



TECHSPOSE

Bill McMahon

President & CEO, CoaLogix

1. Bill, your higher education began in Georgia Tech as a nuclear engineer and brought you to Duke by way of Xavier in Ohio. Were you tearful during March Madness?

No, because I didn't have great expectations. When Georgia Tech almost beat Duke during the regular season, I knew Duke couldn't be that good in the playoffs. I'm first and foremost a Georgia Tech fan. As for Duke, Coach K and I've had dinner together a couple of times. He's a fascinating guy. I really love his ethics and his thought process about management.

2. Where are you from and how did you end up in Charlotte?

I grew up in New York, about 50 miles north of the city when there were cows and orchards there, and left there when I was 17 to go to Georgia Tech.

I soloed in an airplane my 16th birthday. My father had given me the choice to go to the DMV or to the airport. I chose the airport. After that, I really had a love for flying and was accepted at the Air Force Academy for what would've been a free education. Then I found out that I needed glasses and couldn't sit in the front seat of the plane, which didn't fit my personality.

The only top engineering school that I could afford was Georgia Tech. I love Georgia Tech. [US News & World Report](#) just recognized it as the #4 engineering program in the country and, for my major, it was one of the top 2. I graduated, then went to work in Chicago for a utility and absolutely hated the job, but not the company. I sat at the nuclear plant and read regulations all week long, then, on Friday, I got to go out and look at my systems.

I had wanted to work for [Babcock and Wilcox](#) since college and was sending them a letter a month, and they finally hired me as a service engineer. One of the first places B&W sent me was to [Oconee Plant](#). That's where I met the woman who is now my wife and promised her that we'd get back to the South. We started off in Cincinnati then New Jersey, then Columbus Ohio, then Massachusetts, where she loved the snow and I didn't. I went to Duke's advanced management school while we were living in Massachusetts. I love being in the South. Then this opportunity came along to run a smaller company and it was within a 2 hour-drive of my wife's parents. So we moved to Charlotte and I'm very happy. We've been here 7 years.

3. What about you *today* would most surprise your school teachers and childhood friends?

Probably that they can't believe I've been married for 32 years. And, I was a real geek and they may be surprised that I'm not in the technical side anymore.

In fact, I've always had a gift for gab, been sales-oriented and customer-oriented. People might think that the CEO of a company isn't sales-oriented, but that's exactly what a CEO should be.

In college, I was a nuclear engineer and we were doing a project for NASA's gas core actinide transmutation reactor. I wanted to do the core design, which is the heart of a nuclear reactor, and the professor told me he wouldn't let me do that. He said, "You're not that good of an engineer, so I'm going to put you in charge of the whole project." I was devastated. In retrospect, it was perfect for me because I learned how the commercial and engineering sides went together.



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4. You've been in the power industry for 30+ years. Tell us about that journey, which ultimately led to CoaLogix.

One of the next places I was sent after Oconee was [3-Mile Island](#), where I'd been involved in refueling unit 1. (Unit 2 had the accident.) A week *before* the accident, I left 3-Mile Island to refuel an Arkansas plant.

After the accident, I called my boss and said, given what just happened, it might be a good time for me to move to the fossil side of the business. I learned a lot by starting fossil power plants, and I really believe that being a field service engineer has prepared me for what I do today.

At Babcock & Wilcox I became a salesman and the youngest district manager they'd ever had. The next step up was regional manager, but the vice president at B&W there said that I didn't have enough gray hair. In sales, I looked at various business plans and my team determined one of the best things to be was in the environmental business, which our parent company, Deutsche Babcock, was involved with in Germany. I put together a plan for the parent company to enter the US environmental space for coal-powered plants and we went from \$0 to \$1.5 billion in backlog by applying the great German technology in the US market.

After a couple of more stops, I was at a water company, called Ionics, and we bought a company for \$350 million, one that GE was bidding on. The interesting thing was that we beat GE, who turned around and bought Ionics for \$1.46 billion, which was about a 45% premium over our market cap.

So now I'm sitting in Massachusetts thinking, "What am I going to do with the rest of my life?" and I got involved with some private equity guys. I was basically the guy who knew the content and they knew private equity and how to build a company.

It was an invaluable experience and I decided that I wanted to do it for myself. In 2003, I was contacted by [SCR-Tech](#) about the president's job at CoaLogix. The reason I took it was because the parent company had \$30 million of cash and no means of support. I had a year to turn it around and, if we did, really make some money for me and our management team.

About a year into it, our parent company said they needed to sell CoaLogix, so we put together a team of potential buyers. Our management team decided to put in a bid, and we selected a backer and bought the company for \$9.6 million in 2007. Our investors told me to build a company that I'd want to work for. It wasn't carte blanche, but they put a lot of faith into me and my management team.

We grew the company and we sold it last year for \$101 million. Our investors made about 4 times their money in less than 4 years during the worst economic times that our country has seen since the Great Depression.

5. What's been the most fun you've ever had on the job?

It's between the first job I had and this one. When you're a field service engineer, they send 25-year-old kids to start up billion-dollar power plants and say, "Call us if you need us." I really liked that position.



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6. As a technology consumer, what's your current favorite new technology?

This is a hard question for me because I'm a geek. I have 2 current favorites:

1. My son introduced me to [Sonos](#), which incorporates all your entertainment into one place.
2. The sale of the company allowed me to buy the car of my dreams, an [Audi A8](#), which is remarkable. It's a technological marvel, all the way through the car.

7. Which key traits and experiences most helped prepare you for the complexities of leading an energy technology business in rapidly changing global and regulatory environments?

A big part is that I've been blessed to always be in areas that prepared me for the next big thing, not by design, just the Lord looking out for me. For example, I had 2 years of experience with private equity firms before I did it myself.

With CoaLogix, the things that really differentiate me and, more importantly, the company, are flexibility, customer orientation, and sales. At bigger companies, the sales guys said they spent 70-80% of their time selling internally and 20-30% selling externally. If you ask our sales people at CoaLogix, they'd say 0-10% of their time is selling internally. They lead the company and, to be customer-oriented, we have to have an organization that's fully behind the sales guys. They get whatever they need as long as they're doing it for the customer.

8. The creation and continuation of CoaLogix has involved mergers, acquisitions, spin-offs. As CEO, what would you advise CEOs facing similar challenges?

I think these are the ingredients for success:

1. *Experience.* You have to have it or you have to get it. In my case, I didn't have the experience but I had friends who did.
2. *Trust.* The management team must trust each other and your customers must trust you.
3. *Open communication.* We have a saying here that we stab you in the *front*. If there's an issue, even a thorny issue, we put it on the table and address it.
4. *Flexibility, tolerance and adaptation.* Sometimes we were headed one way last week and now we're headed 20 degrees to the right. You must have people who can tolerate that type of frustration and adapt to it.
5. *Pick the best.* This is probably the most important. In mergers and acquisitions, you have so many outside people involved – banks, law firms, advisors. My coaching there is to pick the best. Not the best that you can afford, but *the best* who really want to be part of the process. We were very fortunate that we had 3 gold-plated banks who wanted to work with us - Barclays, Goldman Sachs, and UBS. One wanted this deal badly, more than the others. If they're not showing that type of support and sense of urgency upfront, imagine what they'll show later on. Picking the best is absolutely critical.



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9. CoaLogix is headquartered in Charlotte and has resisted offers to move. Why Charlotte?

First of all, we're blessed to be in Charlotte. It's a city that you can recruit to easily. It has everything: sports, theater, restaurants. It's a young city. Housing prices here are fantastic. You can easily be in the mountains or at the shore, and I'm a boater so I can get out on the lake pretty much any time of the year. I live here and I'm in Raleigh all the time. I look at both cities really as one entity because there's so much back and forth. And I think that's what we have to do as a state and a region.

For the business, we deal with coal-powered plants. About 85% of them are east of the Mississippi and, because Charlotte is so far west in the state, we're within a day's drive of most of those plants. It's very important from our customers' transportation perspective.

We've also resisted moving because the workforce here is absolutely amazing.

Number 4 is our vendors. Many of them are in or near North Carolina, and the quality and consistency that we get from them is key. Vendor changes and changes in the ingredients affect the SCR product, and the quality of the product affects our customers' environmental footprints.

Lastly, the overhead. If we built a plant in Ohio, we'd have to put a whole separate management team there. There are more transportation issues, communication issues, all of which are essential. Over the next few years we expect to grow significantly and have plants in other places. But, at this point, this is the right way to go. Full disclosure: I'm on the Board of Directors for the Charlotte Chamber.

10. Which problems does CoaLogix solve for its clients?

Here's the core: Electric, coal-powered utilities need to reduce their environmental footprint. CoaLogix helps them reduce their footprints now and in the future, and at a fraction of the cost. If you bury your problems in landfills, you have a ticking time bomb. About 45% of our power comes from coal today, and that will be true at least for the next 10-20 years. Our world is using significant amounts of coal and we have to make it cleaner.

To get a little more technical, when combustion occurs in a coal-powered plant, [nitrous oxide](#) is formed. It's a greenhouse gas and, therefore, must be reduced. [SCR, selective catalytic reduction](#), is a chemical process that accomplishes that about at 90-95% efficiency. SCR does that by turning nitrous oxide into water and nitrogen, which is 80% of what we breathe.

In an SCR, massive amounts of catalyst [*Catalyst looks like huge, rectangular honeycombs.*] are deactivated in this process because constituents [in the coal deactivate the catalyst](#). Every 3 years or so, CoaLogix replaces the deactivated catalyst with catalyst regenerated using SCR. Without our process, when this catalyst decays, it is no longer effective and the entire catalyst would go into landfills and have to be replaced by new ones. The amount of catalyst in landfills annually equals 50,000 cars/year. To put that into perspective, Panther Stadium and the lots around it would hold about 10,000 to 20,000 cars on a game day.

We do that at a fraction of the cost of new catalyst. The result is cleaner air, cleaner ground, and it costs less. [*CoaLogix' [video](#) explains more.*]



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11. This is an NC technology association interview, so tell us about CoaLogix's technology.

First and foremost, technology is nothing without execution and people. The people are the most important ingredient. Every catalyst and plant is different. When we get a catalyst that is deactivated, we have to clean it, take off the poisons, and regenerate it. Every recipe is different. Our engineers have to decide which recipe will take care of the poisons and the bindings and, then, which recipe to use to re-impregnate the catalyst. Then we have wastewater and we have to figure out the recipe to clean that water.

Three separate recipes. You can imagine the amount of technology that goes into that. We have some of the most advanced equipment in the world to analyze those catalyst, and we're currently building a 10,000 square foot laboratory here at Steele Creek.

Our engineers are primarily chemical engineers, but we have mechanical and one nuclear engineer [McMahon]. This technology came from Germany 1996-97, and, over the past 15 years or so, we've developed a huge database of what works and what doesn't work under different circumstances. It takes a lot of very smart people with a lot of experience to look at where we've been, where we're going, and how to apply this technology.

On top of that, we have computer programs and proprietary software so we can predict what's going to happen to the customers' SCR and catalyst with different coals and all the different things I talked about before.

12. What's happening in your industry that interests you the most?

Increasing regulatory consistency. We're regulation driven. Where are the tightest nitrous oxide regulations in the world now? China. They're at 100MG of nitrous oxide/cubic meter. The US is at 130. The EU and Japan are at 200. The Chinese market is 4-6 times the size of the US market. That's one of the big things that happened - regulation in China went into effect the past year.

In the US, [CSAPR](#) is the cross-state air pollution law. People say regulation is good or bad, but we must agree that uncertainty is terrible, and our customers are living in a hugely uncertain time.

I was in China and one of the higher level government officials said their fleet of coal-fired boilers was 18% more efficient than the US fleet. How could that be? It's because we haven't built anything since the late 1970s. With modern plants, there's a potential 20-30% efficiency gain, which means we'd burn 30% less coal. That's a huge difference. We don't let our companies do that because it's not politically correct. Duke tried to retire 1200 MW of coal-fired facility and install 800MG new one and they got unbelievable pushback.

In 5 years, I think the average consumer will be paying 2-3 times more in their electric rates. I also believe we're not building enough for the future, for when the country starts growing again. It takes 10-15 years to put a nuclear unit on line and 8-10 years for a coal plant. Based on this, I think we'll have rolling blackouts. The technology needs to come around to build them faster and make them cleaner. Not surprisingly, I also support nuclear power.



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And we need to use less energy. Today it's not in our DNA. For instance, plasma TVs take about 3 times as much energy as cathode ray TVs.

13. CoaLogix won [Platts Global Energy Awards in 2008-2010-2011](#), and [NCTA's 2010 Green Tech award](#). As CEO, what are you doing that makes your company stand out?

We really don't work at winning awards. We've been blessed by having a great story to tell. The media loves the story because we're green in so many ways. And green costs less in our case. All those things together have really helped tell our story. We have groups of leaders here in Charlotte, talking about what the next energy policy should look like - the head of Siemens, Shaw and Babcock & Wilcox. Then here's a relatively small company, CoaLogix, dealing with these behemoths. We're in that crowd because we think a little differently on the entrepreneurial side. And that's how we're changing things.

14. What do you do to encourage high-level engineering innovation at CoaLogix?

It's not just engineering innovation. It's innovation across the board. It comes back to the people, letting them do their jobs. We have so many great people and they keep asking why. And asking what the customers want.

Our people set goals and look at the industry in a different way - where are we going to be in 2 years, in 5 years, and what do we need to do to get there? Our people say, "I think we can do that." A big part of the 10,000 square foot lab is for R&D, so it's very, very important for us. We're setting goals for new catalyst that customers will need in the future, not for today.

15. How is CoaLogix involved in NCTA?

We're marginally involved now, not as involved as we should be or want to be. We joined NCTA about the same time we were going through the sale last year, and we became much more inwardly focused during that period. Now we're bringing in two PhD chemical engineers and a new CTO. It's my goal to have those people much more involved in NCTA than I've been able to be. I'm very happy about NCTA being more actively involved in Charlotte.

*Bill McMahon is President and CEO of [CoaLogix](#).
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