

## The SPE-GCS Podcast “SPE’s Journey in the Pandemic” Transcript Tom Blasingame – 06/02/2021

Total Word Count 5688  
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WPM 155

### Marty Intro Word Count 244

**Marty:** Hi everyone, and welcome. I'm Marty Stetzer, President of *EKT Interactive* in Houston. We're proud to be the podcast sponsor for the Society of Petroleum Engineers Gulf Coast Section. The section was founded in 1935, and now has over 11,000 members. It is a volunteer organization that provides member forums to upgrade and maintain professional competency.

This podcast is part of our series and another learning resource available to the members. Numerous on-demand webinars can be accessed at [www.spegcs.org](http://www.spegcs.org).

Today, our topic is “SPE's Journey in the Pandemic” and I'll be speaking with Dr. Tom Blasingame, the 2021 President of the SPE and holder of the Robert L Whiting Professorship in the Harold Vance Department of Petroleum Engineering, at Texas A&M University. We're happy to have his input on this topic, especially at this time of unprecedented developments in our industry. Tom, thanks so much for taking the time.

**Tom:** Thanks, Marty. It's really my pleasure to be here, and to your listeners, I thank you for your time. And mostly, Marty, I thank you for your effort in guiding me and helping me to prepare for this event. It's been a very fruitful experience. Thank you.

**Marty:** You're very welcome, Tom. Can we start our discussion with your background and ambitions as SPE President, then cover a series of current oil and gas topics, and your perspective on energy transition in a post-pandemic world relating to our industry.

### Tom Word Count 893

**Tom:** Sure. This is a story, and it's mine, so I'll tell it as effectively as I can. I'm a teacher. Okay, a professor. But, I really prefer the term teacher. I began with my first course in 1983. I later taught a few undergraduate courses and then co-taught a graduate course and became an assistant professor in 1991.

I believe that my career challenges often stem from putting students first. I looked at teaching and graduate research supervision, or looking at our former students, as we call them, our alumni. I'm really passionate about students. As an example, I had a role where I had to be a student advocate, which led to some challenges with senior faculty. And as guidance—you never tell a faculty member what to do, especially the senior faculty. But, I had a job to do and although it's ancient history, I have to confess that if I'd have played the "game" quote/unquote, I might've had a few more toys sooner, but so what.

My SPE journey prior to 1991, was really about papers and conferences and being very aggressive about those things. These are the currency of a graduate student or young researcher. In 1990, I was asked to be on the old SPE Education and Professionalism Committee, and I guess I made a

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lot of noise because when the Chair retired, or stepped down, they asked me to replace them. And, I was honestly like a fish out of water. I was basically just a kid. But, I have to say that the senior professionals, older faculty in particular... and older members, they always treated me with respect and collegiality. They were extremely supportive. I'd have to say that was the most fond memory of my early career... was that kind of collaboration and kindness that I was shown.

And most of the 1990s were this kind of service—a few forums here, education colloquia. I eventually chaired some. These were great times, but honestly I never said no to anything, and it just seemed like more and more kept coming my way. In the early 2000s, the SPE staff were trying to get some things going in Latin America, and I don't even recall why or how, but they came to me. They asked me to help generate this activity and engagement in Latin America and in Mexico. And, I used to travel there so much that my kids would assume that anytime we passed the airport in College Station, that I was either going to go to Latin America or Iran. And I understand Iran is probably a surprise, but I was doing some education and cultural exchange assistance work in Iran at the time. But, it was funny that every time we passed that airport, one of my kids would say, where are you going?

I've literally lost count of how many times I've been to Latin America. It's probably easier to say the countries I haven't been to. In the mid 2000s, I was asked to help organize SPE's foray and unconventional. I'd been working on unconventional for a long time, or at least tight reservoirs, or very low permeability reservoirs. And this experience led to me chairing every SPE conference on unconventional, including UR Tech. And I don't say that as a badge of honor. I'm saying it because I never said no. I was at the right place, right time, and hopefully the right person. I also did a lot of workshops on unconventional in the 2000s as well. And, I hate to say that it was easy, but it really was because I built these really great committees, and the industry was really absolutely engaged on unconventional. So, it was kind of fun actually.

Later in 2015... 2018, I served as Technical Director for Reservoir. And I want to say that was some really tough work. There are a lot of procedural tasks in a role like that. There's also a desire to try to help map the future of the discipline. It was probably one of the hardest, and certainly one of the most intense roles I've had in SPE. There's a lot of... it's not political, but it's administrative work where you have to get projects or initiatives passed and started. But, it was part of a role and the technical directors, they're a critical component of the technical mission of SPE, so I really felt strongly that I needed to be part of the alignment of that mission.

And, as a comment, I prefer really large committees, sometimes over a hundred people. I believe that having a lot of people makes the work go a lot faster. And, I also don't mind, and actually appreciate, dissenting and opposing opinions as long as their relevant.

SPE has been a great place to learn how to work and to manage and to achieve, really from ground up. And frankly – this is my own personal experience – in my career it would have never been the same, would have been actually pretty poor, without my SPE work.

And I really, if I leave your listeners with something, I hope everyone listening is inspired to serve in their way and in their time like I was. I think that's enough for me on that one, Marty. Thank you.

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**Marty:** Tom, in one of our previous conversations as we build out the podcast, you said, "My stated goal as SPE President is to engage, enable, and inspire every member to a higher level of technical and service performance." So, what are your goals and aspirations? And how do you plan to achieve them?

### Tom Word Count 1156

**Tom:** Marty, I probably need to distinguish between goals and aspirations. Goals are things that are tangible. These are tasks that one can state, and then demonstrate mastery and completion. Aspirations are more intangible... but in my case, I'd say that my aspirations are inspirational. I want to use my time as SPE President to inspire to aspire.

A little bit of this is a look back, because my goals have evolved, certainly during this past year during the pandemic. But, I would say that if you ask me, my goals specifically as 2021 SPE President, these are **my** goals. They would be to have the SPE Board of Directors focus on long-term issues relevant to the function and to the success of SPE. Examples would be to establish grand challenges for each discipline. Seems relatively easy—it's been done in the past. It probably needs a rethink. Developing a knowledge extraction tool for OnePetro, very selfish on my part. I think there's an enormous amount of knowledge in OnePetro, and I want people to have access to that. And, I would like to see us utilize some sort of a tool to extract it.

And then, creating a long-term plan for membership and member engagement. And admittedly, this has probably been the most significant thing affected by the pandemic. I'm not saying we've lost of how our membership planning is going, but it's really difficult to make plans whenever people are losing their jobs, and they're having other issues... with not being able to engage as much as they would've liked to.

And then, to have the SPE staff to start to focus on short- and mid-term initiatives relative to publications, meetings, member engagement, things like that. And, I was kind of hoping that we could create some sort of a, not a LinkedIn light, but our product is called SPE Connect, but sort of a next generation SPE Connect that could be more tangible in how people exchange.

We could also have protocols for improving the quality of our publications. And to me, that's a big thing. But, everything that I'm seeing, the throughput on publications, the engagement on publications, it's excellent. And, I want to commend the staff and our army of editors and reviewers for that.

I made a promise to go anywhere and everywhere so that I can listen, observe, engage, encourage our members. I'm not a cheerleader. Anybody who knows me knows that.

And I'd argue that I'm probably not even a very good teacher, but I do believe that I'm a world-class motivator. Some people might use a lot less polite word than motivator, but if I get your attention, then I can motivate you. And I'm pretty good at getting people's attentions as well.

I like to invite open and direct input from our SPE members on what they want and how they commit to achieving a given desire. There's no free ride with me. If you want to do something, you'll have to earn it and you'll have to own it. But once you engage, I'll provide whatever support and encouragement I can to enable your success.

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Specifically, my aspirations as the 2021 SPE president are – the big picture – to be a faithful industrious servant. God knows I've done the best I can. I have no personal ambitions in this role other than to create a vision of what the future energy should be for this planet. This vision will not come from me alone. I'm confident your audience will try to listen and think, "What's he really getting at?" So, okay, I'll come out with it. Am I submitting to wind turbines, solar, thermal, photovoltaic, hydrogen economy that will evolve over the next 100 years, hopefully sooner?

Well, yeah, I am. I believe many of those things will happen and a renewable energy mix will dominate. Won't be in my lifetime, but it will. And for petroleum engineers to assume it won't is both arrogant and unrealistic. However, it's not going to happen tomorrow or next week or next month or next year or even in the next decade. We have time. We haven't used that time in the past to develop relationships outside of our own discipline and outside of our own resource. We need to do that.

Even if we could utilize renewables today at full capacity, the infrastructure to adapt these would take several decades. Are we to just stop producing oil and gas while we wait for this to happen? Of course not. We live in a world where energy demand, including oil and gas—it's continuously increasing. Even the most aggressive scenarios state that oil and gas will be a dominant component of the global energy mix for at least the next 40 to 50 years. Not to mention using oil and gas as feed stocks, that's opposed to fuel. There'll be petroleum engineers in 100 years? Yeah. Of that, I'm pretty certain.

My professional ambition or aspiration? I believe that every SPE member has at least one truly outstanding and unique paper that currently resides in their head. As SPE president, I want to encourage, I want to challenge, I want to beg, I want to bribe cajole those members who are ready to get that paper written in the next 12... 18 months to going ahead and write it. I challenge the young professionals and the senior professionals to do this by the end of 2021 or maybe 2022. And look, I'm not talking about some sort of incremental work. I'm talking about some revolutionary or evolutionary idea that you have that would add significantly to our body of knowledge and the petroleum literature.

My personal aspiration? I want to use this role to inspire people, to engage to their maximum capabilities, and to enable others to do the same. Let me give you an example. Those of us who are older need to focus on teaching, training, mentoring, and inspiring our younger generation. At the same time, however, the younger generation needs to realize the burden of the responsibility we have as petroleum engineers. This is a very difficult job and we have a responsibility to give it our very best effort.

First and foremost, hey, look, we're well compensated because our jobs are harder. The hours are longer, the challenges more significant, and the outcomes more uncertain than any other engineering discipline I know of. "Data analytics" quote/unquote is not going to produce more oil and gas, but people are. Being enamored with data is just part of our job, but often we have very sparse datasets. When confronted by missing data, we must rely on our experience, intuition, and skills to make important decisions. My personal goal is to inspire all petroleum professionals to engage in continuous learning and specifically to develop and maintain skills sufficient to master any challenge that Mother Nature can throw at us.

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**Marty:** Tom, your perspective is SPE president was really valuable to our listeners, but now with all these new events affecting the industry, can you give students some advice on what they should be doing when starting a career, and what are some of the requirements?

**Word count 867**

**Tom:** Marty, I receive this question often and... it is a challenge to give general advice because every student and every situation is different. I know that seems like I'm building up to some sort of a qualification in my answer, but I want everybody to realize that literally every student in every situation is different. You have to adapt to their circumstances whenever you're evaluating them, or giving them guidance for mentoring, or other purposes.

The reality really is that the industries changed. Fewer people will be performing more work, and our next generation, they will have to handle at least two, if not three disciplines while functioning more autonomously—that is with less direct guidance. Three aren't going to be guys like you and me everywhere to help.

This evolution, it's happened before, but ours is a capital and labor intensive industry. Many companies will pursue a heavy emphasis on automation and the autonomy of personnel, but still require engineers to communicate and specifically to focus on deliverables rather than tasks. Again, this is evolutionary—it's happened before. For example, the 1960s when computers began to replace traditional hand calculations.

A considerable portion of my time is devoted to mentoring, that is (undergraduate students) and direct supervision (graduate students). And again, I have to say, every person is different. I can say that initiative and innovation are essential in the future. You have to be willing to move first and to be as creative as possible. Many people ask me about the best way to find their first job. And my answer is always simple: Your first job is just a place to start. It may be a good place, or it may not, but it is your first job and it will not be your last.

In a recent mentoring session I listened carefully to the student's goals, their expectations, and the options they had available. The student had at least one offer they believed was pending and another one or two offers that were possible, but none of these were what they wanted for a career.

I found myself in an almost 40-year flashback to a similar experience, and as I struggled to say something profound, I just mentioned, "This is your first job. It'll lead to where you want to go." The person in question is highly self-motivated and was concerned that his role, while potentially very rewarding financially... they would not have the influence with management – because it's a boutique-style engineering company – where most of the people have worked there for the majority of their careers.

I told the student in their next interview, if they get one, was to ask the most senior person, how can I – as a new employee – bring fresh ideas and fresh practices in this organization? And since it's a fairly small company with only a few hundred employees to ask for a meeting with the CEO. He had actually met the CEO before. And I said, "Do this before making the decision whether or not to join the firm, if you're actually offered a position."

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My advice probably seems kind of arrogant, especially since my patented advice is to take whatever job you're offered right now. But if you know you're not going to be doing the kind of work you eventually want to do, what's the harm in being a little bit bold? Because once you're in, you're in, and the company's not going to change, but asking upfront how to make changes—what's it going to hurt?

So companies like people, they've got to evolve. So I'm going to ask everyone listening to think about these questions. Am I willing to work earlier, stay later than everybody else? This is about commitment and work ethic. It's not about harming your home life, but again, are you willing to get to work earlier and stay there later, and basically work your tail off? Being the busiest bee in the hive.

Am I willing to devote at least one day of the week of my own time to self-learning? And some of this, you could be in consultation with your boss and use some time at work as well, because they're probably going to appreciate that.

Am I able to generate innovative solutions for complex problems at work? And if not, then you either need more education or more experience or both. Trying to be innovative without the skills to develop something, it's not going to work. You're either going to need more education or more experience or both.

And am I willing to speak truth to power? And yes, this is really unfair to ask of any entry-level employee, lower-level employee. But realistically, you have to be able to do this. It may be a short career at a given institution, but you have to be able to speak truth to power.

Look, I'm going to make it really simple. There's no straight lines to becoming truly successful. You have to adapt. You have to overcome, and you have to put the organization's best interests and the interest of other people ahead of your own. I think, Marty, that's how I'd close that question.

**Marty:** Tom, in your first JPT editorial you were on record as saying the SPE must facilitate the energy transition. This obviously implies that our students and young professionals must develop skills in renewables and sustainable energy sources. How do you suggest they best develop these skills?

### Tom Word Count 568

**Tom:** You know, Marty, you're not giving me any soft balls here. This discussion for some will inevitably lead to, "We should all become chemical engineers and get PhDs." Nope, that's not what I'm saying, but I do have to lay the groundwork. The critical path for energy transition is to know our role and to look for ways to evolve, innovate, and to create into a less-defined area. The concept of an “energy mix” implies that these energy sources are independent of each other. This is the wrong way to think. We need to focus on an energy mix that's interdependent.

Frankly, the energy marketers are way ahead of us on this. They understand that being able to predict near-term energy trends – and that is the next few days to a week – that's critical for managing purchase prices. The ability to understand factors for mid-term energy needs – that's months – that's critical to managing opportunities and optimizing capacity and cost. And the prediction of long-term energy needs – that's years – is essential for understanding and prioritizing energy resource investments.

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So, enough with philosophy. Students and YPEs in the energy industry will have to master at least two disciplines. I already said that ... probably three. So energy transition, it'll require a knowledge and skills transition as well. We see this now as many students and YPEs, they rush into machine learning and artificial intelligence domain... that's the terminology of today. We would have called it statistics, but it's artificial intelligence and machine learning. I believe that another major area of emphasis will be the integration of energy systems, and while it's not too prevalent in the oil and gas section, it's the integrated energy systems are a strong field of study and practice in mechanical engineering, typically in terms of optimizing energy use in buildings or other energy-consuming systems.

Imagine, like with energy marketing and energy trading, your goal is to assign the most appropriate energy resource into a given device of system, for example solar heating for buildings, natural gas as a backup resource. Such integrated systems ... It may seem obvious or even boring, but they used to have enormous implications in utilization and optimization of energy source and consumption. In addition, many of us in the oil and gas industry, we're going to have to have transferrable skills. For example, those in drilling and production can merge into mechanical systems. That's machinery, piping, heat transfer, et cetera. Those in reservoir modeling can merge into modeling of other systems. Oil and gas property evaluation, which we typically classify as reserves, they can merge into energy systems management. Reservoir engineering, it can merge into geothermal, solar heating, carbon capture utilization, renewables.

Even things perhaps like hydro and tidal energy, and certainly the matter of how we would develop, harvest and store hydrogen, which is of course our ultimate resource; those could be done by reservoir engineers as well. Petrophysics can emerge into geomechanical systems cutting across many scales, nano, micro, all the way up to the mega scale. So I really think we have plenty of transferable skills, it's just a matter of how we prepare for that. And again I just want to remind everyone; I said this many times now, that the petroleum engineer of the future or the energy engineer of the future is going to have to master at least two disciplines and probably three.

**Marty:** Tom, you earlier gave some good coaching points for students looking for a position in the industry. What do you believe are the three most significant challenges and opportunities that young professionals already in the industry will face during their careers?

### Tom Word Count 577

Tom: So Marty, I think the challenges, they're fairly obvious. But the opportunities will be the best in our history. You know, here goes. We have three challenges for young professionals. It's going to be a much tighter landscape in traditional petroleum engineering. You must distinguish yourself somehow. You must have some capability that distinguishes you in the petroleum engineering field. It's going to be more difficult to access capital, at least at present, and for the foreseeable future.

I understand the markets are looking at green investments and so forth, but let's be honest. The markets are looking for cash flow, and they're going to come back to us when they see that we can deliver cash flow and whenever we have adapted to a more carbon future. I think that that is an obvious thing for young professionals to realize, so that's not going to go away. I think there's going to be much more public scrutiny of oil and gas as an industry, and we really have to not only engage but we have to align with the public. We have to enter into a partnership with the public to assure them that what we

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do is relevant, that we are careful, and that we are absolutely tending towards a better, lower carbon future for everything.

Then the three opportunities for young professionals; much tighter landscape in petroleum engineering, yes, that's true. But it also creates an opportunity. Those with the best skills, the best work ethic, and those willing to take creative and financial risks will reap tremendous rewards, so think about that for a minute. The opportunity to engage and facilitate energy transition, the paths will evolve, but late adopters will not be as successful. That's a strong statement. That means SPE cannot afford to be a late adopter. We need to align our education, our skills, our experience with a progressive view on energy, and in particular with on how oil and natural gas are transition fuels, in particular of course natural gas.

Such opportunities will require significant competence and core energy knowledge and skills, but also the abilities to engage and adapt to new energy scenarios. In short, this will be difficult to do "by design," but a strong technical background and exposure to multiple energy resources will be essential. Look, as we go to the last one, it's going to be a bullet. But the opportunity to create new energy models from the ground up is the single biggest opportunity for young professionals. Let me repeat that; the opportunity to create new energy models from the ground up.

I'm not saying conventional oil will dominate the market indefinitely, but it very likely will. I'm not saying unconventional oil and natural gas are the future, but they are. I'm not saying gas hydrates are the future, but these may be if they can be proven to be commercial viable. I'm not saying geothermal is the future, but it will eventually be a much bigger contributor assuming, in parentheses, that they can get the well costs down, and the system costs. I'm not saying that energy resource management will be a new discipline, but it will. And I'm not saying that hydrogen ultimately is the future, but it is. So these are the challenges and opportunities as I see them, and really young professionals need to decide how they're going to adapt to the challenges and take advantage of the opportunities, Marty.

**Marty:** Tom, at this point, it would be good to remind our listeners about how lives have been improved by our industry. Can you take a couple minutes and give us some of your thoughts?

**Tom Word Count 440**

Tom: You know, this question always gives me the heebie-jeebies, which is a technical term. There's no easy way to quantify or to try to quantify lives improved without incurring the wrath of those who believe our cause is not just. I just prefer to avoid those kind of arguments, particularly since perception is reality for the person holding a particular belief. Instead, I'd like to try something a little different and that is what I call the It's a Wonderful Life view. That's after the 1946 movie, excuse me, by the same name. In this view, imagine life without oil and gas. Not simply the products and services that oil and gas provide, but also the lives impacted.

And while there's no doubt that there are cases where oil and gas had an adverse effect on certain societies, that is things like indigenous populations, theft, corruption and even pollution, as well as its role as a high-carbon fuel, the overwhelming reality is that oil and gas do mitigate poverty, and they do improve lives by providing an essential resource that is secure and affordable. Again, I respect



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all believes. Make no doubt of that. I respect what a person believes. So I don't want to argue on a belief system, but I'd rather look at what life would be like without oil and gas, so here are a few thoughts.

It's a wonderful life, oil and natural gas. Imagine our ability to produce food without oil or natural gas. Imagine transport, local, regional, national, global. Imagine those without oil and gas, imagine consumer and other essential products without oil and natural gas. Imagine medicine and food products, again, without oil and natural gas. Lastly, imagine electrical power generation without natural gas. So, Marty, I think we can say conclusively that our industry improves lives, but we still have a long way to go. There are approximately a billion people that don't have access to electricity. There's 3 billion people who don't have access to safe and secure means of cooking. There's a couple of billion people that don't have access to safe and secure food. Another billion people don't have access to secure housing. These are real numbers... and to ignore the role that energy has, would be a mistake. And I want to inspire our younger generation to go out and look at those numbers and to look at the impact that our industry has.

**Marty:** Tom, your last comment is a good lead in to what we thought about closing, with your thoughts on future perspectives for the oil and gas industry. Can you take it from there?

### Tom Word Count 559

**Tom:** Sure. Thank you, Marty. And I want to say to everyone listening, that's a tough order, but I'm going to give it a try.

So the future of the oil and gas industry, our best years are ahead of us. We are an essential industry and our resources and our role are crucial. The industry will continue to consolidate as financial and competitive pressures remain. Everybody knows this. In the next five to 10 years, investments in equipment-related technologies will lag. People simply will not invest in equipment-related technologies. In the next five to 10 years investments in automation and artificial and augmented intelligence, they're going to surge. This is doing more with less people. We're going to have to rely on automation. And I personally believe there's likely to be a pinch point in supply in the next 18 to 36 months, due to a lack of exploration and development, that's happened in the last five to seven years.

The next 20 to 30 years, natural gas will emerge squarely as a transition fuel, passing oil by something like 2050 to 2060. You can put a window there, but it will pass oil in that timeframe. The evolution of the energy industry? These are my thoughts in random order. Energy sources, they're essentially the batteries, the denser the energy the better. Ultimately in that case, hydrogen is going to win. Oil and gas are the essential transition fuels for energy transition. Wind, and in particular solar, they're going to win their renewables race. Tidal could, and probably should be competitive, but a lot's going to depend on where people are allowed to install it. The cost of geothermal wells, that is completion, facilities, the wells themselves... it has to come down by 50 to 75% to be competitive. The energy market in 30 years time will be more diverse, but hydrocarbons are still going to dominate by two to threefold.

Oil and gas energy companies are best poised to lead the energy transition. And then I end with a question—But will they? And while I'm often asked to talk about the future of the discipline, I also want to remind everyone listening that we have to focus on the tasks at hand this year. These are this year's numbers, 2021. We will need to produce approximately 97 million barrels of oil per day. That's EIA estimate, last month. We will need to produce approximately 4.4 billion cubic meters per year, or about 0.4 TCF per day. That's IEA right now, this month, February. We will need to transport more than

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500 billion cubic meters per year, or about 0.5 or sorry, 0.05 TCF per day, as LNG. Again, report this month, right now.

Also the US DOE Energy Information Agency, that's the EIA, in their 2021 Annual Energy Outlook predicts that "Petroleum and other petroleum-based liquid fuels will remain the most consumed fuel in the US before the year 2050." And yes, I realize that such predictions are regional. In this case, the region is the US... and they're replete with all sorts of uncertain factors and assumptions. But the reality is that oil and natural gas will remain an essential resource for a very, very, very long time, especially in regions like the US where unconventional and conventional oil and gas are both abundant and secure.

**Marty Wrap Word Count 113**

**Marty:** Tom, this was terrific. I sure learned a lot. Thanks so much for your time and your insights. They will definitely be valuable to not only the SPEGCS audience, but our own community of 10,000 EKT Interactive listeners. If you want to learn more about the SPEGCS upcoming or on-demand events, again, go to [www.spegcs.org](http://www.spegcs.org).

I'd like to thank everyone for listening. Our company name *EKT Interactive* stands for energy knowledge transfer. We focus on digital capture of the extensive knowledge of industry experts like Dr. Blasingame.

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