people to understand the issues in advance of any big disaster.

Michael Moehn: All of us are trying to avoid those situations. We're all owners and operators of critical infrastructure, so it's vital to our customers and our region to have a grid that is strong, smart and resilient to a disaster, which could potentially include physical or cyberattacks. Today, more than ever, customers are dependent on reliable energy to stay connected, so it's important to be proactive and be prepared for any situation that may occur. We've been through some situations, certainly from a Missouri perspective, with the storms back in '06 and '07. And you can see the impact that it can have on people's lives when they're without power for three or four days. So this is really about staying in front of these issues and making sure that we make investments that last generations.

Cheryl Norton: And if we want to bring jobs to Missouri, the best way to do that is to invest in our infrastructure, so that it's a place where companies want to come to and have their employees live and work, and where they can do business for good rates, but also have that dependability of the infrastructure that's in place. Every million dollars of infrastructure improvement that we bring to the state brings a lot of jobs. A million dollars equates to anywhere from 13 to 16 jobs, so it's important that we keep investing and keep these industries coming to the state of Missouri.

Brian Hoelscher: And investing smart in our world to take care of our issues.

When looking at how we handle stormwater, we're often dealing with quality of life issues. As development takes place, there are opportunities to install more green space than would have been required in the past. This is done to address regulatory issues. If we are smart about how we install this green space or the manner in which we require developers to do so, we can address issues that aren't solely related to MSD's mission. That type of approach attracts folks who want to move into the area and want to live in that kind of environment.

Steve Lindsey: At Laclede Gas, safety is our top value. We don't refer to it as our top priority, because priorities can change from year to year, depending on your business needs, but your values, such as safety, should never change. Much of what we're focused on is to keep something from happening as opposed to reacting. Another focus is on system reliability. People don't think about utilities until they're not available, whether it's electric, gas or water. And so from the safety and reliability perspective, we want those to be things that people never have to think about because they never have to deal with issues such as incidents or service interruptions.

What actions have you taken over the last five years to address the issues?

Michael Moehn: We spend anywhere between \$700 and \$800 million a year on infrastructure. We talked earlier about those 900 aging substations. We're working through a priority list to replace those. Specifically, the central substation downtown that serves the corridor up around Grand, a really important area, with the hospital complexes, was replaced a couple years ago. The substation on Cole Street was replaced in the last couple of years. We're spending about \$23 million in the underground infrastructure, so the city of St. Louis has some of the best reliability here in the state. But a lot of the infrastructure is about 100 years old underneath the streets. And so we have a systematic program replacing that. Unfortunately, we're on about a 30-year program to replace it all,

which probably is not acceptable in terms of meeting customers' expectations.

Cheryl Norton: We try to prioritize the projects we have to do first, because there's never enough capital dollars to fix everything that we would like to fix today. And we have to balance the underground infrastructure with our treatment facilities, because we want to make sure that we're still pumping and treating water so that it meets or exceeds the EPA's regulations. But we also have to make sure that the underground infrastructure is sound. And so we spend about \$100 million to \$120 million a year typically, and plan to spend as much or more going forward, to make sure that we are doing those replacements. Again, we're shooting for 1 percent, which is a 100-year cycle. We're not there on everything at this point. And so over the last five years, we have invested over \$500 million in the infrastructure here. But there's still a lot of work to be done. And when you have 2,600 main breaks in one year, the amount of disruption that those causes to traffic, to schools, to businesses, to people's everyday lives is not something that we take lightly, so we're doing everything we can to improve that dependability and stay focused on our treatment facilities to make sure the water is safe.

Brian Hoelscher: About four and half years ago, we started addressing our federal consent decree, or what we publicly call MSD Project Clear. This is an example of the regulatory schedules I mentioned earlier that federal regulators are working to reach with cities across the United States. For us, the schedule is a 23-year, \$4.7 billion program. From 2012 through 2016, we completed improvements that were projected to cost \$971 million. However, we brought those improvements in at a final cost of just over \$900 million. So we did this work very cost effectively and we kept everything on schedule. This work includes anything from tunnels to green infrastructure or rainscaping to disconnecting people's downspouts from their lateral lines, which allows stormwater to go directly into wastewater only sewers – something that should be taking place;

to building above-ground storage tanks; to massive trunk sewer rehabilitation or replacement. We have another \$1.6 billion in improvements that we'll be doing over the next four years to address the same issues. For us, affordability wasn't always something that the regulators were worried about. If they had a rule, they just simply wanted you to meet it. However, we are able to utilize a concept called "integrated planning," which allows us to assess all the regulatory requirements we have to meet as a whole, and then figure out what is the most important issue to address first. Additionally, the federal government has, in some cases, allowed us to take into consideration the financial burden on individual customers to pay for other, non-MSD services. Integrated planning allows us to prioritize what is the most important thing we need to do. It allows us to spend money where it provides the biggest bang for the community.

Steve Lindsey: I'll talk about our Missouri utilities and the mileage of pipe that we've replaced. If you go back about five years ago, our companies combined replaced about 30 miles. This year, we're closer to 200 miles. Clearly we've accelerated our programs in Missouri and plan to continue on that trajectory. That leaves us, here in St. Louis with 12 to 15 years left of upgrade work, and that's just on the cast iron replacement. There's other types of infrastructure, such as regulator stations, valves and fittings. We prioritize upgrades based on leak history, maintenance requirements and reliability concerns. So it's not just start east and work west, it's really figuring out where it makes the most sense to do the work. Upgrading infrastructure also reduces our need for ongoing maintenance and that ultimately means savings for our customers.

Michael Moehn: The challenge with all of this is that we're talking about one thing – aging infrastructure. But there are several competing priorities. And, I know on our side, we spent \$1 billion in the past 10 years on environmental controls that support cleaner energy, which is very important. We've been very aggressive in getting in front of these. But all of those dollars you take away from the other discretionary dollars. And then you're having to make even more difficult choices about other investments.

What are you doing to innovate and what's the economic impact down the line?

Michael Moehn: Ameren Missouri has been a pioneer on the electric side. We were the first utility in the country to put in automated meter reading 20 years ago. And now everyone is moving to the next generation, which is called Advanced Metering Infrastructure (AMI) or "two-way metering." Illinois has rolled out 600,000 of those meters to customers. It gives you a lot more flexibility in terms of different programs and usage. We're taking a very manual system today and automating it through sensors and switches, so that when you have outages, things will automatically reroute, so you're not having to send

somebody out to switch a breaker or turn something on or off. These are the types of innovative investments that are part of the Missouri Economic Development and Infrastructure Investment Act (Senate Bill 190) that is currently being considered by Missouri legislators and will provide customer benefits of more than double the investment costs.

Cheryl Norton: We're doing very similar things at Missouri American Water with advanced metering infrastructure, where you can have the signals going back and forth, which creates a lot of operational efficiencies. We are in the second year of implementing that across our St. Louis County district and are very excited about what we're starting to see from that. So, instead of going out and being able to get a meter read once a month from a customer, or in St. Louis County once a quarter, we can get that read on an hourly basis, on a daily basis. We can see it all the time. That helps us to identify leaks quicker for our customers. And if we have an issue with a meter, instead of having to estimate the read, we can identify that issue and go out and fix that meter, so that when it comes time to get their monthly reading, we can pick up that reading. There's a lot of customer benefits to this, but also a lot of operational benefits to it. We are starting our second year in that program and are really starting to get some momentum behind that. And, we're really excited about that in St. Louis County. Because right now, we actually have meter readers that go out and walk the routes. And so,

being able to take our employees out of that environment is going to help from a safety perspective as well. Drones are something that we've started to use more. We just recently received a patent on a drone that we can put into a pipeline. In the past, if you were putting in a new pipeline or fixing an older pipeline, you would have to put high levels of chlorine in that pipe to make sure that it was disinfected so that the water coming through that pipe would be safe. We now take a drone with ultraviolet light that will disinfect the inside of that pipe so you don't have to use the chemicals. We're really excited about the implementation of that technology, so all of our systems are connected in a way that if there is a water-quality issue, we're going to get alerts as quickly as possible so we can take care of those things. We try to look at ways that we can invest that capital or make those improvements and reduce our operating costs so the impact to our customers is either very small or nonexistent.

Brian Hoelscher: At MSD, we reline sewers at a cost of \$20 million to \$40 million per year, which is much cheaper than replacing sewers. Another innovation is above-ground storage of stormwater, as opposed to doing underground storage tunnels, or transporting and treating the stormwater. An example of the above ground storage is the round office looking building across the street from Lambert Airport at I-70 and Cypress Road. This round building stores a combination of stormwater and wastewater during moderate to heavy rainstorms. It saved us \$50

If we want to bring jobs to Missouri, the best way to do that is to invest in our infrastructure, so that it's a place where companies want to come to and have their employees live and work, and where they can do business for good rates, but also have that dependability of the infrastructure that's in place.

CHERYL NORTON,
Missouri American Water



million versus use typical methods. There's a similar one going up in Hazelwood at I-270 and Lindbergh, and we have another one scheduled to be built in Crestwood. Disconnecting downspouts from laterals seems like a simple thing, but we have folks whose downspouts are connected to their lateral line. That allowed stormwater to get in the wastewater system. During the first five to seven years of MSD Project Clear, MSD will be conducting one-on-one visits to approximately 180,000 homes throughout our service area. If we find the

connections to the lateral lines, we'll pay to disconnect the downspouts and direct the stormwater into the stormwater system. This keeps the stormwater out of the wastewater system, which helps prevent overflows and basement backups. Asset management is another big item. A big movement in our industry is knowing the condition of your infrastructure. Some of this work is basic, such as video inspection and cleaning. However, some of this work

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MSD PROJECTS:

To learn about bidding on MSD projects visit www.stlmsd.com/msd-work/bidding-projects.

MSD SMALL CONTRACTOR PROGRAM:

MSD is seeking small contractors to participate in its Small Contractor Program, offering bid opportunities under \$25,000 with minimum requirements. For more details visit www.stlmsd.com/smallcontractor

EMPLOYMENT WITH MSD:

For more information on current job opening at MSD or to submit a job interest notification for future openings, visit www.stlmsd.com/careers

MSD MINORITY SCHOLARSHIPS:

Southern Illinois University at Edwardsville (SIUE) and MSD have teamed up to create scholarships for the Water Quality Control Operations Program at the Environmental Resource Training Center (ERTC) of SIUE. For more details, visit www.stlmsd.com/msd-offers-minority-scholarships

SUPPLIER DIVERSITY:

If you are seeking information on Certified Minority and Women Business Enterprises (MWBE) contractors, suppliers, or consultants, visit www.stlmsd.com/msd-work/supplier-diversity

DIVERSITY AT MSD:

MSD supports inclusion and utilization of Minority and Women Business Enterprises (MWBE) in our community. To learn more about MSD's multi-billion dollar construction program and opportunities for minority- and women-owned businesses, visit www.stlmsd.com/diversity



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is more advanced. For example, we just started an acoustic method of testing, where we take an acoustic transmitter, transmit a signal down the sewer, and, based on the signal we get back, determine the condition of the sewer; both from a structural perspective and whether the sewer is blocked in some fashion. This will be a huge time and money-saving tool for our maintenance program. We are doing everything we can do with day-to-day operations to save money and operate more cost effectively.

Steve Lindsey: You heard some discussion around AMR or AMI, the automated meter-reading technology. I think there's some other benefits as well. From our perspective, it allows us to do some things that we wouldn't be able to do if we had manual meter reading. For example, catching potential leaks early. If there's a large gas flow inside a home, for whatever reason, such as somebody has removed an appliance, we're able to detect that and send a technician out much quicker than if we were using manual meter reading or waiting until somebody called in a gas leak. So there's a safety aspect to it. In St. Louis, we still have a large number of our meters that are inside meters, which means we have to gain access to the customer's home to get to the meter. Automated meter reading allows us to do that without inconveniencing the customer. Other new technology from the gas perspective includes automated shutoff valves that would allow a company to turn off gas service remotely as opposed to sending a technician. Also, when we're replacing pipe, we're doing directional drilling that allows us to go underneath the ground hundreds of feet without interrupting

yards or streets. So a lot of that technology is great from a customer perspective, as well as reducing the cost of installing pipe. We also are using technology that allows us to do robotic repairs inside the pipes. For years and years, it required us cutting into a street, opening a hole and performing a large amount of investigation. Now, you can use this new technology to find out what's going on and to actually make the repairs. So, there are a lot of things that from the business side that make sense, and from the operational side will save money for customers down the road.

How are these advancements funded?

Michael Moehn: All of these technologies are competing against limited capital dollars that we have to address environmental issues and the most immediate aging infrastructure needs.

Cheryl Norton: And, where we can, we try to reduce our operating costs as a result of that. And when you can do that, then that minimizes the actual impact in rates.

Steve Lindsey: Technology also has impacted how we communicate with our customers. We used to only communicate through the bill that we sent every month. Now, whether it's your website or other social outlets that our customers wish to communicate through, we can do our messaging there. Another thing that we're going to put in place is when a service tech is going to your home for an appointment, you're going to receive a picture of that service tech, so you'll know who to expect. Unfortunately, in the world we live in, there's a lot of people that try to take advantage of opportunities, so we're trying to make that experience safer for all involved.

How do you balance these improvements and still keep rates affordable for customers?

Michael Moehn: I think we're all doing a very good job of managing what we have. We have some of the best reliability in the country on the electric side, but as I mentioned before, our customers' expectations are increasing and the same system today will not be acceptable in the future. And, from an affordability standpoint, we are doing a lot of innovative things to keep costs down. We've reduced our head count approximately 18 percent over the past five years, again, just trying to balance the impact on customers. We have residential rates that are 18 percent below the national average, 15 percent below the Midwest average. So from a value standpoint, we're offering good reliability with a very competitive price for customers. The challenge, I think, is how do we continue to do that in the future with aging infrastructure?

Brian Hoelscher: First of all, MSD wants to say thank you for the low electrical rates that we are charged. While said with a smile, there is a serious side to that statement in that our customers ultimately bear the cost of electricity. We impact each other, and what each of does impacts our customers in multiple ways. For MSD, part of having a mandated infrastructure program is making sure we look at different financing options and give our customers a choice on how the program is paid for. We work to make sure we give the public options; communicate those options to the public, along with potential consequences; and what the long-term ramifications are of a particular choice. Communication is huge for MSD. There are several different ways that we communicate with our customers, probably like every other

utility. However, when it comes to rates, asset management is an important tool. It allows us to determine what is the critical failure time for an asset? If something fails, what are all the impacts? We have some things that have been in the ground for over 150 years and they work just fine. Investigating and knowing exactly what the condition of your infrastructure is so you don't repair or upgrade something that really has another 20 years of life helps control rates.

Steve Lindsey: If you think about the customer's bill from a gas perspective, 60-plus percent of that is the commodity – the natural gas. And we're at historic lows on the price of the commodity right now, which for a customer is great, because they're looking at that overall bill. One of the things we've really tried to focus on is making sure that we get a diverse and reliable gas supply into our area. An example of this is the Spire STL Pipeline, a 60-mile pipeline that will connect to the Rockies Express, a pipe that was originally built to move gas from west to east. What you're now seeing with the Marcellus and Utica supply basins in the Northeast is an excess amount of low-priced gas that needs to be moved to other parts of the country, so the flow has actually been reversed. Spire is going to build a pipeline that will connect to the Rockies Express in Illinois that brings gas to this area, giving us a very low-cost option and access to gas that we would not have normally had. In addition, we're offering help with energy-efficiency programs and rebates so infrastructure upgrades can be done in a balanced way, and in some cases not even impacting the overall bill.

Brian Hoelscher: The other thing is to help our customers help us set our expectations. For stormwater, we passed Prop-



osition S last year. It gave us money to operate and maintain our entire storm-water sewer system. We didn't have sufficient revenue in the past to maintain the entire stormwater system. So it's good we passed that. We're going to the customers now to find out if they want us to have a district-wide revenue source to address some flooding for people who are in floodplains or address creek erosion that impacts their properties. And we're going to give the public the ability to say, "Here's how important we think the issue is, here's how much we think we ought to spend." And get not just their buy-in, but share responsibility with them for making this important decision.

Steve Lindsey: Michael mentioned this at the very beginning that we're all seeing a declining use per customer and some of that is conscious in terms of conservation efforts. But a lot of that is just through more efficient appliances, more efficient homes, tighter insulation, those type of things. And so there's a natural reduction in a customer's bill that's occurring.

Michael Moehn: The challenge with that, though, is that it comes at a time that we have this aging infrastructure that has to be replaced. And so as those increased sales go away, we have to come up with a different mechanism. Because customer's expectations have never been higher in terms of reliability. Even momentary outages on the electric side are becoming unacceptable for customers. Industrial customers have digitized

The American Society of Civil Engineers' report card on the infrastructure across the country rated Missouri a D or D-plus – not a report card that any parent would be proud of.

MICHAEL MOEHN,
Ameren Missouri

their processes so much, they can barely even have voltage fluctuations without it knocking their entire system offline and then costing hundreds of thousands of dollars getting themselves back up and running again. That's how sensitive customers have become to it. This usage issue is really critical to how we figure out how we fund this infrastructure.

Cheryl Norton: It is. And one of the things I mentioned earlier was, we have a very fragmented water industry. So if you have 500, 1,000, 2,000 customers and you need to invest \$1 million, and you're trying to spread that investment across a small number of customers, it's a problem. So one of the things that we've been pushing to do, since we serve such a large portion of the state, we're trying to consolidate our rates as much as possible, so that all of our customers pay the same rate, so they can be more affordable



for everyone. Because everybody needs affordable water and utility services.

What changes are needed in legislation?

Michael Moehn: In Missouri, on the electric side, we have not meaningfully updated the regulatory policies in 75 to 100 years. Our state is lagging behind in this area, and is one of only four states that have not upgraded its policies. Right now we have a senate bill – SB190, which is the Missouri

Economic Development and Infrastructure Investment Act, that would allow us to build a smarter, stronger and more secure energy grid for customers at a faster pace. Not only will this increase energy grid investments, but it would provide customer benefits of more than double the investment costs. In addition, it will spur economic development by creating more than 3,000 direct and indirect jobs and positioning Missouri to better attract state of the art manufacturing.

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Cheryl Norton: I think that it's important that as a business we have some stability to the revenues that come in, so we understand what to plan. All of our businesses are very dependent upon weather. Depending on the type of weather that we have, the bills can be outrageous at certain times of the year. And so, how do we try to stabilize that as much as possible, both for the industry as well as our customers? That's one of the things that we're trying to do. We're also looking to expand the ability to improve our infrastructure and get recovery on that as quickly as we can. Because the quicker we can recover those dollars, the more infrastructure we can replace. That's key.

Brian Hoelscher: It is two things: affordability and integrated planning; not just at the state level but the federal level. We've been pretty successful making sure affordability gets considered when regulators tell us how fast we have to make improvements.

Steve Lindsey: When we go and have our rates set by the Public Service Commission, a portion is fixed and a portion is volumetric – or based on customer usage. What you're seeing is the revenue that we need to operate and invest in our systems is being impacted. A lot of states have moved to a form of decoupling. Those are the more modern regulatory frameworks that we need to consider if we want to keep up. And so I think the different types of legislation that we all have proposed are, in some

ways, trying to accomplish the same things. There's an independent agency, the Regulatory Research Associates, that rates the regulatory environments in each state. That's important, because the rating agencies, such as S&P and Moody's, look at those regulatory environments when they're rating our companies and that impacts customers down the road as well. Right now we're rated mid- to below-mid in Missouri. One of the things that Regulatory Research Associates came out with this past year is that Missouri needs to address regulatory lag, whether that's done legislatively or regulatorily. If nothing is done to address this, it could have an impact on the future ratings. The further we get behind, the longer it's going to take us to catch up. So I think addressing this at the state level, both legislatively and regulatorily, is something that's incumbent on us.

Michael Moehn: This isn't a science experiment. There are plenty of states that we can point to – Florida and Illinois for example – that are doing it well in terms of policies that address aging infrastructure. And it is a benefit to customers at the end of the day. We're trying to create predictability and better reliability for them as well. We have to continue to educate consumers, stakeholders and legislators about the importance of this.

Cheryl Norton: I think that trust is really the key, and by having those conversations with our customers, with our legislators, and our regulators, so that they see the transparency in what we're trying to

do, and that we're not just trying to make corporate profits. That we really do care deeply for our customers and that we're doing the right things for the right reasons is one thing that we just have to continue to work on, because it's a very competitive marketplace for capital.

Brian Hoelscher: If you have the opportunity to show legislators and regulators that you can deliver what you promise that helps make them a partner. So as you move forward, you have their ear, they understand that your issues are real, and maybe you do have some solutions and some ways to address the problems.

Steve Lindsey: Our industry also has experienced some strong challenges regarding our aging workforce. We've been very blessed with the fact that people come to work at companies such as ours and spend their whole career here. But the challenge is, now they're coming to the end of that career, and how do we get the next generation of employees ready, whether they're internal or whether they're contractors that we use to do replacement work? We're competing with other states for that as well. And so, the workforce readiness that we need to have is critical and something we need to focus on. On Feb. 1, Laclede Gas had almost 1,100 years of experience retire in one day. Now, we'll replace those people, but we won't replace that institutional knowledge and everything that they have learned and built over all those years. But now we're bringing in this next generation, and we've got to be able to have a

very strong comfort level that we're going to be able to continue to function at the level we expect of ourselves, knowing that a lot of our employees are about to move into retirement.

Michael Moehn: This is a two-way street. I always talk to customers about how it's fair that they have higher expectations of us. So we're asking to make additional investments in this aging infrastructure. There needs to be requirements put back on the utilities to make sure that we're delivering on those investments. And that hasn't always been the way in the past. We just made investments. I think in terms of getting over these obstacles, that needs to be part of the equation. And we're willing to set requirements that stakeholders find to be reasonable and make sure we're delivering upon those investments that we're making.

Steve Lindsey: Our current legislation has performance metrics that would be set by the Public Service Commission. We balance that with a cost-control mechanism that incentivizes the utility to continue to maintain and even reduce service costs and if successful those savings are shared with customers. So there's an aligned interest between customers and the company, and that's not always been the case with traditional regulatory frameworks. We're trying to move to more aligned goals, that if we do things well, customers benefit not only from improved service levels, but through the sharing of costs savings as well.

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