



PESA News

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IN THE NEWS

Save the Date: Annual Meeting

PESA's signature event, the PESA Annual Meeting, is set for April 11-14 at the Hyatt Regency Scottsdale Resort at Gainey Ranch in Scottsdale, Arizona.

A brochure detailing the complete array of events will be mailed in early 2012.

EVENT CALENDAR

Explorers Award Reception

Nov. 16, 2011

5:00 p.m. to 6:30 p.m.

Lakeside Country Club

FYI: Oxy Oil & Gas will accept the award and ten executives will attend to network with PESA members, including:

William Albrecht

President, Oxy Oil & Gas

Stacy Palmatary

Vice President, Supply Chain

Jeff Bennett

Director, Supply Chain Management

Richard Jackson

Vice President, Drilling Americas

Jeff Simmons

Vice President, Subsurface Engineering

Vicki Hollub

President, Permian CO2

Michael Land

President, Permian Prime Development

Bill Roby

President, Mid-Continent

Joseph DeDominic

President, Williston

Ron Brokmeyer

President, South Texas

2012 Supply Chain Seminar

Feb. 1, 2012

InterContinental Hotel Houston

FYI: Speakers TBA

PESA Executive Address Series

Feb 28, 2012

Westin Memorial City

FYI: Speaker is John Grempp,

President & CEO, FMC

Technologies, Inc.



PESA's Foreign Service Officer training program has graduated 470 representatives of the U.S. government over nineteen years. This year's class spent a week touring a number of PESA member companies.

Here, Carla Bock, Department of State, looks inside an armoring machine at Oceaneering's High Performance Cables facility.

For a photo essay on this year's FSO Training, see Pages 6 and 7.

FSO Training 2011

Government, industry must team to meet future demand

Security of energy supply is the most vital, but complex challenge faced by energy importing nations around the globe.

"Today, the world faces critical challenges, including weak economies, high unemployment, and growing global tension fueled by differing political views," says Gretchen Watkins, Vice President of International Production Operations for Marathon Oil. "No matter what those political views are, one thing is certain: economic growth requires abundant, reliable, and affordable energy—the key elements of energy security."

Speaking to PESA members and Foreign Service Officers, Watkins discussed the realities of meeting the nation's energy needs while maintaining energy



The FSO Membership Dinner's three presenters were PESA Chairman John Grempp, Marathon's Gretchen Watkins, and U.S. Department of State's David Henry.

security. She also delivered key elements of what she believes is an effective and achievable U.S. energy security plan.

"The geopolitical and environmental challenges we face must be addressed as we seek to moderate our dependence on crude oil, while at the same time sustaining our economic growth and our global leadership," she says. "The measure of our success will be determined not only by our technical abilities, but also by our political will and commitment to long-term

solutions with both industry and government working together."

Global Complexity

There is no quick or easy solution, says Watkins.

Some believe that a quick reduction in fossil fuels will lessen the nation's dependence on other countries, some of which are struggling to stabilize their governments. Watkins says that while there is some logic in

The crew change is coming, but what have we done about it?

In early October, 25 industry companies descended on Beeville, Texas with the hope of hiring enough workers to satisfy the growing boom in the Eagle Ford.

Prepared to hire on the spot, the companies sought to bring 900 new people to the industry. This was but one of several job fairs held in South Texas in the past year ... more are held regularly in other boom spots including Wyoming, North Dakota, Canada, and the northeast.

As we continue to prosper in a post-downturn environment, short-term hiring challenges like those in the Eagle Ford will continue. Some would argue that the pains of expanding our businesses are nice problems to have following 2008 and 2009. But I think it underscores and foreshadows the looming talent issue.

"The big crew change" is still coming. The average age of workers across all sectors of the industry is about 50 years old, compounded by the fact that there is a shortage of mid-career employees to take the helm as the older generation retires. So far, this has meant that our current younger generation has taken on greater responsibilities and more senior roles than would have been typical in an ideal workforce. Again, so far, our younger generation has been successful in their accelerated roles.

The issue is that we not only have to backfill our current generation but also create the mid-career employment pool missing from our industry for 20 years. Further, we must hire in the midst of a reputation crisis—despite the high pay and challenging work, too few graduates seek oil and gas as a first or even second choice.

PESA's Effort

We've discussed the anticipated talent shortage for five years or more. We know it's coming, and we know that simple recruitment won't be enough. So what is the industry doing to help itself?

PESA, for one, is working to solve the problem on multiple fronts via the Energy Educators Committee. The association's education outreach began in earnest several years ago, and has steadily ramped up with each succeeding year.

The largest of PESA's programs aims to



PESA Chairman John Grempe (FMC Technologies, Inc.)

encourage high school students to enter the oil and gas industry. Partnering with IPAA, the association helps to support three Petroleum Academies in Houston—Milby, Westside, and Lamar High Schools—all of which focus on a math and science curriculum.

Throughout the year, PESA provides dozens of guest lecturers to each of the schools in nearly every business discipline. Engineers, geoscientists, and other experts from member companies volunteer a few hours to share and discuss their expertise and experience in oil and gas.

PESA also sponsors the annual externship dinner for the Academies. For three weeks this summer, 62 students worked as externs with industry companies, attending executive meetings, testing equipment, learning new technology, and essentially getting a preview of working in the industry. Upon completion of the program, each extern receives a \$1,000 scholarship from the companies where they worked. Each student now wants a career in oil and gas.

Further, PESA presented two \$5,000 scholarships to this year's academy graduates.

Another way PESA supports the Petroleum Academies is the recognition of

teachers who exemplify excellence. The award—dubbed the PESA Teacher of the Year Award—carries a \$10,000 stipend, distributed to the teacher and his or her school. Pat Bond (Schlumberger) presented the award to Kimberly Myers of Westside High School at the IPAA annual meeting.

Based on the World Affairs Council's "World Quest" program, PESA co-founded and sponsored the first Energy Quest—a competition in which students from 14 schools and five districts were quizzed on energy topics. Foster High School won the first contest, and every school involved asked that we repeat the event. This year's Energy Quest is set for Nov. 9 in northwest Houston.

These, of course, are just part of our education programs. PESA also provides guest lecturers and speaking events at the university level, sponsors education materials targeted to the elementary and junior high level, and supports university scholarships.

Your Turn

The problem, as many see it, is that recruiting young students into the industry is one of perception and reputation—oil and gas has a reputation as an environmentally unfriendly and unchallenging career. While we know reality to be 180 degrees from that sentiment, we need to spread the word.

An effective means of changing a student's mind is for him or her to simply meet someone from the industry—someone who can relay what it's like to be a part of one of the most technologically advanced industries in the world. PESA's work in area schools is the perfect opportunity to place a lot more faces in front of students.

However, these programs, like all other PESA initiatives are successful only with the support and help of its member companies. If you would like to volunteer to speak in a local school, act as a judge at Energy Quest, or if you have a/v material that PESA can use in schools, please call the association's office. The work you do now could influence one young person to choose a career in energy, which means one less person needed at events like the job fair in Beeville.



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Petroleum Academy students sample future careers in oil & gas

High school students from Houston's three IPAA Petroleum Academies experienced their futures this summer.

For three weeks, 62 students from HISD's Milby, Westside, and Lamar High Schools worked as externs with industry companies, attending executive meetings, testing equipment, learning new technology, and getting a sense of the industry.

Alex Barbieri worked at Halliburton, shadowing vice presidents and global market managers. His parents say that in the three weeks that Alex was in his externship, they noticed tremendous growth and enrichment.

"We've all heard the saying that it takes a village to raise a child—I feel that I am in partnership with Halliburton, the teachers, and the principals that have allowed him to have this opportunity," says Alex's mother. "It doesn't matter how many times we tell him as parents, or how many examples his teachers can show him in a classroom, it's another thing to experience it. Halliburton made it possible for him, and I really appreciate it."

Jeff Judah says his son, Kyle, had a fantastic experience at Marathon Oil.

"He was already interested in engineering, but talking to someone who is already at that level, talking about the science and technology, solidified his decision," says Judah. "After the first day, he was already talking directional drilling and physics. By the third day, he told me, 'this is what I want to do, and I have an understanding of what I

need to do in college.' This was a well-organized program—he had something to do every day—I know that's a lot of work and we appreciate it."

Upon completion of the program—externships require at least a 3.0 grade point average—PESA hosted an awards gala for the students and their families at Brady's Landing in south Houston. The gala was emceed by PESA Energy Educators Chairman Pat Bond (Schlumberger), and the featured speakers were IPAA President and CEO Barry Russell and HISD Chief Academic Officer Dr. Aaron Spence. Each student received a certificate of completion and a \$1,000 scholarship from the companies where they worked.

Spence says that while Houston is the energy capital of the world, and some HISD schools are located next to oil and gas businesses, many kids never considered a career in the industry until this program.

"Through these externships, you are now working with executives, geoscientists, engineers, and learning what it's like to work for a company in this field," says Spence. "The work you've done today, whether it's learning drilling operations, building robots, or using cutting-edge mapping software, it's preparing you for college and giving you a foundation you need to be successful in this field."

The experience was eye-opening for the students—upon accepting their scholarship at the banquet, each student had the opportunity to address the crowd and explain their favorite parts

of the program. At first, some were disquieted to learn that they would shadow experts in areas that sounded too simple at the outset. This included John Joj, who worked at Cameron.

"We talked with a welding engineer—we figured that welding was just sticking two pieces of metal together—but actually talking to someone who knows what he's doing and the depth of engineering that it requires was challenging and makes me want to pursue engineering even more," says Joj.

Brian Corzo had a similar experience with mud engineers at Halliburton.

"I was told that I'd learn about mud—I thought, great, we're mixing water and dirt together," he says. "Of course now I know that it's water and oil based, and used for controlling drilling temperature and well control. The opportunity to learn what I didn't know was amazing."

Others were stunned by the industry's technology, such as Nicholas Rebman at FMC Technologies, Inc.

"The first day we got to shadow the engineers, and we were working with an aftermarket engineer who was trying to repair a tubing hangar," says Rebman. "When he pulled up the drawing on the computer, it blew me away with the intricacies that went into building the equipment—it looked like it belonged in space. The work, details, and focus that goes into it is amazing."

Tyler Hanson shadowed logging experts at Core Labs, learning how the effectiveness of a frac job is measured.

"It was interesting that they could pump radioactive isotopes that don't damage the environment into a well, send a tool down, and see how well the frac job worked—then they could figure out what they need to change for the next well to improve the field's performance," says Hanson.

Others found their exact calling through the externships, like Anissa Pena with Halliburton.

"I met the Supply Chain Management program new hires, sat in the classes, went through logistics, P&Ls, and everything that goes into supply chain—I know I want to be a part of it," she says.

IPAA's Barry Russell encouraged the students to stay in contact with their mentors in the companies.

"There's a lot you can learn by experience and mentors—find the model for what you want to do and go for it," he says. "As you experience what we have to offer in this program, it's as much about learning what you don't want to do . . . as you go through the process of college, find your essential self—the courses that are really your thing—and stay in touch with your mentors. One person can change the course of your life."

Companies participating in this year's externship program were Apache Deepwater, Cameron, Core Laboratories, El Paso, FMC Technologies, Halliburton, Marathon Oil Corporation, M-I SWACO, National Oilwell Varco, Newfield Exploration Company, PEC Premier, Schlumberger, Shell Oil Company, and Valerus.



This year's class of 62 Petroleum Academy externs pose following the PESA-sponsored graduation ceremony.

We are at risk of failure, we are to blame

Editor's note: This essay was compiled from John Hofmeister's presentation during an Emerging Leaders seminar. He is founder and Chief Executive of Citizens for Affordable Energy.

Our industry and our country are at risk of failure.

On Aug. 30 at the National Clean Energy Summit, attendees learned that the U.S. cannot lead the world in the 21st century with its current energy policy. Vice President Biden said the nation is already trailing China and Germany in green technology, and that we face trading our dependence on foreign oil for a dependence on foreign energy technology. He said, "If we shrink from deciding whether we are going to lead in the area of alternative and renewable energy, then we will be making the biggest mistake that this nation has made in its entire history."

I agree that we cannot lead in the 21st century with our current policy, but green technology will not be our savior. Eight presidents and 19 Congresses have made noise about energy independence since 1973 and all have failed to lead the country. In the 20th century, absent political leadership, the U.S. energy industry built the most robust, most efficient, most homogenous energy system the world has ever known. We are making advances in alternative energy, but it's the traditional energy sources of the 20th century that will ultimately enable this country to be energy secure in the 21st century.

We are facing political leadership today that looks at the world in an either / or perspective. My favorite example is that my wife attended the Democratic National Convention. Thousands of delegates gathered to choose their nominees, and discuss, among other things, the energy strategy of the nation. But the delegates took charge and pushed their view—it became a resounding chant of "no more coal." She attended the Republican equivalent convention a couple of weeks later. Amidst the thousands of delegates there to



John Hofmeister, Chief Executive at Citizens for Affordable Energy, says that the oil and gas industry is at risk of failure due to a series of obstacles, mostly political. However, the underlying cause is a lack of public acceptance for oil and gas production, which he says has been an industry-wide failure.

represent the interests of those who sent them, the chant began, "drill baby, drill!" That's the national divide, the either / or as represented by those who represent us. Is it any wonder that the 111th Congress didn't produce one single piece of legislation having to do with energy policy?

We're headed for an energy abyss. We are taking a path to global failure as the world's leading economy, and our economy is 100 percent reliant upon affordable fuel. Look at our energy mix today. We have a total of 600 coal plants in the U.S. Their average age is 40 years with a design life of 50 years, so half are already past their design life. We have 104 nuclear plants with a design life of 40 years, and an average age of 33 years in service. We aren't building any new nuclear plants, other than one in Oak Ridge, Tennessee. There are 100 new coal plants whose designs are shelved because the boards of

directors will not go forward due to the risk of the regulatory environment.

About 49 percent of our electricity comes from coal, 18 percent from nuclear, and about 24 percent from natural gas—the good news is that we have a lot of natural gas and we can produce more and more, right? Wrong. We can produce more natural gas until the EPA federalizes fracking—it's nearer than further away, and it's inevitable on the path that we're on.

We're hugely successful with fracking technologically, but we've been miserable at explaining the impact to those affected. Due to the confusion, misinformation, and the horrible stories the public hears—with nothing to offset it—more people believe "Gasland" than believe Aubrey McClendon, and that's sad.

We're also facing three things in Washington, D.C. that aren't going away. Number one is partisanship—the 2010 elections

aggravated it. The 2012 elections may be worse still—class warfare is the main rhetoric of the debate so far ... us against them ... it's as miserable an outlook as one could imagine in a country that considers itself united.

The second obstacle is time. You don't build a new power plant or new technologies in a year. It takes a decade or more to do things right in this industry—a decade of thinking, planning, conceptualizing, inventing, engineering, and funding. Meanwhile, the elected officials who govern us work with a two year frame of mind. The world can change drastically with each cycle. Political time and energy time are incompatible.

The third problem is that we have created a monstrosity of government. The Department of State recently determined that the Keystone pipeline does not create sufficient environmental



Clay Shoot —

The Energy Educators Committee sponsored a sporting clays tournament to raise funds for PESA's education initiatives. The event attracted more than 100 shooters.

At top is Lauren Grabski, National Oilwell Varco; middle left is Tom Moyers, Cameron; and left is Wayne Wallace of GE Oil and Gas.

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this thinking, the facts suggest that the transition to greener energy will be long and challenging.

First, she says there is no question that global energy demand will continue to increase, driven by world population growth, primarily in developing countries. The IEA projects that energy demand will increase by more than 45 percent between 2008 and 2035, which is roughly equivalent to adding two countries the size of the U.S. to world oil consumption. Meeting that demand is estimated to require an investment of between \$30 and \$35 trillion.

“In liquids supply alone, the current production of about 85 million barrels per day will need to increase to 95-100 million barrels in 2030,” she says. “Half of that number will need to come from new sources as fields decline and demand grows—adding the equivalent of four more Saudi Arabias in the next 20 years.”

Watkins says that renewable energy is an essential and growing part of the world’s energy mix. But the world’s solar, wind, biomass, and geothermal energy account for about 10 percent of total energy supply, and is expected to increase to about 12 percent by 2030. The IEA predicts fossil fuels will make up 80 percent of the energy mix in 2030, the same as today.

“Given all of this, nations are struggling with their greenhouse emission goals while still being able to meet their energy needs,” she says. “The reality is that even if we were to completely transform the world’s entire transportation and power generation systems to green energies, we would achieve only a 40 percent reduction in greenhouse gasses—well short of the 83 percent target discussed in Washington, D.C. in the past few years.”

Another complication is the high price of oil. Prior to the financial collapse in 2008, high demand left oil supplies tight with little excess capacity, as a result the price rose to \$147, reflecting fear premiums on tensions in Iran, terrorist attacks and piracy, and natural disasters such as hurricanes. Excess capacity is unlikely to grow significantly in the future.

Watkins says that the greatest ramification of high prices is that the balance of geopolitical power may have shifted from energy importing nations to producing nations. The U.S. now faces competition from other importing nations with oil-hungry economies, such as China and India. These growing economies are competing for limited supplies, which helps governments that control oil gain power.

In Europe, most countries are heavily reliant on imported oil and natural gas—currently 50 percent is imported, and



Gretchen Watkins, Vice President of International Production Operations for Marathon Oil

expected to rise to 70 percent by 2030.

“Russia is a key supplier of oil and natural gas in Europe—Germany imports 32 percent of its energy from Russia, while Poland imports two-thirds of its natural gas and 97 percent of its oil from Russia,” she says. “Today, Russia uses its massive natural gas reserves as a means to gain control and global power. Illustrating this is the winter of 2009, when Russians shut down the main pipeline into Europe over a price dispute with a main transit country, Ukraine.”

Finally, she says that NOCs control 79 percent of global oil reserves, which equates to hundreds of billions of dollars of profits to their governments.

“This financial power could allow hostile governments to impact geopolitical issues including conflict through intimidation, threats to cut off supplies, and support for government-funded terrorism.”

U.S. Energy Security

To achieve a secure energy supply, the U.S. needs a comprehensive plan to transition to a clean energy future that focuses on three key elements, says Watkins. First, is energy efficiency.

“The McKinsey Global Institute has indicated that projected energy demand in 2020 could be reduced by more than 20 percent through energy efficiency investment, which will more than pay for itself,” she says. “It includes more fuel efficient cars and hybrids, energy efficiency in the residential and commercial sector through stricter building codes, and green building technologies and appliance standards.”

Second, the U.S. needs to further diversify and increase the sources of its energy supplies. Watkins says that diversity equals security and it comes in two forms: diversity in the

forms of energy we use and diversity as to where it comes from. Given the growth in demand, the U.S. will need to significantly increase supplies of all forms of energy—among the cheapest and most secure potential new supplies is domestic oil.

“The U.S. is the world’s third largest oil producer, and we accomplish this with less than 5 percent of federal acreage under lease for development,” she says. “Too many unexplored areas are off limits such as the Atlantic, most of the Pacific, parts of the West, large parts of Alaska, and areas in the eastern Gulf of Mexico.”

Unfortunately, she concedes that the Macondo oil spill last year presented a major setback to opening more areas to offshore development.

“The Deepwater Horizon incident prompted intense reflection in our industry and we have since taken definitive steps to ensure that the safe and responsible development of these important offshore resources is possible. We strive every day for a zero incident work environment—no harm to people, and no harm to the places where we work.”

However, access to new resources remains critical. One example is the evolution of U.S. natural shale gas, which has reversed a projected shortage of gas to a 100-year supply. The lure of similar finds around the world has led many countries to seek investment to explore their own gas supplies. The early activity in Europe has wide geopolitical ramifications.

“For example, Poland has been leasing millions of acres of prospective shale gas blocks to international oil companies, including Marathon Oil, with the hope that production success could lead to the lessening of their dependence on Russian energy,” she



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says. “Should Poland’s shale gas production prove to be a revolution that alters the energy landscape, the nation could become an exporter to the rest of Europe, further breaking Russia’s monopoly on the continent.”

Diversity can be enhanced by further encouraging imports from secure and friendly sources.

“Canada’s oil sands are one of the world’s largest oil deposits, about eight times that of the U.S. oil reserves. We already process much of this oil in the U.S., which creates good jobs and tax revenues.”

The third key to energy security is innovation and new technologies.

“These are vitally important for increasing supply, moderating demand, and protecting the environment,” she says. “We need to accelerate the development and commercialization of key technologies such as batteries, hydrogen fuel cells, biofuels, and lowering the cost of solar and wind. Government can best help with investments in basic research, leaving commercialization to the private sector.”

Watkins again stressed that there are no quick fixes—the challenges to energy security are inherently long-term, and transcend narrow, short-term interests and election cycles.

“These are complex challenges, but complexity is not an excuse for inaction,” she says. “This is a long-term effort that must be addressed in a rational, fact-based manner that taps leadership and the finest critical thinking skills from people across the spectrum regardless of ideology or political affiliation.”



Twenty four Foreign Service Officers attended this year’s week-long training program.

Top Left: Russ McBeth discusses subsea field architecture prior to a tour of FMC Technologies, Inc.’s production floor.

Top Right: FSOs listen as Heath DePriest highlights strategies for ConocoPhillips’ refining business.

Above: James Ellinwood discusses the need for precision parts inside of a Weatherford directional drilling tool.

Left: Showing a mock-up of a PDC drilling bit, Jim Senger prepares FSOs for a tour of Halliburton’s manufacturing plant.

U.S. Oil and Gas Field Equipment Exports

Top 15 Destinations for Q2-Q3 2011
(in U.S. \$1,000)

	MAY	Jun	JUL
Singapore	55,398	87,899	50,061
Brazil	46,666	39,369	73,679
Russia	49,761	19,284	36,849
Mexico	15,345	21,776	47,046
U.K.	30,649	24,571	28,454
U.A.E.	24,617	26,423	27,789
Canada	19,261	27,624	29,640
China	23,641	23,632	27,246
Venezuela	18,568	34,328	13,242
Korea	10,756	29,809	21,917
Saudi Arabia	19,317	20,121	18,939
Colombia	18,263	20,685	15,722
St. Maarten	338	4,877	49,358
Norway	8,331	6,864	17,221
Trin. & Tobag.	6,732	6,168	15,057
Subtotal:	347,643	393,431	472,222
All Other:	281,167	181,882	202,685
Total:	628,809	575,313	674,907

Source: U.S. International Trade Commission

PESA News

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HOFMEISTER

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damage to prohibit its construction. Great, but what is the Department of State doing in energy? They are one of 12 cabinet level authorities from the executive branch that determine the future of energy. Don't we have a Department of Energy? There are also 26 congressional committees and sub-committees to govern energy. And then the Judiciary, in particular the 9th Federal District Court in San Francisco that has single-handedly stopped more oil projects than we can count.

These, however, are preventable obstacles. The industry that looks out for itself in the public domain enables its own future. The industry we're a part of has a fundamental flaw. Deep in the DNA of every energy executive I've known is an aversion to public engagement of the reality of what they do. It's hard to talk about. It's complicated, technical, and trying to explain those realities to a person who gives you a soundbyte doesn't work. If you're a responsible



John Hofmeister, Citizens for Affordable Energy

executive, you want to explain so they truly understand it—but you'll never get 45 minutes. Look at it this way, if I want to know the time, don't tell me how to build a watch—learn to simplify.

I had a conversation with a Chesapeake executive about the public relations impact of public release, or not, of the content of fracking fluids. He ran a poll with ANGA, and only 8 percent

agreed with the voluntary release of the information—92 percent were against. That's not how legislature sees it, nor the public. The reason I predict federalization of frac permitting is that it's a huge powergrab for politicians looking to take charge. The industry isn't forthcoming, the state-level is not forthcoming, so where does the public look for resolution—the highest authority in the land, the federal

government.

We can fix this. But we have to change the business model of every company that earns a profit in the energy industry. Public acceptance has to be at the front end, because public non-acceptance will kill the industry. That's why we have limits on offshore drilling, why we have bans on drilling in state waters off California, why no coal or nuclear plants are being built—none of it has public acceptance.

Let me be clear, I'm not suggesting a task just for the PR department—along with profits and market shares, the business model must take into account public acceptance of who we are and what we do. If all the thousands of companies, and many thousands of executives were out there demonstrating their concern and explaining what they do, we'd have a very different discussion over energy.

It's the pathway to success, it's not defensive, its proactive and engaging and can change the game for the industry. It's my belief that's what it's going to take.