UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 8-K

CURRENT REPORT
Pursuant to Section 13 OR 15(d) of The Securities Exchange Act of 1934

Date of Report (Date of earliest event reported): December 8, 2014

Energy Recovery, Inc.

(Exact Name of Registrant as Specified in its Charter)

Delaware	**001-34112**	**01-0616867**
(State or Other Jurisdiction of Incorporation)	(Commission File Number)	(I.R.S. Employer Identification No.)

1717 Doolittle Dr. San Leandro, CA 94577
(Address if Principal Executive Offices)(Zip Code)

510-483-7370
(Registrant's telephone number, including area code)

Not applicable
(Former Name or Former Address, if Changed Since Last Report)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions:

☐ Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)

☐ Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)

☐ Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))

☐ Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Item 8.01 Other Events

On December 8, 2014 Energy Recovery, Inc. (the "Company") hosted an Analyst Day. The presentation used has been previously disclosed by placing it on the Company's website and attached as an exhibit to a Report on Form 8-K filed on December 8, 2014. Attached as Exhibit 99.1 to this Current Report on Form 8-K is the transcript of the presentations made during the December 8, 2014 event (the "Analyst Day Transcript"). The Analyst Day Transcript is incorporated by reference into this Item 8.01 and will also be available on the Company's website at www.energyrecovery.com.

The information in this Item 8.01 is being furnished, not filed. Accordingly, the information in Item 8.01 of this report will not be incorporated by reference into any registration statement filed by the Company under the Securities Act of 1933, as amended, unless specifically identified therein as being incorporated by reference. The furnishing of the information in this report is not intended to nor does it constitute a determination or admission by the Company that the information in this report is material or complete, or that investors should consider this information before making an investment decision with respect to any security of the Company or any of its affiliates.

Forward-Looking Statements

This transcript contains "forward-looking statements" within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. These forward-looking statements reflect our current views, for example, of addressable markets and opportunities. Words such as "estimated", "expect", "future", and similar expressions, as well as statements in the future tense, identify forward-looking statements. The Company is furnishing with this report the Analyst Day Transcript which will be posted on our website after this report is filed.

The Company is not undertaking to update the Analyst Day Transcript. This report is not intended as a statement concerning the materiality of any information contained in the Analyst Day Transcript.

The full text of the Analyst Day Transcriptis attached to this report as Exhibit 99.1 and is incorporated herein by reference.

Item 9.01 Financial Statements and Exhibits

(d) Exhibits

Exhibit Number	**Description**
99.1	Analyst Day Transcript

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

ENERGY RECOVERY, INC.
(Registrant)

Date: **December 19, 2014**

/s/ Joel Gay
Joel Gay
(Chief Financial Officer)

INDEX TO EXHIBITS

Exhibit Number	Description
99.1	Analyst Day Transcript

Energy Recovery Analyst Day • December 8, 2014,New York City

Forward-Looking Statements

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Tom Rooney:

Today's presenters, I'll have with me today our CFO, Chief Financial Officer Joel Gay. Joel will help me out in the presentation today. As well as Ron Gusek, who is our partner at Liberty Oilfield Services, will be presenting today. The agenda for today, I'm going to spend about 30 minutes giving an introduction, as I am doing now, and an overview of what we'll be talking about and why.

After that, we'll introduce the VorTeq. A press release went out today of what the VorTeq is—the name of a technology that we have developed to enter the fracking industry. We're very excited about that. We'll spend about an hour and a half on that. It's rather extensive. I think you'll be impressed with how much progress we've made, and how impactful this is likely to be for our company. We'll then take a few questions about fracking. And then we'll roll into growth in existing markets.

You will see, by the way, we're not going to spend a great deal of time talking about the water market. We feel that that's a market and a part of our business that's somewhat well recognized. The key today is that we're going to help investors and analysts understand in greater detail what the growth and the future of the company is. So we'll spend a lot of time on the growth of existing markets. We'll then break and take some questions.

Then we'll move next door, where I think you'll be impressed. We've got a lot of models for you to take a look at across a lot of the technologies we have. We have a significant number of our executive team here, including a lot of our engineers and research people. We'll all be taking questions next door while we go through lunch.

For those of you who may be here thinking about Energy Recovery for the first time, and I know there are a number of people in the room who are here because we're essentially entering the oil and gas industry, just as background as to who this company is, Energy Recovery is a company that is traded on the NASDAQ under the ticker symbol ERII. We have a market cap of about 250 million dollars. We IPO'ed in 2008.

We are headquartered in San Leandro, California, which is in the San Francisco Bay area. We have about 125 employees. We are very much a global company. We operate on all seven continents, or we have products delivered on all seven continents. In fact, where we sit today, about 90 percent of our business is outside the United States or outside of North America. So we're very global in that regard. So we're very fluent, we're very capable on the global stage, not just a U.S. company. Lastly, we have a very strong balance sheet that's 38 million dollars in cash, with no debt. And that really enables us and avails us of opportunities to do things that we'd like to do in the long run. We're not cash-constrained.

Our existence is predicated on one very interesting technology, as you see on the right here. It's called our Pressure Exchanger, or the PX Pressure Exchanger. I like to think it was our first disruptive technology, getting us into desalination. We've sold and installed 15,000 of these PX devices worldwide. They deliver a three-month payback to our clients in desalination. They have a 25-year life with no maintenance.

That has enabled us to gain 90 percent market share globally. And as I said, our products are in use on all seven continents, including Antarctica, and floating in ships on all the seas around the world. They garner us about 65 percent-plus gross margins. And it's truly a disruptive technology. I've heard people say it's so disruptive it's almost too good to be true. Quite frankly, in the face of our clients, it's really sometimes hard to imagine just how disruptive and how significant this technology has been. But this has been a great technology that has enabled this company to come into existence and be a real world leader in the area of desalination.

But as we think about it, and as we thought about it, it really didn't, at this stage, enable us to be the very large, high-growth company. Because desalination, and I would say this, the global demand for water is significant. I live and come from California. But any place that we go around the world, you can see that there are significant needs for water, well on into the future. So we like being in the desalination industry. We like the position that we play there. But the fact is, where we sit today, if desalination was the only market that we were going to play in, we'd be very, very limited in terms of growth.

Because of that, the year 2011, which is the year when I joined Energy Recovery, really became a transition year for us. In fact, if you see the cover of our 2011 annual report, the title was, "The Dawn of a New ERI." And it really was. That was a transition. That was a turning point for us as a company. It was a conscious decision made by the Board. I bought into it when I joined the company, that we need to take this company and find avenues for growth—spectacular growth. We knew that we could disrupt a single industry, we knew that we had very keen and core technology that could be disruptive. We just needed to break out of desalination; we needed to create the dawn of a new ERI. And I believe we've done so.

I came in 2011 and laid out a three-pronged strategy, the first of which was to cut costs. Where we stood in 2011, we needed to cut costs. Every great company needs to cut costs at points in time, but it was an imperative for us in 2011. Second, we had to regain market share. There were a couple of dynamics that took place in 2009 and 2010 that caused the company to drop its market share down to about 50 percent market share. So in 2011, one of the key imperatives, the second prong of the strategy, was regain market share. We have a disruptive technology, but for whatever reason it wasn't playing itself out in market share and in the dominance that we were likely to have in desalination. Then lastly was diversify.

So how did we do, or how have we done against this scorecard? So in terms of cutting costs, the metric really would be what was our gross margins. In 2011, our gross margins were 28 percent. We were cost heavy, both in terms of manufacturing and corporate overhead. In 2013, we moved our gross margins up to 60 percent. How did we do in regaining market share? In 2011, I mentioned we had 50 percent market share. Today, we have 90 percent market share. We've held 90 percent market share now for slightly over three straight years. It's not a blip on the map. We are that dominant and that disruptive in desalination. A 90 percent market share. So I feel very good about cutting costs, I feel very good about regaining market share.

And then diversify. How do I feel about that? I feel fantastic about that. I feel fantastic, and it's an effort that's underway. And really, from this moment forward, the vast majority of what we're going to talk about is diversification. What does that mean? What should we expect? Where are we going? What have we been doing? So as I said, it's a three-pronged strategy, but we're likely not going to spend too much time talking anymore about strategies one and two, it's all about diversification. Where are we going, what are the products we have, what is the roadmap? We'll go into that now.

Diversification. First of all, why diversify? You know, I went to business school, and at the time I went to business school, a lot of companies were being punished for diversification. It was diversification just to get large. But Wall Street can do that. An individual investor can diversify their portfolio, companies shouldn't. So diversification has to be done for a reason. In our case, it was pretty simple. The desalination market is small and lumpy.

For those of you who are analysts and investors, hard to predict and painful in your investment portfolio. We know it, we get it, we can't change the desalination industry. We're a piece of a very large industry. We can't change it. We might dominate the industry from our technological standpoint, but we can't create demand. So it is lumpy and it is small. I believe, by the way, because I've been in the water industry, one way or another, for more than a decade, I do believe in the megatrend associated with water. I can go to China and I can talk to political leaders there about why water is going to constrain them. I'm in the Middle East all the time, it's obvious. I sit in California, it's obvious.

But for reasons that are hard to understand and predict, the water market is constrained. It will explode. It will grow. Will it happen a year from now, two years from now, or ten years from now? I don't know. What I do know is that as a CEO of a company, I can't sit and wait for it. I can't change it. So we've got to run the company in an intelligent way. We've got to create shareholder value. And that's why we have to diversify. The only other strategy that the Board and management could've taken back in 2011 would have been to have accepted it, considered ourselves a boutique play into desalination, and then just sell ourselves to a strategic. We chose not to do that. That was a conscious decision. And I think in the long run it will play out to be the right decision.

So the first question was, "Why?" I think it's very obvious why. You might disagree with us, you might say that in 2011 we should've sold ourselves to a strategy. We didn't. I think it was a brilliant move not to. That's the why. The "How?" How are we going to diversify? First and foremost, let me say this. I think this is a great company, but I think that a lot of great companies who were founded on novel innovation sometimes lose that innovation culture. And sometimes, I think companies do that because you come out of the starting block with a cool, novel technology—I've showed you ours—and that technology then you run to commercialization. And then, in our case, you run to an IPO.

And innovation is not always the thing that you invest in heavily and consistently. I'd be willing to bet there are hundreds of companies to do that. So in our case, we had to—in 2011, we had to take a step back and say, "You know what? I think we might've lost some of our innovation mojo at some point in time." Maybe we focused too much on commercial rollout and cost cutting and things like that from 2000 to 2011. But for us, the "How?" was we had to ignite a dormant innovation engine. That doesn't happen overnight. You don't simply get a lot of brilliant people doing brilliant things just because the CEO says, "Okay, let's start doing that." We had to invest in it heavily. That meant CAPEX.

But the most important part, and the most vexing part, but also the most fun part is the culture of innovation. You have to first set a culture of innovation. We've worked really, really hard on that. And I can tell you that there are proof points that we've been very, very successful at it. But it's been a three-year effort. So let me take you through how we did that.

[Video plays]

Tom Rooney: Innovation is a discipline that you can grow. It's a culture that youneed. And we've been investing heavily in that.

Arathi Gopinath: Innovation means driving for excellence in just about everything that I do.

Felix Winkler: It's not just your own thoughts and your own ideas, but getting theteam together and having everybody contribute. Nobody by themselves can design a great product.

Jeremy Martin: I define innovation as finding a new, unique solution to a problem,a problem that others may not even be aware that exists.

Prem Krish: An innovative company has the willingness to take a risk and thewillingness to set the performance bar incredibly high.

Alex Theodossiou: To be open to a new idea is the first step. And having a positiveattitude about all the possibilities that could result from trying on new things.

Audrey Bold: We took our brand, which was very well established in the waterindustry, and we put our bets into taking this idea into a new industry.

Farshad Ghasripoor: I had an intuition as to whether it would work or not. And thenhaving spoken with the engineers here at Energy Recovery further, I realized that this could be a game-changing solution.

Joel Gay: As the project ensued, we quickly realized that it was a fantasticplatform to attack a very wide market, a market that is defined by a megatrend.

Tom Rooney: Thank you, everybody, for coming out today. Many of us,including me, work here because our value proposition has an opportunity to change the world. But a lot of people also work here and are driven by and excited by the culture of innovation.

Paul Cook: And innovation to develop new products, to get themcommercially successful, and to get them out into the marketplace.

Tom Rooney: For us, seeking to have an icon, we had it right on our own Boardin the form of Paul Cook. Paul developed a culture, a company, a DNA in his company that became innovation and drove greatness.

Paul Cook: It's my pleasure to award the first year's innovation award to Jeremy Martin.

Jeremy Martin: Everything we do here at Energy Recovery is a team effort. Westimulate and challenge each other to find solutions to problems.

Tom Rooney: We're a place where anybody can go, try great things, attempt tochange the world. Just in the past six months, we've been able to generate 35 patents. We've also had some of the most amazing breakthroughs.

Announcer: Development award for general products goes to Energy Recovery.

Tom Rooney: We've hired some of the most brilliant minds in the world to cometo work for us.

Arathi Gopinath: I am trained as a rocket scientist. I basically have a PhD inaeronautics and astronautics from Stanford University. As a child, I was very interested in airplanes, rockets, anything that flew.

Dave Anderson: Here, we have very rich problems that have very big real worldimpacts I really think can make a difference to this company and to the world, as far as saving energy and ruling these products out to new applications.

Alex Theodossiou: It's exciting coming to work every day, 'cause you never knowwhat the next really cool project will be that you'll be working on.

[Video ends]

Tom Rooney:

So what's the scorecard look like? I think you can measure innovation in scorecards. If you take a look at this graphic, the first, going back 15 years or so, from '97 through 2011, we would file one, two, I guess maybe three patent applications per year. Some years, several years, no patent applications. In 2011, where you see that short, yellow vertical, that's when we made the conscious decision to reignite an innovation engine. And as you can see, it has spawned tremendous amount of innovation, if measured by patent applications.

So I think this year we've already filed 43 patents, three times as much as we had filed in the first 15 years put together. That's the scorecard, if you will, if there is such a thing as a scorecard on innovation. But also from that comes a lot of new products, which we can actually talk about. We'll talk about a lot, but I wanted to focus in on the fact that as investors through our company you've been investing in a long-term play to reignite first and foremost the culture of innovation. Because great things happen if you invest steadily and steadfastly in innovation.

But it's not a light switch, you don't simply say that "Yesterday I cared about innovation, but today I have a passion for it." You have to invest in it. We've had to hire some really brilliant people and we've been incredibly successful at doing so. But also building the culture where people are fearless and do things.

And people are ecstatic about working and will take on challenges that other people might have not been able to even frame in their own minds. It's one of the things that makes us different from a lot of other companies. And I'm very, very proud of it. So we have the people, we absolutely have the culture, and we have avenues for growth that are almost unlimited for us. And we'll see there here coming up.

So where do we go? That's the "How?".The "Why?" was we have to. The "How?" was you reignite the innovation engine, you find places for people to go. But then the "Where?," where do you innovate towards? Well, really, we have a two-pronged challenge in regards to where. First of all, we want them to be very, very large markets. The desalination market is something like 50 million dollars. We have opportunities to go after very large markets, so why not go after the biggest and the best? We have to figure out where they are and we have to attack them. So the first, is very large markets. If we're going to do something, let's do it big.

The second, in terms of where we go, is we only want to go where we can disrupt the market. We don't want to add incrementalism. That's not part of us. That's not what gets our people motivated and passionate about what they do. It's not what gets me motivated and passionate. And I don't think it's what makes an investor motivated and passionate about our company. We wanted to find really large markets where we could be disruptive. You think about going into desalination and completely changing the paradigm and ending up owning 90 percent of the market share.

So that's our two-pronged strategy in regards to where we go. It's got to be really large and we have to be able to totally disrupt it. If you can disrupt it, by the way, you can command large gross margins, you can have a competitive aperture where you dominate and maybe even completely own the market and generate a lot of IP around it. So let's talk more about "Where?"

In the last three years, we've mentioned kind of this big, broad brush, a billion dollar opportunity in oil and gas. We've known it was large. It was fairly obvious from the beginning, in terms of where would you go that would be large. How about an industry that you were looking for opportunities with a lot of pressure and a lot of energy use at a pressure letdown. And fluids, that's the oil and gas industry. Pretty easy to figure out.

So we've been talking about a billion-dollar opportunity. We're going to spend a lot of time today now on those two prongs. Which is how large are these markets—and we're going to give you some granular data on that—and how disruptive can we be in any one of those markets? Show me why you think you can be disruptive, why you can command large gross margins and how you can dominate your competitors.

So here's the first blush of how big these markets are. If you look in the top left, you see desalination, 50 million dollars. So last year, we did about 43 million, we said we have 90 percent market share. So rounding it off, and that's just quick number, we just think that desalination is a 50 million-dollar total addressable market. It is both a one-time addressable market, as we sit here today, and a recurring. About 50 million dollars. But that's interesting. Now, take a look at the rest of these.

Gas processing, that's what we've been working on for the last three years. We've talked a lot about, it's our IsoBoost and IsoGen technologies. A one time addressable market of 627 million dollars. Pipelines—that's crude oil pipelines, and we'll talk more about that. Pipelines that transmit oil and gas, or primarily oil, 1.05 billion-dollar market. And again, we'll get into granularity on that. Fracking, 1.4 billion dollars. And of course we're going to talk at great length about what that means today. The ammonia market, 1.43 billion-dollar one-time market. And then urea, 399 million dollars.

Through a lot of mathematics that we'll show you, we'll break these down on each individual one, but you can take that 5 billion-dollar set of numbers, which is all of those put together, that's a one-time TAM. Which means, by the way, that if we took our technologies and we planted them into every existing plant and at every existing opportunity one time, you'd get 5 billion dollars today.

But if you said, "Okay, well what does that look like in a recurring TAM? So if we do that in all the projects around the world, what kind of recurring TAM is that? It turns out it's about a 4 billion-dollar recurring TAM. They're going to be different. We'll show you how. So up there, as an example, I mentioned desal as both a one-time TAM and a recurring TAM. So mathematically, it's the same number. The same thing is true of fracking, and the pipeline one is pretty close, and then the other one's going to be about 50 percent. But we'll go into those details.

The point here, though, is this is a 100-time growth opportunity for us. In other words, we've been the dominant disrupter in a 50 million-dollar market. We are now keenly focused on a 5 billion-market. And we're quite a ways down the road. The point being that's what we mean when we say "big markets." We're after really large markets. We'll get into that in great detail. The one market, the one industry that we're going to talk a great deal about now is one that really exemplifies what we're talking about when it's a large market where we can be very disruptive. So we're going to turn our attention now to that market, that is to say the fracking market. And it's the fracking opportunity.

Kind of interesting because three, three-and-a-half years ago when I said that we were going to move our water technology and our water play into the oil and gas industry, the first thing out of everybody's mind was, "Oh, right. Water." There's produced water and there's everything associated with fracking. The answer was, "No." I knew we were playing in a different avenue, which was the sour gas processing. Ironically, it turns out that we've now found a huge niche inside of fracking. But actually, we're still not playing on the water side of fracking. Not produced water and so on. But let's get into it in greater detail.

So fracking, for those of you who have followed it, you'll definitely know what I'm talking about. But Russell Gold is an energy reporter from the Wall Street Journal, and actually wrote an incredible book I really like. It's called "The Boom." Everybody in my family is sick and tired of me quoting it and sending it to them for birthday presents. But one quote: "To a remarkable extent, this once-obscure oilfield technique, fracking, defines the nation's economic and environmental future."

I've told my children, and I have children just starting their careers now, "This is the most important geopolitical shift of the modern era." And if you haven't spent a great deal of time looking into it—fracking, by the way, is a word that's used to describe the shale revolution. Which is to say getting energy out of shale. It's the core of a megatrend in the shale revolution. And I think what you're going to find out is our play now into the actual act of fracking, plus the investment that we've made to get into gas processing, actually means that Energy Recovery is becoming a very strong investment play into this global megatrend as relates to the shale revolution.

So how big is it? It's a very large market. It's about a 50 billion-dollar global market, simply for those players that are actively in the field doing the fracking. It's a massive market, roughly 50 billion dollars per year. It's also got substantial assets deployed. The fracking companies that are doing the fracking technology out there, they have deployed about 20 billion dollars in pumping assets alone. A huge capital play. And it's also a high-growth market. We see double-digit growth.

Yeah, crude oil prices are down right now and people are saying, "Well, what's that mean for fracking?" Trust me when I tell you, to the insiders, this is a blip. And whether crude oil prices are 60 or 110, fracking is changing the face of the United States. And not only at an energy level, but a geopolitical and in a climate way. The United States is likely going to be the first country to meet the Kyoto Protocol, simply because of shale gas. So the ramifications across the board are staggering. The growth is going to be there. The estimates for global growth are about 20 percent, domestic growth about 10 percent.

So we love it from the fact that we're playing into a market that's large and very important. It has a lot of CAPEX being deployed, which is very helpful for our value proposition and is a very high growth market. So it starts off with a very large market, a very important market, and it has very substantial growth characteristics going forward.

What is fracking? For those of you who are not familiar with it, this is kind of cartoonish, but it quickly gives you the idea that the way—the source of all the oil and all the fossil fuel that we use today is source rock that can be one and two miles underground. And that source rock has, over millennia, allowed oil to come to the surface or come up to pockets, where in the 100 years or so people drilled for oil and got it. But the source rock still exists down there. And actually, it can be on the surface. But more often than not, people are searching down in the one-to-two-mile range for rock strata that's down there.

But it's literally rock. It can be described as just as much like rock as your kitchen counter, granite table. Amazingly enough, if you shatter it, gas and oil actually come out of it. It's hard to fathom that that's what happens, but that is what happens. So what the oilfield service providers have to do is they have to drill down to it—as I said, one to two miles—and if they just punch it when they get down there, they actually can't access that much. So then they turn the drill bit sideways and they drill horizontally again for another one to two miles. But they've got to stay very carefully inside the rock seam. If they get out of it, then they can't frac it.

So a number of technologies have had to come in play. Geoseismic imagining. In other words, you have to have a really, really competent map of where that rock layer exists. Not just how deep it is, where is it, and have a three-dimensional map so that when you get down there your drill bit can stay inside the rock layer. So it required that technology to take place. The second technology was horizontal directional drilling. And some magnificent technological advancements have taken place that allow people to drill miles underground and actually steer through this while drilling through incredible rock. So, wonderful technology.

And then the last part was the hydraulic fracturing, which is to understand how much flow, what kind of chemicals, what kind of sand to put in it. All of that led to what we have in the upper box here, where it says it's sand, water, and pressure going down. And those become the magic words for us. Because what we get to in fracking is this. This is what it looks like on a frac site. Most of the equipment that you can see are big, huge fracking pumps. Between one and two million dollars a pump for each of those. And I think the industry average is that they put about 14 of those pumps at work out there. But those really expensive pumps are pressuring 10,000 to 15,000 pounds per square inch of pressure. Enormous pressure. With about roughly ten percent sand in it.

I tell people that that would be kind of equivalent of asking your car to run with oil plus one quart of sand in it. It's a really nasty, tough, hostile environment. Because that's what they have to do to break the rock a mile or two below the surface. But the key thing for us is it's pumping high-pressure fluids. Those words are magical for us at Energy Recovery.

So what's the pain point that they feel? These are the players in the frac site. And you can see another picture in the background of what a frac site looks like. It's very congested site. It's frankly, in some ways, a very dangerous site, for the people involved. Because of very high pressures. But the number one pain point is pump failures. The pump failures are the number one operational challenge faced by the industry. They have abrasive and highly viscous fluids that they're trying to rocket down the hole. 4,000 to 6,000 gallons a minute, 8,000 to 15,000 pounds per square inch, with a lot of sand. Sand or ceramics in there to prop open the cracks.

So you got high pump maintenance costs. Sporadic and excessive downtime from the pumps. The pumps fail. And therefore, because of that, they put more pumps out on the site than they actually need. They need them, but they're there for redundancy purposes. As they say, it's the mechanical equivalent of adding sand to your car's engine, just to give you an intuitive idea as to why this stuff becomes the top operational issue.

[Video plays]

Video narrator: With global demand for energy independence on the rise, the needfor new shale exploration and maintenance of current oilfield operations is creating explosive growth within the hydraulic pressuring market. Hydraulic fracturing is used after drilling operations to stimulate production of new or existing wells. Typically, multiple high-pressure pumps are used to send fluids, water, proppants, and chemicals down the hole. These fluids are injected at extremely high pressures to fracture the formation and help hydrocarbons migrate more readily to the well bore, greatly enhancing productivity.

Due to proppants and chemicals in the frac fluid, and harsh operating environments, the fluid ends of the high-pressure pumps and related components experience tremendous abrasion, erosion, and fatigue cracking. On a daily basis, worn components, such as valves and valve seats, have to be replaced, significantly adding to operating costs. But what if this wear and tear could be avoided? What if there was a solution that could dramatically reduce these maintenance costs?

Energy Recovery has invented that solution: the VorTeq hydraulic pumping system. First, let's cover what happens today when fracturing fluid is injected into the well without Energy Recovery's VorTeq system. At the well site, most of the activity centers on the manifold, or missile, to ultimately route the fracking fluid down the hole. On an average well site, there are 10 to 20 pumps injecting fracking fluid into the well. This fluid is boosted from the blender to the low-pressure side of the missile at about 50 to 100 psi. Then the pumps pressurize the fracturing fluid and route it down the hole through the missile at pressures up to 20,000 psi. This entire process is controlled and monitored from the frac van. With this current system, there are many drawbacks. The biggest is the substantial maintenance and capital costs associated with the pumps.

Now, with Energy Recovery's VorTeq, the abrasive proppants are routed through the hydraulic pumping system, away from the existing high-pressure pumps. Simple, yet elegant, with only one moving part, the VorTeq is made from tungsten carbide, a thousand times more resistant to abrasion than steel. This revolutionary technology will effectively improve a process that, for decades, has been a major pain point within the hydraulic fracturing industry. High-pressure proppant-free fluid from the pumps flows into the VorTeq. At the same time, low-pressure fracturing fluid from the boost blender enters the VorTeq, where it is exposed briefly to the high-pressure proppant-free fluid.

Energy from the hydraulic pressure is transferred direction from the water to the fracturing fluid. This pressurized frac fluid then flows to the high-pressure site of the missile and down the hole. Having transferred its energy to the frac fluid, the low-pressure water exits the VorTeq and flows back through water pipes, where it is filtered and recirculated, creating an energy efficient loop. This loop acts as the application's engine. The VorTeq system also allows for lower levels of redundancy on location, as the high-pressure pumps will be pumping fresh water instead of abrasive products, another added benefit.

This remarkably innovative solution is modular, flexible, and can be easily integrated into existing equipment and operations. Highly engineered and precisely manufactured, the VorTeq hydraulic pumping system increases the life of high-pressure pumps by eliminating abrasive proppants, radically lowering capital and operational costs for service companies.

[Video ends]

Tom Rooney: This is the VorTeq. And at its core, it is exactly what ourcompany has been doing for the last 15 to 20 years. You may have noticed the dark, black colored looking tungsten carbide cartridge. That is identical, almost identical, to the same core technology that we've used for so many years, 15,000 times around the world to desalinate water. So the advancements here are remarkable.

So, the core, it's what we are great at. Which is this unique Pressure Exchanger. But we've had to advance material science dramatically. So the technology—and we can see it next door—the technology and the material that we use and have used in desalination has been a white, super tough alumina cartridge. Very heavy, it can take an incredible pounding in the desalination industry, up against seawater. It lasts 25 years. But even that was not sufficient to go after the very, very hostile, very, very high-pressure world of fracking.

We had to move to a new technology, or new material, in tungsten carbide. We're not the first player to ever work in tungsten carbide. In fact, far from it. The tips of the drill bits that the oil and gas companies use to drill thousands of feet into rock is actually oftentimes, in fact, most often tungsten carbide. The tungsten carbide is not a perfect material from the standpoint that it can be shattered with impact. As an example, you couldn't make one of the frac pumps with it, because the tungsten carbide, if it impacts itself, can shatter. So we had to advance material science around tungsten carbide. It's a remarkable material, but we've done so in the last year. We have some of the most brilliant minds that have been able to do that with us and for us.

So what you'll see is we now have what kind of looks like a gunmetal cartridge and a white aluminum cartridge. But that has enabled us to go into this super hostile world where we're pumping ceramic pellets, ceramic proppants, through the center of it at 10… 15…20,000 pounds per square inch —incredible pressures—and be able to endure the wear that these multi-million dollar pumps cannot endure.

The world was taking a look at it, in kind of the obvious way. Which is the pumps are facing this hostile fluid—let's make the pumps tougher. Let's find ways to make them tougher, harder, have less maintenance issues. We came about it in a radically different way.

We said, "Don't change your pumps. Leave them. Leave all the pumps there on the site. We'll just take the sand away. We'll take the ceramic proppants away. Those pumps that were designed to pump fluids without sand in them, let them do that. They'll simply become an energy source. They'll pump clean water into our devices. So they become nothing but an energy source. You don't need them to pump proppants. We just need them to pump energy. And remember, we have Pressure Exchangers. We'll transform that energy and we'll rocket the tough stuff down the hole. So just give us the energy. We don't want electricity, we don't want plugs. Just give us energy that comes in a fluid. And how about if the fluid is just clean water?"

And the pump guy says, "Wow. That's great. My pump was designed to pump fresh water, I can do that all day long. My pumps will last forever that way." So we say, "Fine. Give us the water, put it into our cartridge, we'll use our cartridge, our missile, that truck that you saw that's right here, and right there we'll do a pressure exchange where we'll take all the nasty fluids on one side, we'll take the energy you give us from clean water on the other side, and we'll rocket everything down the hole. And oh, by the way, this thing is really, really, really tough, our VorTeq. So that's what we've been able to do."

We like to think that this is possibly the most disruptive product ever developed by Energy Recovery. And that's a pretty heavy thing to say when you think about the fact that we entered a global market with sophisticated people in desalination and completely disrupted that with 90 percent market share and eye-popping margins. So for us to believe that this VorTeq is the most disruptive product we've ever developed is saying something.

In introducing what the VorTeq solution is all about, we like to say, "This changes everything." More than a few people inside the industry who we've worked with have said stuff similar to this. So what it is, it's designed to isolate and save the frac pumps, based on what I just said. It addresses pump failures. It reroutes the hostile fluids away from the costly pumps. And it will revolutionize the fracking paradigm in many ways. We'll get into that in greater detail.

How does it work? Again, in the current industry, you have sand, water, and chemicals. They all go through a blender. This is how the industry currently operates. They go into what's called the missile. The existing missiles are large manifolds. Basically a miniature truck that just brings fluids together. And they'll have between 10 and 20 pumps, big pump trucks, pumping the materials. All of which shoots it down the hole.

The new configuration with our VorTeq—you have the same water tank, the same sand tank, the same chemical tank. We are not asking, and not even suggesting, that the industry has to change its behavior pattern. They don't have to change the fluids that they use, they don't have to change the fracking materials that they use. They don't even have to change the pumps that they currently use. Or the blenders that they currently use. What we are saying is take the three-quarters of a million dollar missile, or manifold, that you currently use, take that off the site, put our missile or our VorTeq in exactly the same location, and pump to us. Pump to us, let us rocket it down the hole. Pretty simple.

We look at it a number of different ways. We could've had a bunch of modular setups, where we would say, "Here, bolt this on the back of a truck. We'll process all the fluid on the back end of the truck." But that would've been a lot of operational change and difference for the fracking operators. So instead, we said, "You know what? There's a piece of equipment on the site right now, the manifold with the missile, why don't we just swap and we'll nest all of our stuff right there?" So we intentionally made it as user friendly for the frac industry as we could. So that's what it looks like.

So what's the value to our clients? Well, we look at this and say there are three rings to the value proposition to our clients. And all of the economics and the go-to market or commercialization strategy are on this first ring. And I want you to remember that as we go through this. So Joel is going to get up here in a few minutes and talk about our value proposition to our clients and the value proposition to us and our ability to generate profits. But all of the numbers that we are driving and the rationale for even being in this industry are what we call "the first ring." But there are three value rings that will evolve over time.

The first is simply the reduced maintenance costs. In other words, every week, and oftentimes every day at a frac site, they're having to rebuild these pumps because they're being worked in such a tough environment. So just reducing the maintenance costs is a staggering number. A staggering number. So we know, and it's very predictable, how much the maintenance costs will go down. So we're slipping ourselves in with our value proposition to our clients by simply saying, "You're going to have reduced maintenance costs. And we think we can show you how." We think it'll become very obvious. Again, this is the number one pain point, in terms of the activity or the action on site, for fracking.

The second ring is decreased redundancy and lower CAPEX. In other words, if the fluid requirements down hole would suggest 10 pumps, on average the industry brings 14 pumps. Because in this very hostile world that they're operating in, if you need 10—and by the way, you can't have downtime in the middle of the operation. You know, while we're fracking today, we have to keep the fluids going. So if you actually need 10 to be working, then you have to bring more than 10. But the level of redundancy that is out there is excessive. Except for the fact that it's not excessive if you're actually having to pump frac fluids and fracking sands.

What we think, and what we're fairly certain of, is that it will be a significant decrease in the number of pumps that they'll have to bring to the sites. Again, one-and-a-half to two million dollars a pump. If you take, right now, about four pumps, drop a few off, that'll be a significant improvement. That will happen after a frac operator has operated in this new world order for a year or two. They'll start to realize, "Wow, we don't actually go to the 14th pump that often. Maybe next time we do a job we'll bring 13 or 12," or whatever. That CAPEX reduction, since these pumps are not inexpensive, will turn out to be a significant add-on to our value proposition.

The third ring is a paradigm shift in pumping. I say that, and we'll get into that in greater detail. That'll take the industry a couple of years of experience before they—and it's interesting, the inside players that we have worked with, within the first ten minutes, have said, "Wait a second, given all of this, I might choose a radically different kind of pump to put on the site. The only reason that I pick that kind of pump is because it's a very durable workhorse. It's not a racehorse, it's a workhorse. Well, if it doesn't have to be a workhorse anymore…wow. I might change the entire pump setup." By the way, that's a 30 billion dollar per year industry that could likely have a lot of runway to completely change itself.

But again, I want to come back and say our value proposition, our go-to-market strategy, our pricing algorithms, everything on day one are predicated on just reduced maintenance costs. But we think in a year or two or three there will be some eye-popping changes that will take place that will avail us of different approaches to how we do things.

So at this stage, I want to bring up Joel Gay. But let me say this. We have, as I'm so, so proud of, and it's probably the thing I'm the most proud of in the last three years, rebuilt our innovation engine. And Dr. Prem Krish is right up here in the front. He's our Chief Technology Officer. Prem and I work closely, but Prem's the key guy in all of that. And we have probably the best R&D and engineering team on the planet, in terms of what we do and how we approach things. But sometimes, there's a project that's so large, so transformative, that I actually have to add and help the R&D team by bringing more resources.

And kudos to Joel Gay, he's our sitting CFO, but he's also the key executive who's been working with Prem to lead this whole fracking initiative. So not only is Joel helpful in terms of investor relations—and you might think that he's going to come up here and talk with me, because this is investor relations, but as it turns out, Joel's also the key executive working on this project. So with that having been said, Joel, come on up and take over.

[Applause]

Joel Gay:

So, my focus is going to be on driving home the economics. Andcertainly the assumptions that underscore the economics for our value proposition. And it is our objective that you leave here today with a very clear and salient viewpoint on how we will bring value to the market, specifically to the frac pumpers.

As Tom stated, our initial go-to-market is predicated on the first order of value creation. Which is a reduction in the operating costs. Now when we contemplate the operating costs, those only consider those costs incurred to maintain the pumps, specifically the fluid end of the pump. Think of the fluid end of the pump as the—as an engine block that houses multiple chambers. Okay? And so in the status quo, based on an average capacity utilization of around 2,000 pumping hours per year, frac operators are incurring, per fleet, 4.1 million dollars. Or about four to eight percent of their total operating costs.

With the implementation of the VorTeq, given that we are isolating the pumps from the frac fluid, therefore increasing the life expectancy of the pump and its components, they will have to perform said maintenance on a less frequent basis. In other words, we will take that 4.1 million, cut it by more than 50 percent, and the pro forma costs will be about 1.5 million. On average—so in terms of how we're going to take this to market, our procurement vehicle will be an operating lease. We are not contemplating a capital lease. This is to ensure that we maintain peak pricing flexibility. We've learned a lot of lessons, in particular with the desal, as to the stickiness of prices. And to ensure that we do not give too much of the economic rents to the market.

So we're going with an operating lease. And on average, we'll charge about 1.6 million dollars per year, per VorTeq. You add the 1.5 and the 1.6, that's 3.1 million dollars. So in other words, we are availing the fracking industry a savings of 1 million dollars per year per fleet. There are approximately 850 fleets globally, the preponderance of that capacity being in North America. But globally, 850. So at the onset, if you had 100 percent market adoption of our technology, we would avail the fracking industry nearly a billion dollars of annual savings.

And it's also important to note that the—even with depressed crew, the projections for the market remain high. Which is to say double digit growth. So in two years, this is a billion-dollar savings that we will—that the fracking industry will be availed of.

How are we doing that? Before I describe the pump, okay, and the costs that are incurred in the pump, the very bottom, we see you have the fluid at. That is the actual housing that contains the parts that you see listed above it. The valve, the seat, the well service packing, and the plunger. It's quite easy. You eliminate sand and abrasive proppants from the equation, and you can increase the life expectancy of those parts by a theoretical factor. You can see that the growth multiple on life expectancy is anywhere from two to three x. And we believe that's highly conservative.

The values that you see there in the status quo, 49 hours going down to 581 hours, those are the result of months and months and months of vary intensive analytics, in which we surveyed all of the factors that contribute to life expectancy or denote life expectancy to include the pressure at which the pumpers are fracking, to include the chemistry of the frac fluid that they're sending down hole, to include the level of sophistication of their R&M programs. And what you see reflected there are the averages across all basins, all market capitalizations, and all frac chemistries. And we believe that we can increase those life expectancies to the furthest column to the right. So that was the first order of value creation.

The second order of value creation, which is not priced into our offering currently, and therefore is not reflected in the total addressable market, is the concept of reducing the level of onsite redundancy. Tom characterized, you know, average fleet size is anywhere from 12 to 16. On average, they're carrying about 35 to 40 percent excess capacity. In this example, it's predicated on a fleet of 12 pumps. So approximately 4 redundant pumps. What if you could flatten out the cumulative failure, cumulative probability of failure, such that you could reduce excess capacity by 50 percent? That's precisely what we modeled here, and we think that's a reasonable assumption.

The value will manifest in one of two ways. Either A, you can forego a future CAPEX, and therefore deploy that capital to a higher return investment, or B, you can take that excess capacity, adjoin it to another fleet, and begin generating economic rents with that asset. In the first example, at about a million-and-a-half per year, you cut your redundancy by 50 percent. It's about a three million-dollar foregone CAPEX value. Or conversely, you could take those pumps and they'll generate proportionally anywhere from 10 to 14 million dollars per year. The three million dollar CAPEX elimination is about a three billion dollar value to the industry.

So again, this is very sizable, but we do not believe that—it will take a couple of years for this value proposition to manifest once the operators realize empirically that their pumps are not breaking down at the same level of frequency. We'll then see that come to the fore.

The third order of value creation, a paradigm shift in how frac service providers approach pumping. As Tom noted earlier, the only reason they're utilizing the very heavy and costly pumps, the reciprocating PD pumps, is because they're the only ones that are rugged enough to process the highly viscous and highly abrasive frac fluid. If their pumps no longer had to process the proppant agents, what would the universal possibilities look like? And we have a few ideas to this end. But, you know, if you're no longer beholden to a single pumping model, you can migrate to a more efficient pumping model, you can dramatically decrease your operational footprint, and in doing so, streamline the process.

In the background is a picture that you saw earlier. The point here is really to examine the congestion of an average frac site. Congestion is clearly not a good thing from a process flow perspective. And if you can alleviate some of that congestion, you can theoretically increase your capacity utilization by going to a different sort of pump. And here's what we mean by that. You could migrate to a radically different pumping model, where you would have two, three, four large centrifugal pumps powered by gas turbine. Okay?

Now, how would that compare? Even in the example of—if it were CAPEX neutral, which is to say 30 million dollars for the status quo to outfit a fleet of pumps and 30 million dollars for this radically new pump paradigm, understand that centrifugal pumps and other pumps in that vein have life expectancies that are ten x that of your traditional PD. So even from a CAPEX neutral standpoint, the average cost per year will be one-tenth, potentially. In addition to a different pumping model, it will also allow completions engineers to challenge some of the constraints that pertain to the existing operational setup as it relates to proppant loading. Which is to say how much proppant are you sending down hole.

Now, we understand that there are geological considerations, such as the density of the rock. Those will all ultimately determine the frac design. But again, you can begin to challenge the notion that may have been constrained heretofore. So frac chemistry, proppant loading, volume to flow rates. So again, just to drive this point home, this is the third order of value creation. And this is even further off into the future. Three, four, five years. And it's all predicated on market adoption. But it is very, very important to note that the minute you eliminate proppant and sand from the pumping equation, you are no longer held hostage to a single pumping model or pumping paradigm.

So let's talk about the market opportunity. Again, these numbers reflect only the first order of value creation, which is the reduction of maintenance costs by improving the life expectancies of the pumps and their components. As stated, we're going to take this to market through and operating lease. There will be one VorTeq missile per fleet, at an average of 1.6 million per year. You can see how the global horsepower, global capacity is dispersed throughout the three major regions in the schedule: U.S., Canada, rest of world. That equates to the following addressable markets. 850 in the U.S., about 200 million in Canada, and then 342 for the rest of the world. Which rounds out the 1.4 billion that you saw on the opening slide during Tom's introduction.

Growth rates kind of depends on which analyst you survey or listen to. But the consensus is that at least in the U.S., even with depressed crew, on the existing rig count, you're looking at an excess of a ten percent growth rate. And then internationally even more so. 20 percent in excess.

As we contemplate our initial deployment, we want to focus on those basins. So this is a schedule of the major basins in North America, beginning with the Permian and then all the way down to Cleveland, we want to focus on those basins that present the harshest operating conditions. Put another way, the basins where the operators are incurring the highest costs associated with pump maintenance. There are a few considerations there. We look for high pressure, we look for a higher preponderance of slick water and hybrid chemistry, and the highest levels of capacity utilization.

I think pressure is intuitive enough. The higher the pressure, the more arduous the task is for the pump and all the pump's components. But frac chemistry is a science in and of itself, but this is a very simple demonstration. Slick water is considered to be the most abrasive of the chemistries, given that there are not agents within the fluid that make it, that decrease the coefficient of friction between the frac fluid and the surface that it's coming into contact with. So as we look at those top basins, the Permian, Eagle Ford, Anadarko, and Haynesville, from a price discrimination standpoint and from a targeting perspective, that's where we will immediately focus our efforts. And you can see that the market opportunities are substantial.

So how did we get here? I think one of the more remarkable things is that in 16 months we've gone from concept to field trial deployment. And in order to deploy this into the field, we had to build a 50-ton behemoth that you'll see here shortly. But you know, we began—Tom and I began talking about this—I think we characterized it as Initiative X over the last two earnings calls because it was beginning to shine through our statement and cash flow, and to a lesser extent on the balance sheet.

Well, for example, in February, we invested in a two-and-a-half million dollar test loop at our facility to validate the technical proposition. And that test loop is capable of simulating virtually any condition that you will see in the field, and then some. Pressures up to 15,000 psi, flow rates up to the equivalent of 120 barrels per minute.

As we noted that our progress was progressing at a pace that would suggest that we could commercialize much sooner than previously thought, we set to the task of identifying with whom we would partner, in terms of taking said technology to the field. We identified Liberty Oilfield Services, whose sister company is Liberty Resources. I'll speak to that partnership here shortly. But we engaged them in July. Field testing is scheduled to start in January-February, somewhere around that point. We expect that the field trial process can take four to nine months. We're targeting six months. And then we would gradually roll into commercialization based on the pace and success of those field trials.

The takeaway here is the we're moving at a breakneck pace. It's certainly indicative of what we believe to be our defining competitive advantage, which is we're nimble. We don't have the bureaucratic constraints that a lot of large companies who are engaged in costly R&D endeavors do.

What will this mean for the company? We characterize it as the VorTeq transformation, in which Energy Recovery will evolve into an oilfield services provider from a manufacturer. Our operating model, oilfield services provider, we're going to take it to market through a procurement, or rather through an operating lease. From a supply chain standpoint, it will be a partial vertical integration. We will eventually phase in all core components of the manufacturing of the VorTeq. Then it will require that we establish a rather sophisticated logistics apparatus. So, put another way, before we saw the four basins that we were targeting, beginning with the Permian, we will establish service facilities in each one of those basins as a support vehicle and deployment vehicle for our offering.

Let's talk about Liberty. Why was Liberty the right partner for us? Why are we the right partner for Liberty? In many examples, or rather in a great sense, Liberty is a mirror image of Energy Recovery, except that they are an oilfield services provider, and heretofore we are a manufacturing and technology company. They are nimble. They have iconic leadership. Ron Gusek, who is going to join us here on stage momentarily, will tell you a little bit more about that.

But they are a known innovator. They've been exceptionally collaborative with Energy Recovery, even prior to the consummation of the agreement. They're well respected, they're well capitalized, and most importantly they are vertically integrated. They are a pumper and an E&P, which is to say their frac services division in many cases fracs the wells that the E&P has the rights to complete. So that's a key distinction, in terms of the alacrity with which we can progress through field trials and then segue into commercialization.

In terms of the partnership, benefits for Energy Recovery are a rapid deployment, the ability to amass real-time learnings and data upon the initiation of the field trial, and then secure our very first client. So Liberty is not only a strategic partner, but they will also be our first client. From Liberty's standpoint, the benefit that accrues to them is first mover's advantage. Being the first to pioneer and partner with us on this effort. Then there are incentives around pricing. But there's a third benefit as well, in that this is our prototype. And we are going to fashion our prototype to Liberty's standard operating procedures. So that's certainly an intangible benefit that will accrue to them.

With that being said, I'd like to invite Ron Gusek to the stage, who will speak broadly on the partnership with Energy Recovery.

[Applause]

Ron Gusek: Good morning, everyone. Certainly a pleasure to be here, to havethe opportunity to participate in this day. A little bit like a kid in a candy shop, you might say. I'm a mechanical engineer by training, and this is a challenge that I've been puzzling over for probably the better part of a decade. So very, very excited to finally see a solution to this challenge come to fruition and have the opportunity to participate in that.

I want to tell you a little bit about myself, a little bit about Liberty Oilfield Services and our sister company Liberty Resources. We'll chat a little bit more about the challenges that we face as an industry, and particularly this challenge that we're going to address with VorTeq. And then I want to touch, of course, on the partnership with Energy Recovery.

I've been involved in the hydraulic fracturing business since the mid 90s, so this is the business that I have known and loved since I entered the oil industry. Obviously a lot of things have changed since then. Over the course of that time, I've gone from a scenario where a typical hydraulic fracturing job might last an hour or two hours. I'll be honest and tell you that I entered the hydraulic fracturing industry because it was the least demanding, from a time standpoint, of the three services lines. So coil tubing, cementing, and hydraulic fracturing kind of the three core pumping services that any business enters into when you're in that realm.

Coil tubing and cementing, those things happen in the middle of the night. Could be out there for endless hours. When I started hydraulic fracturing, you left town at breakfast time, you rigged in, you pumped a frac job, you were typically home by lunchtime. A long day might have you home by suppertime. Obviously things have changed significantly. We're now out there 24 hours a day, 365 days a year. Over the course of my 20 years in the industry, I've worked specifically for pumping services companies. So I started my career up in Canada. I'm Calgary, Canada based, originally. And worked for a major pumping services provider up there. I had the opportunity to move in 2003 to a small organization called Pinnacle Technologies. And that's important in terms of understanding who Liberty Oilfield Services is.

Now, Pinnacle Technologies was a game-changing company when it came to moving the hydraulic fracturing business forward. Pinnacle Technologies was the company that commercialized microseismic fracture mapping, so the idea that we could actually see a hydraulic fracture propagate underground. Pinnacle was formed in 1992 by a fellow named Chris Wright, who also happens to be the CEO of Liberty Resources and Liberty Oilfield Services. Focused specifically on the idea that if we could better understand what happened underground when we pumped a hydraulic fracture treatment that we could evolve where we could deploy that technology and ultimately make reservoirs successful that were not commercial back in the early 90s.

And so with that technology, with the idea of being able to map our fracture treatment underground, we work very closely with companies like—Devon was originally the Mitchell Resources working in the Barnett Shale, EGO, companies like that that were pioneers in developing shale gas and ultimately shale oil resources and moving that to commercialization. Pinnacle Technologies was also the developer of FracPro, one of the most common frac models in the industry today. That was Dr. Leen Weijers who led that development. He's currently our VP of Engineering at Liberty Oilfield Services.

So I had the opportunity to work there for a number of years. That company was ultimately acquired by Halliburton in 2008. I'm a lover of small companies, of rapid innovation, of things like that, and so I moved on from there. I spend some time at an E&P company. I spent a couple of years drilling a deep light oil prospect in central California. Previous to this role, I was the VP of Engineering and Technology at a mid-sized competitor pumping services company. So I've seen a fair bit of the industry, internationally and in North America, spent some time in Russia and the Middle East, and also in China. I'm very, very excited to be back at Liberty Oilfield Services, though. As I mentioned, this is a team that I have worked with before, and that was during my time at Pinnacle Technologies.

And so we've brought that team back together. This time, in a little bit different regard in that we're in the pumping services world. Now Pinnacle Technologies was a unique company in that we were a virtual monopoly, we'll say. Not like Energy Recovery's market share in the desalination business. We were a virtual monopoly in the microseismic business. We are now competing in what you might call a bit more of a commoditized business. There are a huge number of pumping services providers out there. But we believe that even in a commoditized business like pumping services there's an opportunity to be unique. And we have set about doing that.

So we've brought together that same management team that built Pinnacle Technologies. Chris Wright is our CEO. Very, very well-respected individual in the oil and gas industry. Just to give you a sense of his background, Pinnacle Technologies was his first company, and he built that up, and that was ultimately sold to Halliburton. He believes so much in the shale gas industry that he went out and recapitalized a small coal bed methane company in the early 2000s called Stroud Energy. Ultimately became a significant player in the unconventional gas world. Built that up to some size and then sold that. He's been involved in a number of other organizations, but now currently the CEO of both Liberty Resources and Liberty Oilfield Services. Now Liberty Resources one has come and gone. They were a Bakken player, built up an acreage position, sold that to Kodiak, who's now in the process of being acquired by Whiting. And this is Liberty Resources generation two.

And Liberty Oilfield Services has been around about three years now. We started, in 2011—it was kind of the idea or seed that was Liberty Oilfield Services. We pumped our first job in 2012. We have also in our management team, I mentioned, Dr. Leen Weijers, the fellow who developed FracPro, one of the preeminent frac models out there today. Along with a number of other people who have been actively involved in the industry for an extensive period of time. Our VP of Operations, Jim Brady, a fellow who has worked his way through the pumping services world for the better part of 20 years, and now oversees our whole operations division. Then a number of other technical folks that are part of our world.

But really, a company founded on the idea that we can do things differently, even in what you would consider a very commoditized industry today. We are in the unique position of having a sister E&P company. So when Liberty Oilfield Services was founded, it was founded primarily to work for Liberty Resources. Liberty Resources got started in the time when frac equipment was at a premium, when lead times to get a frac fleet were probably measured in months rather than days. That was a bit of a frustration for them. And so they started a pumping services company, and of course they're one of our primary customers now.

We've grown beyond servicing just them. We have a laundry list of customers, including some of the "Who's Who" of the unconventional world. But Liberty Resources still remains a primary customer of ours. And the wonderful thing about that unique relationship is that we have the opportunity to go out there and try new things, with all the repercussions that might come with working with a conventional customer. And so that's a great opportunity for us, particularly when we're deploying new technology like VorTeq, is to be able to go out there, and we have the patience of an operator who's willing to work with us, recognizing that in the long term they stand to win by this as well.

And so when we do this trial exercise, a lot of that work will happen on a Liberty Resources location, where we have the flexibility of a little bit of give and take while we iron out any potential wrinkles that come with deploying new technology into the field. Obviously we've been doing hydraulic fracturing the same way for a long, long time. Yes, the industry itself has evolved to something more complicated today. But the fundamentals of how we frac the well, fluid source, sand, a blender, and some high horsepower pumps hasn't changed in probably 60 years.

We're talking about something that—introducing something to the field that is very, very different to what many of our field folks have seen before. And so we want to make sure that we do that in an environment that allows us some time to sort out those wrinkles. And so we're happy to have that partner in Liberty Resources to be able to do that.

I want to talk a little bit about the pain points that have come with the evolution that we have in front of us. Or we'll call it maybe a bit of a revolution in terms of the development of unconventional gas, and now shale, oil. When I started fracking, I mentioned that we did maybe two or three frac stages in a day; we packed up the pumps, and we went home, and we had plenty of time in the evening to do maintenance on that equipment before we went out the next day. Now, of course, we're rigged in on a location 24 hours a day. There are many times when we'll be on a single pad. A pad might include something between two and, I think, probably 13 to 15 wells today. So we may be on a single pad for as long as a month, and maybe even longer than that. No opportunity to rig those pumps out, to take them back to the shop, to do some maintenance on them there. And so our maintenance happens in the field now.

Obviously we're in an efficiency game. The idea that was need to complete as many stages as we possibly can in a 24-hour period, ultimately with the goal of bringing that well on production as quickly as possible. The expenditures that are required on behalf of an E&P company to develop a horizontal well these days are significantly higher than they used to be when we developed vertical wells, and that obviously means some cash flow constraints, particularly for the smaller players in this business. And so their goal is to have cash flow as quickly as possible. Their drive is to get well costs as low as possible. And ultimately, that translates into a need for us to be as efficient as possible on location.

Every time we have pumps down for maintenance, that leads to downtime, and that means time we're not pumping. That means delayed onset of production for our E&P companies, and ultimately poor utilization of our equipment. And so our goal, of course, is to keep that utilization factor as high as possible and that downtime factor as low as possible. And we have a couple of challenges with that.

First and foremost, we don't get to go back to the shop every night now. We have to do all of that maintenance on location. Well, you've seen what a frac location looks like. This is pretty nice. The weather is obviously not too bad out there. We frac 365 days a year. In North Dakota, we operate in the Bakken as one of our core basins. It's frequently 20 or 30 below out there. You can imagine that working on a pump is not a pleasant exercise in the middle of the night when the wind is howling and the snow is falling. So we want to work to get those things as small as possible.

We have migrated over the last decade from pumping what might've been a more typical hydraulic fracture treatment, high viscosity fluid with more conventional proppant loadings and not too many stages of well, to the industry as we know it today, where more and more operators are migrating to slick water type fracture treatments, very, very high rates, high pressures, and low viscosity fluid. That's been to our detriment as a pumping services company. Obviously we relish a challenge and we're willing to go out there and do that, but that has come at the expense, at a significant expense, in terms of R&M.

I would say that for a company like us, who pumps primarily slick water work, and I would say we're maybe out on the leading edge in terms of that, I will tell you here that there are pumping services providers who refuse to do slick water fracturing treatments because of the impact on their equipment. They just choose not to take on that work at all. We believe in that. Because we have an E&P company, of course we understand the E&P business. We believe in doing what's right for the well, not what's right for our equipment. But that ultimately comes at a cost to us. An average of seven to ten million dollars a fleet in R&M each and every year for us. And we may be on the higher end of that equation, but we pump primarily slick water. In fact, in the Bakken, that's almost all we pump is slick water fracture treatments.

For us to see an opportunity and have the opportunity to work with Energy Recovery on a technology that could significantly change the amount of R&M, the amount of maintenance that we have to do on location, improve the amount of time that we have to be able to pump, to be able to improve the delivery that we're able to provide to our customers, that's a game changer for us. That's significant. When we heard about this opportunity, the chance to work with Energy Recovery, we were very, very excited about that. So I'm very, very pleased to be here with you today.

I mentioned this has been a 10 year-long journey for me. I can tell you that I started thinking about this back in the mid-2000s. I was working in Canada at the time, but we went up to the basin called the Horn River Basin there to do a massive hydraulic fracturing project. We had equipment on location for 90 days. It was really our first introduction to extremely high pressure, long duration slick water fracture treatments. And I won't tell you what the R&M building was for that particular job, but suffice to say we significantly underestimated that. And I came back from that job recognizing that we had to figure out a way to stop pumping sand through pumps.

I've been wrestling with all kinds of ideas, and I could show you some of the back-of-the-napkin drawings I've come up with. There's some pretty wild ideas. But never in my wildest imagination did we think about this. Of course that's this whole idea of stepping outside the box. So a partnership between Liberty Oilfield Services and Energy Recovery is very exciting to me. I talk a lot about invention and innovation as part of my role, whether that be the university classes or even to my own staff, about taking steps forward. And I would argue that there are a lot of companies who are very good at invention.

You saw the graph about the patents that are being developed. And I think that's important. But ultimately, what takes something from invention, patent status, to innovation is the ability to actually apply that in the field, to go out there and change an industry. I think that this particular idea, VorTeq, has the possibility to do exactly that.

To give you a little more practical example of that, I might point at the mousetrap. And you always hear the idea from Field of Dreams, "If you build it, they will come." There are probably 4,000 patents out there for mousetraps today, but I would guess if you went to the hardware store you might only find 10 or 15 or 20, maybe, at the high end, unique mousetraps. So the question is, what happened to those other 3,980 patents? Well, invention, not innovation. An idea that never, ever came to fruition.

And so Liberty Oilfield Services, you know, we like to put the inventions to the side and seek out those partners who we think have the capability to go from invention to innovation. This idea looks to be one of those. So we're very excited about this potential partnership and look forward to the coming months when we actually get to put this to work in the field and find out what the changes will be. So, thank you very much.

[Applause]

Tom Rooney: Thank you, Ron. We clearly thought that it would be more impactful for you to hear straight from somebody that would use it. It's one thing if the CEO and the CFO come up with some marketing blips that say, "This is going to change everything." We've been very, very proud of working with Ron and Liberty for quite a while now. But we've also had the benefit of hiring some fracking industry consultants to help us measure the size of the market and get some data points and so on. So we think we've accumulated a great deal of data and information and our work and our collaboration with Ron has given us the real world aspects of it.

Liberty and Ron have been gracious in inviting large numbers of our team and our engineers and PhDs to crawl all over their sites and see how it really, really works in the field. Because I think, to Ron's point, you start off with a sketch and an idea, but you really have to make it work in the field. I've been around enough field operations that cute ideas come along and get buried by the practical guy with the hardhat in the field. It's best if you can make it all the way to the finish line and not have a cute mousetrap that doesn't go anywhere. So the ability to work with a collaborator like Liberty Resources and Liberty Oilfield Services and people like Ron Gusek has been invaluable to us.

It's been a really interesting journey for us. And I think maybe it'll be a good time for us to take a look at another video.

[Video plays]

Joel Gay: We had a technology in house that was proven, namely ourPressure Exchanger, to the extent that we could take that and migrate that to a market in a vertical. I saw immediate opportunity in doing that.

Prem Krish: VorTeq brings the industry a mechanism of brining the oil and the gas out of the ground at significantly reduced operating costs.

Tom Rooney: We had hired a brilliant engineer from GE, Dr. Farshad Ghasripoor. And I just happened to ask him, "So, what are some of the more interesting things that you worked on in your past history?"

Farshad Ghasripoor: I worked on a few oil and gas products. One of them was aspecific type of pump.

Tom Rooney: And he told me, "Well, inside the fracking industry there was thisissue with these gigantic pumps that were being torn up by this very hostile fluid called fracking fluid. Because it's got sand in it."

Ron Gusek: I've been a frac guy for 20 years, and I'd probably say for the last10 I've been thinking in the back of my mind about a way to avoid pumping sand through frac pumps.

Farshad Ghasripoor: I realized that we can actually find the solution outside the pumpusing an Energy Recovery device to actually isolate the pump.

Tom Rooney: So the two of us conceived of the idea that we could take thefracking industry that is really struggling to figure out how not to destroy the pumps, plus our indestructible Pressure Exchanger, and marry the two up.

Trevor Toews: It was a very interesting, very challenging project. We're buildingthe structural components and all the piping valves, all the instrumentation and components.

Tom Rooney: The VorTeq takes one fluid in from one end and a separate fluid in from the other.

Arathi Gopinath: It reroutes these erosive fluids away from the high-pressurepumps and enhances the lifespan of the high-pressure pumps.

Trevor Toews: With one moving part, there's an exchange made to another fluid,and that fluid is acted upon and goes out under the same pressure that fluid number one came into.

Tom Rooney: It rebounds the energy from one of the flows on one end into thefluid on the other end.

Farshad Ghasripoor: The way that it actually fits into the oil and gas and hydraulicfracturing business is going to allow us to grow this, within the industry.

Audrey Bold: Hearing back from the clients of how well it's designed hasactually allowed us to open up the envelope of our technology even further.

Joel Gay: We believe it is one of the most disruptive technologies introduced to hydraulic fracturing over, let's just say that last 15 to 20 years.

Kevin Fisher: Our thought with the VorTeq missile is that we can improve ourperformance on the well site. This is an idea that we think will dramatically improve the lifespan of our equipment.

[Video ends]

Tom Rooney: I think it's pretty interesting and important to think about how thisall happened. We are a company that decided we had to be much, much more than the disrupter of one industry that was small, that is to say water. That led us to improve ourselves with a three-pronged strategy, really look at diversification as a critical initiative for us, set about rebuilding an innovation engine. Because interesting ideas come from having an innovation engine, but then actually being able to do something about it. We invested very, very heavily, as I'd said, in the culture of innovation. That led us to this interesting opportunity.

Quite literally Dr. Farshad Ghasripoor and I were standing drinking a cup of coffee together at a regular company event that we have every Friday morning where executives and engineers get together and talk. Quite literally, I was just talking to Farshad about what he had done when he was at GE, and he had mentioned it. Then we put the two ideas together. And then one of the most fascinating parts about a young, nimble company is just that being nimble, being aggressive, being innovative, and going from a literal cup of coffee 16 months ago to where we stand today.

I think you'll be very pleased to see how far we have come in those 16 months. So with that, I know this has been Joel's baby, so Joel, why don't you unveil and show everybody what the actual device looks like?

Joel Gay: Sure.

[VorTeq model unveiled]

Tom Rooney: We've got nice videos that show it, we've got virtual reality next door to show you how it looks. But this has gone a lot further, and the last 16 months have been incredible. We actually have a partner in Power Zone, who's here today, who has also partnered with us in actually creating the first one. So with that, why don't we roll.

[Video plays]

Tom Rooney: This has been an amazing journey for us as a company. 15 monthsfrom a cup of coffee to this.

Don Toews: Taking high pressure from one fluid stream and putting it intoanother. I said, "You can't do that." Well, they said they're doing it.

Tom Rooney: We went tenaciously after an opportunity to help the frackingindustry. It went from interesting and very powerful test loop work to prototyping what we have. All the way to where we are here today with the solution actually in the flesh right behind me.

[Video ends]

[Applause]

Tom Rooney: So it's been a journey for us. One of the things that we've really baked into the company is that we're not as big as GE or Siemens or whoever. But what we are is nimble—we're fast. We're empowered by a great balance sheet and the support of a great Board and patient investors. That's important. But all of those things have to come together. And as an executive team, we have to recognize speed matters. We have to be able to get to the finish line quickly and intelligently with the right ideas and the right partners.

We're been working furiously behind the scenes. We had to start leaking a little information to the street in the last few quarters because if you look carefully some of the expenditures we have have been telegraphing through in both the income statement and the balance sheet. You know, creating that device in the full flesh was not inexpensive. But Joel and I flew to Colorado, where Power Zone is located, two weeks ago and took receipt of the first full-scale device. In the field, we fully expect to do that.

It's the real thing. It's full scale. It's ready to roll. We'll be sitting down with Liberty and Ron and others here in the next several weeks to name the place and the time and the location and the parameters for our test and so on. But it's real, it's now, it's here. We're launching in the field. We're way past schemes and designs. I think that one of the things that truly separates greatness for a small company like ours is think really big and bold, to be able to execute on innovation, aggressively, intelligently, learn what we've learned from things like getting to where we did to dominating desal and take those lessons learned and put them here.

So our ability to come out with a model, people have asked in the water industry, "Well, wow, you're giving clients a three-month payback on something that's going to last 25 years. Maybe you priced it wrong." So even our pricing model and our commercial go-to-market strategy, we've used what we've learned in the past. We've used what we've learned in terms of that you can, in fact, be provocatively disruptive in an industry. We're lucky to have this core device, this spinning cartridge. But we had to relearn the innovation part, and then we had to maintain aggressive positioning.

You know, we've had some punishing quarterly returns and quarterly reports, and in large measure much of the focus from investors, and I totally get it, is our earnings reports from the four, five, six quarters. But that was all an expression of what's going on in desal. But trust me when I tell you your management team is focusing on something that we think it could be as much as 100 times larger. We're going after very, very large addressable markets with brilliant people, going after brilliant ideas, seeking to have big, disruptive value proposition. We've done it in industries before. We have almost an embarrassment of riches, in terms of places where we can go. But this VorTeq and this fracking opportunity is eye-popping, as far as I see it from a management standpoint. And it really embodies what it is that we think about with regards to this company and what the potential is.

So that's what we've got on VorTeq. I think you want to come on up, Joel. We'll take some questions. We're running a little ahead of schedule, so we'll take some questions if you'd like. And at this stage, just questions about fracking and VorTeq.

Audience 1: I have a question about the services here. I mean, eventually you'llbe selling to competitors, I imagine. And about the money situation, about like Boeing has sales from several years out and people put money or something up. Is this something where you want to hit the ground running, like you'll have people lined up already excited about this putting money down towards you, towards this program?

Tom Rooney: One of the values that we give to Liberty is first moveradvantage. And we honor that. They will have the benefit of being the only player to access this technology until we're done with the field trials. And we want them to enjoy the full benefit of that. And yes, eventually somebody we will sell to their competitors. But we've clearly lined out that because they're our collaboration partners they get really two benefits. One is they get best pricing for five years, basically for a very long time. But they get the distinct first mover advantage. We like first mover advantage in the industries that we're in, and we love it when we have a partner that can have that advantage too. So we limit ourselves from the ability to do much more than marketing or conversation. We have had very loose, high level conversations with other fracking companies. But at this stage, all of the first mover technical advantage goes to Liberty. Now, the other parts to your question, advanced payments and things like that?

Audience 1: If it's that good, and I think it will be, it is, there's a lot of playersthat are going to be wanting to get orders in.

Ron Gusek: That's true. That's true. And for a year or two, Liberty will be–should be—hyper-competitive against their competitors because they know how to use the tool better and more than other people. But Liberty will not be our only client, and I think the reason that you're working with us is the same reason you would look for other technologies to give them competitive advantages. But any thoughts, directly?

Tom Rooney: No, I think that's a fair point. Obviously we seek out everycompetitive advantage we can get. But at the end of the day, we recognize we're not going to be all of that 18 million horsepower and that this technology needs to be deployed industry-wide. We work in a few of those basins you saw up there, but we don't work in them all. It's always been our philosophy that it's about taking the industry to a different level. We fight some real challenges as an industry today. And anything we can do to elevate our industry as a whole is definitely a step in the right direction.

Audience 2: To what extent do your manufacturing facilities for ceramic devices and pumps apply to this new technology?

Tom Rooney: That's a great question. They don't apply is the answer. Our manufacturing plant today is two-thirds geared towards manufacturing of alumina, the white, ceramic component, and tungsten carbide uses different kilns and different material. So the answer is we would not. We could, but it would be a poor use of our manufacturing facility to retrofit it to tungsten carbide. The other thing is that the scale of this opportunity would blow through any excess capacity that we're sitting on right now in manufacturing anyway, so even setting aside chemistry and kilns, the correct scale of manufacturing for tungsten carbide would take us somewhere else anyway.

Likely, such a manufacturing facility should be located, for the sake of argument, in Texas. If you ever tried to pick up one of our white ceramic cartridges, you'd say that was heavy. You almost can't pick up a tungsten carbide one. So the point is freight and trucking cost, not to mention the fact that a large manufacturing facility in California, most CEOs would not do that. So the answer is it doesn't give us any operating leverage, and that doesn't really bother us.

Audience 3: A question for Joel about the operating costs. It went a little fast there, if you could repeat the numbers? You said that 4.1 million is about 48 percent of…?

Joel Gay: No, four. Four to eight percent. Four to eight percent of thetypical pumper cost structure. So that model is predicated on about 2,000 hours per year, and Ron can attest to this, it all depends upon the operator as to what level of capacity utilization expressed in pumping hours applies. 1,600, all the way up to 4,000 hours a year. We found that the average is around 2,000 hours a year, and that equates to around 4.1 million.

Tom Rooney: I think Ron said—what? Ron, you've experienced 7 to 8 million in—

Ron Gusek: I mentioned for an entire frac fleet, so that includes theancillary equipment up there, yeah, our R&M cost is probably between 7 and 10 million dollars for a fleet. Now some meaningful portion of that of course is pumps. Better than half of the equipment that's out there is horsepower.

Audience 3: Okay. So then a million dollars of cost savings then reduce that4.1 to 3.1, so that equates to a total savings of two percent?

Joel Gay: Well, no. So what you're doing is you're taking a 4.1 million andyou're going to cut it by more than 50 percent, so down to 1.5 million. Then you have to also layer in the cost of utilizing our equipment. So the net is one million dollars. 4.1 down to 3.1, but the 3.1 includes our revenues. But I think your question is to—how important is this? If we save them a million in a billion it's—it's a million per year per crew?

Ron Gusek: Yeah, I mean, for us, if you follow pumping services companiesyou'll know that margins can get pretty tight, particularly in the environment we're about to enter today. We'll take a million dollars anytime.

Tom Rooney: The numbers from the analysts that the consulting companiesinside the industry suggest that a million dollars would improve the bottom line performance by 15 to 20 percent of their bottom line. So it's impactful. And zero CAPEX.

Audience 3: Just one more. How many rig fleets do you guys have?

Ron Gusek: We operate five frac fleets today. Two more are coming. So weexpect to be seven next year.

Audience 4: First, I remember in the diesel application there was a mix, there is a mix of seawater with freshwater through the rotation. So has the same thing happened with your VorTeq?

Tom Rooney: There's mixing. The two fluid flows will touch each other. So the clean water that the pumps circulate to us and bring about the energy, for a microsecond. But in that microsecond, the two fluids will actually dilute each other in a very thin film. So the answer is yes, there's mixing. So what that hypothetically means is some of the sand then routes back to the large pumps. But in point of fact, the water that routes back to the pumps goes into a retention pond. And the sand settles out. But there is a miniscule amount of mixing. And because 90 percent of the fluid that's going down hole is water anyway, the amount of mixing and dilution of the frac fluid is irrelevant.

Audience 4: Okay. Next question is about—how did you come up with that 1.6million operating cost, I mean revenue for you guys? And also related to that—what's the cost per use for this technology? How is that comparable to your old ceramic?

Tom Rooney: It's much more expensive than the old ceramic. Much moreexpensive. At this stage, we don't want to get into those economics, for competitive reasons. But how did we get to the 1.6 million dollar rental or lease rate? We really set out the simple question, "What would be an enticing—" to the other gentleman's question, "What would be a very enticing move the needle value proposition to a fracking company?" And we actually set that number at roughly one million dollars per crew per year. And frankly backed into, "Okay, well then that means we should be able to charge this amount for it."

We actually think, by the way, that it's enticing to have a one million-dollar savings by leasing something from us with zero CAPEX. We think that's a very, very compelling case. But interestingly enough, we think there's going to be exceptional value perceived after they start to use it. As I said, the ability to have less redundancy, frankly the possibility of having less manpower physically on the site, and then the possibility to actually change some of the operating behaviors. We wanted to make sure that the economics that we deploy, our commercial go-to-market strategy has enough benefit that the clients would be ecstatic about it and want to move quickly. And we targeted that to be at least a million dollars per crew per year.

Audience 5: Good morning. Thanks for taking my question. Could you give usthe contours of what your capital requirements might be as you move towards different manufacturing for the VorTeq? And additionally, it looks like I would imagine you guys would be manufacturing your core technology, and the rest of it is probably an assembly process or some kind of cellular manufacturing process. So can you give us the shape of the function, in terms of what capital requirements you'll have going forward and wrapping up production? And additionally, how many more people you might have to hire?

Joe Gay: All right, I'll take that. So from a capital requirement standpoint, we're in the fortunate position of being very well capitalized right now for a company of our size. A lot of cash, no debt. In the event that we are—rather when, we experience rapid adoption and we build out the aforementioned logistics facilities and reverse-integrate into the manufacturing of the actual cartridges, we would consider that to be a high-class problem. So the need to raise capital is a need that we very much look forward to. But we're not going to quantify it at this point.

Tom Rooney: Where we stand today, we have terrific partners to your point to manufacture the steel and the vehicle itself. And we have manufacturing capability through locked in vendors, three vendors on the tungsten carbide. So the day that we choose to build and operate our own manufacturing facility for tungsten carbide is a day of our choosing. We're not going to be forced to build the manufacturing facilities because we would be the only party to do that. We would choose to do that on the day when we want to capture more profit margin by not having manufacturing elsewhere.

And I think your intuition is right. I don't know that we will ever want to be in the welding and assembly side of it. You know, the truck. But the core high material science part might be an area where we would want to capture some of the profitability. But that would be a discreet choice that we would make to capture more profit, not a bottleneck to explosive growth.

Audience 6: Just a follow up on that question, a little bit more, the first threethat you're targeting by the first quarter of '16, do you have enough cash to make those? You had gen three fabricated by—

Tom Rooney: To make the prototypes for each of those gens? Yes.

Audience 6: Okay. And is Liberty buying all three of those?

Tom Rooney: No, it's generation one, generation two, generation three. So the device—

Audience 6: So those aren't individual units.

Tom Rooney: It's not number three. It's evolution number three.

Audience 7: Can you maybe tell us how many you plan on producing within the next 12 months?

Tom Rooney: What's ahead of us right now is successful field trials. And as Joel mentioned, that's four to nine months. All of our focus is there. Will Liberty buy from us in the future? Ron can answer that. But in essence, assuming that the field trials are successful from their standpoint and ours, it would be obvious what they would. But the success in the field trials right now is the most critical thing for us. The ability to lay out gen two, gen three, such that we can rapidly move to commercialization is what it's all about. But yes, we could see rapid early adoption.

The one thing that I would say is this. When we looked at the adoption rates in the other aspects of oil and gas, we were—as in gas processing plants—you've got a billion-dollar plant that's going to be there for the next 30 to 50 years, they do plant shutdowns every year, every other year. The ability to get cycle time in and to get take up can be slow and laborious. We've seen that. We've experienced that. But as Ron had mentioned, a frac cycle is on the order of a month or two. And his frac crews will do many frac jobs per year. There's an ability to get into the cycle with any one client fairly rapidly.

So our expectation is by enjoying great success in the field trials, we are very likely to see rapid adoption. But we're not even getting to that point now. We don't want to try to give guidance here on that. We simply want to focus all of our attention on the field trials and getting to that. Because the opportunity here is explosive, it's very large. The value proposition should be disruptive. And that will create a market adoption that should be quick.

But to give you numbers…in house we have some models and things like that, but I think it would be irresponsible for me to try to convey to you that we've got that figured out, that we know exactly what that pacing will be.

Audience 7: So just one last question relating to Liberty, the relationship—are you going to be selling the capital straight to them, and then you're booking it as a capital sale?

Tom Rooney: It's a lease. Everything is a lease. Monthly—

Male 7: Even to Liberty?

Tom Rooney: Yes.

Audience 7: So Liberty will lease it from you? And then they'll lease it with amarkup?

Tom Rooney: No. No, Liberty will use it. Liberty will lease it from us. Goahead, Ron.

Ron Gusek: When you see a frac fleet show up on location, we charge a customer a fixed fee per stage. So we'll go out there and they'll have 50 frac stages in a well and they have a per stage fee. But inclusive in that per stage fee is the cost of the pumps, the sand, the chemicals. Any equipment that we need to bring out to accomplish that fracturing job. So we will incorporate that lease fee into our cost structure and then we calculate our per stage fee for customers as a result of that.

Audience 8: Quick question on the leasing model, probably for Joel. Would it be a firm, long-term contract for a number of years at 30 to 50? Or would it be something that you would decide after the field trials?

Joel Gay: I think right now we're contemplating an annual lease withthe renewal option. But we'll peg the final term and design of the leasing vehicle after the field trials.

Audience 9: Earlier in the presentation, you referred to a test loop that you developed in the design phase of this. I wonder if I could get a little more color, just so that we can learn where you are, what's still to be learned as you go through the pilot? Specifically, does that test loop you talked about, it being able to evaluate pressure flows, would that also incorporate proppants and the impact that they generate?

Tom Rooney: It's a great question. We've owned test loops as a company forever. We would never have been able to bring any products to market without them. The classic technology that we have, that yellow Pressure Exchanger, processes roughly 300 gallons per minute. And rated to, I believe 1,200 pounds per square inch. And no sand. And by the way, it's a perfect recycle device. So the amount of energy that we've had to impact in the test loop has been almost inconsequential.

Our power bill doesn't go up when we're running our test loop, and it sits in a room that fits in smaller than this stage. The test loop that's required to go to 15-20,000 psi. Ten times the pressure, and we test north of 400 gallons per minute. If you take the flow characteristics of 400 gallons a minute and, say, 15,000 pounds per square inch, the entire building that we occupy isn't capable of imparting that much energy. The entire building.

We've had to have a massive Caterpillar diesel, or Cat diesel generator parked outside our building to amp up our whole building so that we were able to test at those levels. We went to Pacific Gas and Electric, and we had our whole building energized now at a new level, so we don't have the Cat diesel anymore. But we had it for months. But we went and we bought, through Power Zone, a custom designed…basically the back end of what Ron deploys in the field, we have sitting in our research area.

So it's able to simulate exactly what happens. And yes, we can put actually more sand through our device than they even use in the field. We've used several types of sand and we've used ceramic proppants at extreme loading levels. We've run hundreds and hundreds of tests. Different flows, different levels of pressure, different levels of sand or ceramics. Notwithstanding what you might see in environmental movies, the chemicals that they use are irrelevant to what happens to the pump. So we haven't bothered with that. It literally has no effect.

But we've been able to do a great deal. The one thing that we've not done or tried to do, just to power one of these required us to change our entire building. That device has 12 of them on it. So we have to literally go to the field so as to be able to bring about a test at the full scale. But really the only thing that's going to be tested at the full scale is the interaction of 12 of them in a manifold. But to be very frank with you, over the years, all of our devices in the desal industry have gone through manifolds. Dozens and dozens and dozens. So it's not rocket science.

Audience 9: Thanks. That's helpful.

Audience 10: Ron, I wanted to ask…here in New York, we can't use thefracking. Is the chemicals or sand, are they not avoiding putting through this technology, does that help you make sales to certain municipalities?

Ron Gusek: I don't know that it will change that specifically. Obviously ourgoal is to minimize our footprint. Anything we can do to lower that footprint helps us to make sales to municipalities. That footprint exists in the form of truck traffic, it exists in the form of noise, it exists in the form of the chemicals we use. So while this may not directly change the chemicals we use, at least not in any way I'm going to talk about yet, it does offer the potential to lower that footprint.

And you know, they've talked about ring three, where we potentially look at an entirely different design of pump. The type of footprint we're looking at there, those opportunities are, and could be, significant. People have dabbled in that idea of different pump technology, difficult given the type of frac design we pump today and the way the equipment is set up on location. But there are some meaningful opportunities for that in the future that could have a big impact from that standpoint.

Audience 11: Apropos to the new technology with the pumps, you're going to have a huge energy requirement. Is there going to be another flatbed with the Caterpillar?

Tom Rooney: No. Actually, they're going to leave all of the existing pumps. The 12, 14 pumps on site. And the only thing that we're going to ask of those pumps is to provide the energy to flow through ours. So that device has no energizing mechanism whatsoever. It is, in fact, the pumps that are already on the site that will provide—so there's no energy source required. We are an energy transfer company. We convert the energy to something else.

Audience 12: I just wanted a little clarification on the field testing trial period and how long it's going to be exclusive. I mean, you say four to nine months. Does that mean that possibly within five months you could be marketing to other players out there?

Tom Rooney: Yes. So the field trials will run—set out originally as sixmonths of field trials. And at some point, Liberty will say, "Wow, this works for us. And we want to use more of them." Presumably at that same point in time, we're satisfied with the commercial output of it for ourselves. And then yes, it would just turn into capital or commercial rollout. But I mean, it could be four months, it could be nine months.

Audience 11: The other question is there's a lot of big oil service companies out there. How did you approach anybody else? And what was the process for choosing Liberty?

Tom Rooney: To your point, I think there are something like 50 pumpers. We could've considered any number of them. What's critically important to us is we needed a partner that thought and the culture was very much like ours. There are bigger pumpers than Liberty. There are smaller pumpers than Liberty. But there's nobody more ideally suited to us than Liberty. And it was really what Joel went down. We wanted to move fast. I can tell you that way back when we talked to someone else, it took them eight weeks to agree to sign an NDA. You would imagine, that would be kind of in the "no" category. We're not really interested.

So Liberty is/was the perfect fit for us. Big player, influential player, well regarded, nimble, creative, innovative, wants first mover advantage, wants to change the paradigm. But they also have five crews and quite a few more out into the future. So also represented a great first client for us. So in this case, as is often the description, bigger is not better. In fact, one of the lessons that we learned in the gas processing side of things is we teamed up three or four years ago with some eye-popping names on the global stage, in terms of the big national oil companies. Great clients, great people to with, big checkbooks.

But the pace, and the keen interest in innovation is just different. And so again in the wonderful world of lessons learned, we sought to have a partner that was, in many ways, the same DNA as us. You know, brilliant, aggressive, nimble, collaborative, those kinds of things.

Ron Gusek: And I think you can't overstate the value of having a sistercompany that's going to be flexible on this. While we're going to drive that in and park it in place of all our existing missile, our expectation at the end of this test process is a very clear set of operations protocols for that particular device. That takes a little bit of time to stop and think through and maybe change. You can appreciate that going into next year with sub-70 dollar oil that operators are going to be looking to wring every efficiency out of their service providers they can. They don't often tolerate delays on location very well. Over and above our cost, it might cost an operator 50 or 60 or 70,000 dollars a day in incremental costs while we're sitting on location. So we want to make sure that we are on location where we're not expecting to absorb all of those costs while we sort things out.

Tom Rooney: We'll take one more question and then we'll move on.

Audience 12: Can you cover the single unit economics of these devices and the useful life and exposure to tungsten prices and sort of the payback at your proposed lease rates?

Joel Gay: We're not going to deconstruct the cost profile of one of those today. It would be premature, if not reckless, given that we haven't taken it through field trials. From a macroeconomic standpoint, the global supply of tungsten is abundant. In particular, in China. And the supply chain that we have is more than adequate to get us well down the road of market adoption.

Ron Gusek: The actual commodity price for tungsten—tungsten itself coulddouble in price and it would be unimportant to us. We wouldn't enjoy it, but it's kind of unimportant. The other thing is we have already three vendors for tungsten carbide. So we're not going to allow ourselves to get boxed out of the market.

Tom Rooney: Well this is good. Thank you, Ron, very much.

[Applause]

We want to take the next hour to really get into these other marketsthat we've gotten ourselves engaged in. These are the growth markets, and I want to reiterate. Going all the way back in my slide, there was the "Why diversify?" Which is somewhat obvious. There was the "How?" Which was you have to invest in innovation, innovation, innovation. And that's a hard job. But it's the one thing that I'm the most proud of. And then there was the "Where?" Right? And the "Where?" had two components. Where to diversify? Two components.

We want really, really large businesses or large opportunities, TAMs, and we only want to go where we can disrupt the market. Well, I hope you would agree, at least to a certain degree, that that is very much characterized by the opportunity in fracking. A 1.4 billion dollar per year opportunity for us, and growing rapidly. And a very disruptive technology and proposition. One that we should be able to dominate for a very, very long time and command very interesting pricing.

But I want you to keep thinking about those two things. Is this big enough? And will they, in fact, be able to disrupt the market and command unique pricing?

Now we're going to go through a sequence of these, and I'm going to keep coming back to that two-theme part. So, gas processing, growth market. This is the first market that we went after in the sphere of oil and gas, the first move outside of desalination for us. We've talked a lot about it. So here's where it sits. Remember this chart? I'd said earlier that 50 million is water, but really we're targeting 5 billion. So where the gas processing fits into it is this number: 627 million. And I'll build that up so you know what it is. But it answers the question, "Is it big?" Yes. One-time addressable market. Which means we would outfit the plants that could use our technologies one time. If we did that, 627 million. So I think it fits well into the first question, which is, "Is it large enough?" But I'll get into more detail on that.

So kind of what is it? Well, here it is in the ecosystem. Oil and gas comes out of the ground. And at some point it needs to be processed. Oftentimes, gas comes out of the ground with hydrogen sulfide and carbon dioxide. You can't put it in, for the most part, you can't put it in commercial transmission lines, you can't sell it, you got to clean it. It's the first step. Down the line, you can sell it, you can do other things. It's right there where we are.

We'd like to think we're going to be helping the industry take it out of the ground and then the first thing we're going to do is help the industry to process through the gas processing facilities. So how does one of those gas processing facilities look? Well, right now, here's how they look. On the left side, you see a contactor vessel. These are the things that look like a farmer's silo. If you've ever looked at a big, industrial facility, they're big cylinders that sit out there. And the gas processes through there.

But what we like is that through the other side of it is a highly pressurized fluid, because we don't actually interact with gases. We only interact with fluids. And so right now you've got a very high pressure pump that pumps up your cleaning fluid to go into the contactor vessel. At the bottom of the contactor vessel is a level control valve. All that really does is depressurize the fluid. It ejects the fluid, dejects the pressure in the fluid. And so beginning the process, you pay a lot of money to pressurize the fluid. As soon as it's out of the contactor vessel, you throw the pressure away. Throw away energy. That's our opportunity.

If you're going to be able to disrupt an industry, you need to have enough pain that you can fix to disrupt it and make it important. Downtime is very, very costly in these gas processing facilities. And they run the gamut. There's no such thing as "what's an average look like?" But we've gone ahead and for the purposes of this presentation we're using a so-called average plant size so that we can give you numbers that make some sense. And we'll come back to it at the end. But for a so-called modeled average plant, the downtime is 2.5 million per day. That's not a guess on our part. We've been working very closely, doing RAM studies with some of the big oil players, and this is their number. So one day of downtime in a so-called average gas processing plant means 2.5 million dollars of losses. Big pain point. Don't ever shut my plant down.

The second, because of that, they deploy and employ excessive redundancy and excessive maintenance. In other words, if I'm staying down one day is worth two-and-a-half million and my plant shuts down for a week, that means I'm willing to pony up a lot of CAPEX and a lot of maintenance to avoid that. So that's the second component. And then the third is just a lot of energy consumption. Just putting that energy in the pump and out.

The common denominator across all of those? Pumps. The pumps are the most likely source of a plant downtime at a plant. Absolutely, positively. Every plant operator will tell you that. The most likely source of plant downtime is pump failure. That's why the excessive redundancy and maintenance all goes into the pumps. Where does the energy bleed out of the system? Energizing the pumps. The common denominator is pumps. That is magic to us. Without the IsoBoost—and this is half the diagram—without the IsoBoost, they put in three big pumps. I might need one, maybe two, but I put three. Okay? That's how it looks when we talk into the plant.

What does it look like when we finish? Three pumps go down to one pump. This is figuratively speaking. And we put our IsoBoost system in. And it means they de-energize two of the pumps. Not uncommon, because our efficiencies tend to be 60 to 80 percent. Not uncommon to get, say, 67 percent energy efficient. Makes the graphics make intuitive sense. So two of your three pumps go away. So that's very quickly where you get the first order of benefit to the client is, "Hey, two-thirds of your energy cost gone." Okay?

But what has become really powerful is when two-thirds of your pumps don't have to be used. A lot of other really positive things happen. But this is how we step into a gas processing plant. We basically say, "Don't throw the energy away every time you cycle the fluid through. Let us keep it there for you." And when we keep it there for you, you don't need as much pumping power in the beginning. So this is how it works at a very intuitive level.

This is what the technology looks like. This is called our IsoBoost, most commonly what we're using now in the gas processing industry. We have one operating beautifully in Texas, in China, and so on. And a number of others. We're also very proud to announce that ConocoPhilipps has formally signed a contract to put this exact device up in Canada. That contract was just signed a week ago.

When we started off three years ago, when we started to talk to clients, we had what I now call our initial value proposition. This is our initial value proposition. I think that if I talk you through this correctly, this could be the second most important thing that you might take away from this investor day. We have come across a massively enhanced value proposition. And we didn't just come across it, one of our largest clients did, and has actually been able to prove that statistically this will happen with every single one of our clients.

I want to talk about what is our initial value proposition. This is what we've been selling to the large oil companies for the last three years. So there's what it is. Selling price—again, this is our so-called prototypical plant. A three million-dollar sale price. We sell these, we don't lease them. We sell them that device, the IsoBoost device, for three million dollars. Their annual energy savings on this, 1.5 million dollars. Return on investment or payback, two years. Pretty compelling. Most people would say in the oil and gas industry, or most CFOs would say all things being equal, risk adjusted, I'll take a two-year payback all day long.

But the contrarians kept saying, "Yeah, but that all things equal, that risk adjustment," they're worried about that 2.5 million dollar per day downtime. My plant's already operating, I don't want to get fired by putting some newfangled thing in there for two-year payback. So we had to sit down and say, "Look, you got to trust us. We'll show you this and show you that. We're not going to cause plant downtime." When we went to sale and marketing earlier this year, it is a compelling value proposition. They bought on this value proposition. They get it, they've looked at our technology, the way it's been tested. They said, "Okay, I get it. You're not a big risk to me. I like that two-year payback. I'm there. I'm done."

As has been expressed before, we have in excess of 100 million dollars worth of sales pipeline with clients that like that value proposition. So that's the 100 million dollars sales pipeline. Pretty good. But didn't get commercial scale-up as fast as we'd like. But I have to tell you, we're getting there. But it's taking longer. And I think it's because we underestimated the degree to which the aversion to risk on that 2.5 million per day downtime.

We've been pounding away and the wall is coming down and we think people are going to buy. But that's our initial value proposition. What's critically important is our actual value proposition today is much more than that. And I want to spend some time on that.

By the way, here's a proof point from China. The energy savings a plant would realize by using the device is about 25 percent of total power in U.S. dollars. That's a million dollars in annual savings.

But this is a client reacting to our initial value proposition. This is why it works. This is why they want to do it. Here's the new way to look at this. It's the game changing value proposition. How did this come about? How did we discover this? Okay. So we have a plant called the Jackalope Plant down in South Texas, near the Mexican border. It's a town called Hebbronville. Been operating for years flawlessly. Well, we took Saudi Aramco and a couple of industry players. They brought a whole entourage, a whole team down because they've been very curious about this technology.

Aramco bought the IsoGen technology from us, and they're deploying it in the second largest gas processing plant. But their deployment is going, shall we say, a little slower than we had hoped. And it's actually at the plant now and will be brought online. But Aramco is very, very interested in what all of this Energy Recovery stuff could mean to them, and throughout all of their facilities. So we told them, "Well, the device we have for you is taking its time to get there because they're being methodical." We said, "Why don't we just take you to somebody else that has deployed one?" So they said, "Great idea."

So in June of 2014, they sent some of the top reliability engineers in the world to our plant. And here's how important it was. The top guy, the top person came away saying, "This is a game changer." Flew to our offices the next day, had dinner with Joel and me and several others, and was incredibly animated. He said, "Tom, you don't seem to understand. I'm one of the top reliability experts in the world. I'm a former Vice Chairman of the American Petroleum Institute." He said, "I can prove statistically why it'll happen every single time you deploy your energy." He knows our Chief Marketing Officer, because we've been working with him and them for several years, and asked, "Would you mind if I sat with your Chief Marketing Officer Audrey? 'Cause you guys need to change your whole marketing campaign. This is a game changer."

He was so taken by what he had seen and he's a statistically-driven reliability expert, one of the top minds in the industry. So this past year, he said to me, "The one thing we need to do, it can't be my opinion and it can't be Energy Recovery's, we need to hire a third party industry expert, a firm, that will run all the statistical calculations. We'll give you all of our company's reliability numbers on how the average gas processing plant works. You give us reliability on how your turbochargers work, we'll give it to a third party, we'll crunch the data using the normative industry data, and it will tell us exactly what comes out of it. We've already seen the results, it's through the roof."

That paper has been accepted, and at the Turbo Expo of 2015 that paper will be delivered referring to this as a "complete game changer." In fact, the case study that we're referring to is an Aramco plant that will be released in 2015.

Again, to remind you, in this model case, a three million-dollar sale in our initial value proposition generates one-and-a-half million dollars of electricity savings per year, two-year payback. That was the initial value proposition. It's starting to get people to move forward, move deals forward. So what's the new value proposition look like? Selling price, three million dollars. Same sale price. We don't change the technology at all.

27 extra run time hours per year.

In other words, the statistical likelihood of plant downtime is very, very, very calculable. The industry has all kinds of data. The predicted increase of plant uptime. So you remember we were saying in value proposition number one, "Trust us, our stuff's pretty reliable. It's not going to bring your plant down." It turns out it's not going to bring it down, it's actually going to push it up. A shocking revelation. And that can actually explain why that happens. In fact, that's what this industry expert wanted to tell me. He said, "Tom, it's not an accident that in Texas they're getting better plant performance. It's statistically provable, and it will happen every time."

And we've now been able to make the case, and he's been able to make the case with and for us. Still have the two pumps, right? There were three pumps. Put our device in, 67 percent efficient. All of a sudden, you don't need two pumps running. Only one. The vast majority of the maintenance cost in a plant comes from the pumps. The vast majority of the downtime in a plant comes from the pumps. We were shutting down the two pumps to save energy. What the industry sees is you shut down two of my three pumps. My maintenance drops a lot, my whole plant performance goes up. Because our device, because it doesn't have a motor or an impulsion aspects to it, it just blindly trades. It has almost no downtime.

We've sold thousands of turbochargers around the world. Statistically, we can show that the uptime in one of our turbochargers is about 99.9 percent. Statistically provable. Don't have to ask us, we have all the data. The downtime on a pump, ten percent of the year. That's why they have to have three of them. And they have to maintain them. So it's statistically provable, but every single time somebody puts an IsoBoost in a gas processing plant, they're going to get the energy savings. We've known that. But we no longer have to say, "Trust us, you won't get more downtime." We can shockingly show them that they can statistically expect to get 27 more runtime hours of their plant per year. No doubt about it. And it's provable.

This is probably the most significant and most encouraging thing for us in our gas processing business, and in our entrée into the oil and gas industry. We don't have to say, "Do you want energy savings with a tiny bit of risk to your plant?" That was a tradeoff that was getting people to move to the starting gate, but slowly. Now we can say, "We know your number one thing is plant runtime. We can actually sell you that. In fact, the biggest part of what we're selling is increased plant runtime."

By the way, is that important? Absolutely. Because a lot of these gas processors have to build new plants. Why? Because of the shale gas revolution. Ron's guys are finding shale gas everywhere. Got to build more gas processing facilities. So if the plant that I have now can process more gas for free —and oh, by the way, I get to cut my power bill—this is huge for us. This is disruptive.
We've only come to be able to model and understand this since June. So this is going to change the pacing for us in the oil and gas industry. And I can tell you the clients that have been working with this and understand this, they're very, very animated now, in terms of what this means for them.

Here are some of the quotes that the gas processing plant down at Jackalope. “Doesn't affect plant availability. If anything, it runs better. You’re not using the big engines or putting so much strain on electro equipment. We’re saving electricity and emission compliance by not using it, 50 percent of the energy.” And again, this expert, “Your real value proposition is uptime. It is game changing.”

This is revolutionary for us. All right, so that speaks to how disruptive this technology is. We believe incredibly disruptive. The market in the industry is now starting to figure out how disruptive. We’re starting to win global awards for innovation on this technology. We’ve won several this year already. So how big? That’s the other question. Remember, we had two questions. Can you be disruptive enough? And is it big enough to care about? So this is—there’s been a lot of discussion. There’s 1,800 gas processing plants around the world, plus or minus 100, 150, depending on who you talk to. Where are they, and here are the numbers.

You see a huge number of them in the United States. But we also have to look at which ones are big enough, because there’s engineering economies of scale. We need enough fluid flows and things like that. So the green numbers tell you where we think our devices are applicable. 627 of them are located around the world. You can see a small portion of them in North America. That’s because there are a lot more small, independent producers in North America, compared to say a big, national oil company somewhere where they don’t build lots of plants, they build some giant plants.
So actually, the bigger the plant, the better the plant for us. But 627 of them around the world for us, these become our targets of opportunity.

So now, let’s break that down into what does it mean in terms of the economics of the total addressable market for us. So the average plant—and again, the average is kind of an interesting number—but the average plant, as you can see in the lower right hand corner, average sales price 999,606. It’s a million dollars for the average plant. So if there are 627 locations that are of a size that’s applicable to us, it’s pretty easy to get to 627 million dollar one-time addressable market. In other words, if we were to somehow approach every client where our device would fit, that would reap a 627 million-dollar cumulative set of sales.

What does that mean though in terms of a recurring revenue? Well, you have to add into the growth. In other words, people are building more plants. You have to add into it maintenance. Not add into it, but you have to take into account growth, maintenance, and obsolescence. In other words, our devices don't last forever. You add those up, you end up with 328 million dollar opportunity per year recurring. Now of course you would have to consume the first 627 million and then get to that recurring. Now exactly how those two lines interact, that's for a person's imagination. You either can take down all the plants at once and then go in a perpetual motor, or otherwise.

But these are the numbers. This is backed up by a ton of industry data that we've purchased and analyzed and talked to plant operators who were very convinced on these numbers. But this is the size. So disruptive? Absolutely. Large? You bet. What about pace and timing? Well, as you can see from the green arrow, we've been in a developmental mode. We were not in heavy sales and marketing, really, until the beginning of this year. I myself actually went to that Texas plant, almost exactly a year ago, and came away convinced that it's go time, we're exiting the developmental period. We have a commercially marketable product. It's go time.

We put onboard in January six people dedicated to oil and gas sales, and we green lighted our first marketing efforts, which you may recall, our first outbound marketing effort into the oil and gas industry was February 23rd. Within 45 days, we had significant amount of inbound interest in this. Again, on the initial value proposition alone, a ton of inbound interest. But in this year, we commenced our sales, we commenced our marketing, and we've suddenly come upon a reevaluation of our value proposition as actually handed to us or forced on us by one of our better clients.

So what we see going forward is acceleration, in terms of our commercial rollout. Now, in fact, we're less than a year into the commercial sales and marketing rollout, and we just came across a massive accelerator. So where we're looking forward into 2015, we see tremendous opportunity for growth and adoption.

Second market, oil and gas pipelines. Very, very interesting market for us. So let's take a look back and see how that fits in. So again, inside the 5 billion-dollar one-time TAM, I calibrated this as a 1.05 billion-dollar one-time TAM. Is it big enough? Yes.

2,000 pipelines out there today globally that fit into the size and scale that we seek. They traverse high elevations. The key issue is wasted pressure energy. How does it work? What does it look like? So you have pumping stations. Now, we don't always go over the tip of Mount Everest. But you could well imagine oil pipelines traverse long distances, up and over terrain, with vertical elevation changes. Because of that—now, at certain locations, they'll actually use the siphon effect, where they'll go through a valley and back up another side by enabling the flow to carry itself from one to another.

But frequently, they'll have pressure-reducing stations, choke valves that have to take out the energy on the downhill side. If you didn't, you'd either have to have pipelines with massive wall thickness or blow apart your terminal refinery. So they have to intentionally destroy the pressure out there. The key here is wasted energy. They're simply throwing away their energy.

What do we do? We drop in our IsoGen device. Now almost every other product that we have, we capture the energy that comes about in one kind of fluid and we put it into another fluid somewhere else where you want it or you can use it. But on the side of certain points in terrain, I can't use it. Don't give it back to me as a pressurized fluid. I don't want it on that side of the hill. Now if we could take it over to the other side, through the middle of the mountain, which we can't, that's too much distance, so we have to monetize that wasted energy for them and put it into a vehicle that they can use. And that's electricity.

So the IsoGen is an electrical generator. We would place those in the locations where they would otherwise be using choke valves. That's an aerial shot of where the oil pipelines exist in the United States. There are more of them than you could imagine. Crude oil, LNG, liquefied natural gas, and also the liquids that come about in gas processing. Suffice it to say there's a tremendous number of oil pipeline opportunities for us, and it's a global market. About 1.5 billion, and we've identified 328 specific opportunities around the world.

Here's where they are. You can see they're scattered around the world. So let's drill into what does it look like in annual TAM, versus just a one-time TAM. And so the 328 opportunities that we had described, these are larger. They tend to be discreetly larger than the one million-dollar average sales price for IsoBoost. So it's about 3.2 million for each example. That gives us the 1.05 billion dollar one-time TAM.

Interestingly enough, the annual TAM is pretty large, even compared to the one-time TAM. So the annual TAM opportunity recurring is about 900 million. Why is that? First of all, the device does not last as long, so the maintenance costs are higher. The replacement costs and the market growth is rather substantial because of the crude and other fluids that are being found. And again, this comes from a lot of data resource or data research that we've done.

Switching now to ammonia. We've talked quite a bit about ammonia on some of our earnings calls. How big is this market? Again, we need it to be very large and we need to be able to be disruptive. So ammonia, you may recall, 1.43 billion dollars. Very, very large market. Where does it fit in the ecosystem? It's downstream from gas processing. So Ron brings it out of the ground as natural gas, goes typically through the first gas processing, then the gas industry will sell it downstream to certain people, including the ammonia industry. Different players—there are a few players around the world that do both.

But more often than not, the players change. And—but there's an industry that processes ammonia. And the key feed stock to making ammonia is natural gas. What's interesting about this, they use the same process as the sour gas processing industry does. The same process. Scales can be a little bit different, the fluids are slightly different, but the process is a cut and paste from what we've already experienced in the gas processing industry. So what does that mean? Same thing. Downtime costs, very large, excessive, redundancy in maintenance, high energy. It's the same disruptive proposition that we had before. If this looks like I'm showing you the same slide, I am. That's what's really fantastic for us.

It also means that this applies. And by the way, these plants typically are larger. But if we were to model against the same prototypical three million-dollar sale, the numbers come out exactly the same. So the level of disruption, in terms of ammonia processing, is the same. Do we have interested clients? Yes. We've got some keenly interested clients in this. We started in the gas processing and talking with clients like Aramco and Energy Transfer Partners three-plus years ago. Our very first conversations when we were alerted to the fact that the ammonia industry existed were February of this year. But we have an eye-popping number of clients who are keenly interested in this. And frankly, who are keenly interested when all we were talking about was that first level of value, which was the energy savings. But this is an industry that is entirely focused on plant runtime.

This industry, by the way, sits between gas processing and shale gas, which is now abundant. If you followed it in the United States, we have very, very cheap natural gas. Down around four dollars per million cubic feet. That very cheap feedstock goes into the production of ammonia. Ammonia is the key ingredient that goes into fertilizer. The U.S. is one of the largest fertilizer end markets. So we're going to see a great deal of pull coming from bringing gas out of the ground through fracking technology through the gas processing, feedstock for ammonia, ammonia into fertilizer. There's a big boom on right now for ammonia and fertilizer plants to be built in the United States. There are many, many of them built around the world, but cheap natural gas and the demand and the need for fertilizer in the United States.

So for us, this is an incredible market to be in. That's why, as it turns out, this market is substantially larger than even the gas processing industry, which is a subset of the oil and gas. We were really excited to be in the oil and gas industry and the gas processing. When we realized that there was this mirror image industry that's even bigger than the gas processing, and we don't have to change our value proposition, we don't have to change our technology, we just have to be introduced to a new set of players that are called the ammonia industry.

So how much? You can see, pretty substantial. 1.43 billion scattered around the world. U.S. is a big market, for the reasons that I was explaining earlier. So how does that break down into an annual TAM? The average sales price being about 2 million dollars, versus the 1 million in gas processing. Which speaks to what I was saying before. These do tend to be larger plants. The reason for that is the gas processors had to go closer to the wellhead because you can't—it's harder to pipe sour gas. But once it's been cleaned in the natural gas processing stage, it can be piped long distances. So the ammonia industry tends to centralize into larger plant sizes. And large size is actually better for us. So a larger portion of the ammonia industry is actually available to us. And that's one of the reasons why the average sales price or the average application for us is 2X, and the total market is quite a bit larger.

But here's how it breaks down. So 1.4 billion-dollar, one-time addressable market, again, if we were to retrofit a plant that existed today, convert that to an annual TAM, it's about 840 million dollars. Again, maintenance costs, growth, and replacement costs. Very, very substantial. So does fit the category of opportunity to disrupt? Yes, it does. This industry has, in fact, tried to use an energy recovery device. And has had a very bad taste in its mouth. But they keep trying it because they're so desperate to reduce their energy costs. What they have tried is what's referred to as a reverse running pump. And there are a number of vendors out there who have tried selling reverse running pumps to capture energy.

The problem with that, they might be able to capture the same energy that we can, but the problem with that is this enhanced value proposition. Think about what I had said. We put our device and you de-energize two of your pumps. So now they go from three pumps to one, they get greater plant uptime, performance, and grade. When somebody puts a reverse running pump in, you don't get to de-energize the three pumps that you have. Because the reverse running pump doesn't do that. It simply extracts the energy through electricity. Like we do on crude oil pipelines. But they don't get to de-energize pumps two and three. In fact, what do they do? They put in pump four.

So what do you think happens with their maintenance costs and their plant reliability? So the ammonia industry has been almost desperate to reduce their power consumption, but they've been doing it by accepting profound risk and downtime by virtue of adding the so-called fourth pump. When we approach them and say, "Well, wait a second. Our devices are actually more efficient than a reverse running pump, and we get this multiplier effect, this is an eye-popping revelation for this industry." We expect really big results. We've only been talking to the ammonia industry since late February, early March. Very, very interesting. We expect rapid adoption there.

The last market that I'm going to go through might be an interesting one that could be the tale of what's ahead for us in the future. It's the urea market. What is it? Well, first of all, how big is it? 399 million. We'll get into it, one-time TAM. Urea is used as a fertilizer for crops and a raw material for chemicals. Pretty big industry, urea.

Where does it sit in the ecosystem? Down near ammonia. Ammonia is one of the key components that goes into urea. What's really, really interesting about the urea market for us is that it might turn out to be the best of all worlds for us. Why? Well, first of all, urea plants are oftentimes co-located with ammonia plants because of the great synergies between them. So while we're stopping by to sell an ammonia opportunity, remember that was really large and we're disruptive there. Well, the urea plant does the same thing. They process using the same industrial process. So why not just add on the urea plant? That's cool, but that's not the best of both worlds side to it.

What is the best of both worlds? Urea is a very caustic chemical. They tear up their pumps. They go through pumps like crazy. This is a VorTeq application for us. Now it won't look like an 18-wheeler, 'cause it's not going to be—need to roll and whatnot. But it's a very chemically hostile world. They use these things called carbonate pumps. So we've already gotten keen interest from clients in the urea industry that they have two pain points. They have massive power consumption, they have tons of plant downtime, but they go through their pumps, like the fracking industry goes through its pumps, you know, on an almost daily basis.

The life expectancy of a pump pumping urea in this carbonate world is down to months, where they have to totally replace the pumps. So when we walk up there, we're like, "Okay, so there's an opportunity to do a skinnied down VorTeq there. And the Energy Recovery device with this highly enhanced value proposition." This is on the horizon for us. We actually have our first clients in the urea industry, I guess I heard in Europe, that wants to try this already. So this is one that we expect to see huge acceleration. And for us, it might be the disruptive piece.

Now it's about a 400 million-dollar one-time TAM, and it should have very high recurring revenues that might actually approximate the one-time, because it's a very hostile environment. The reason that I have this up here is to show you that where we stand as a company we have no shortage of terrific opportunities staring us right now, in terms of where we can go. It's a fascinating market for us, a fascinating opportunity.

Where are they located? All around the world. So again, I come back to this. That's it in terms of the new markets that we want to talk about today. But when I went all the way back to the beginning, I said that we had a three-pronged strategy, which was manifest after we realized that the desal market was simply not enough area for us to grow. Three prongs, right? We had to cut costs and then we had to regain our market share, which we've done. And then we had to diversify.

Then when we thought about diversification, it was “Why?” Because we have to, because desal isn’t big enough. How? We had to invest massively in the innovation engine, bring it back, bring the culture back, get the vibrant world going. We got that. Then there was the “Where?” Which was, “Where should the company expand and grow into?” Two prongs there. We wanted very, very large markets. Why go after something small? And we wanted only markets where we could be highly disruptive. Where we could come in with a value proposition that had never been seen before, own that market, and create significant value for our clients.

This is the map that we have. We think we have more than enough to chew on. This avails us of 100 times the growth opportunity that we would’ve had had we just stayed in desal three years ago. We feel that in each and every one of those markets we have a value proposition that is not incremental. It’s not modest. It is provocative, disruptive, and avails us of an opportunity to change behavior patterns and create real value for our clients and real value for our shareholders.

In conclusion, we feel that we have a strong balance sheet and a strong management team. We think we have a proven ability to disrupt and dominate a global market. We’ve done it once. We know what it’s like and what it feels like to bring a technology that can dominate a market. We do have a vibrant innovation engine, absolutely, unequivocally. I see it every day. I see the output of what we have. I see the ability to create value propositions. Our diversification is well underway. I like to think we’re three years into a five-year initiative to really make diversification the key for us. We have disruptive value propositions, no doubt in my mind.

The value propositions that we have, at the point of client interface, are disruptive. It’s taken its time to evaluate some of them, but they’re very disruptive. And now, today, we have massive addressable markets, allowing us and enabling us a long runway for significant 100 times growth. Growth and success at this stage for our company is inevitable.

As promised, we’re here to answer more questions that you might have. I’d like to point out in the room we’ve got our Chairman, H.P. Michelet and we’ve got Fred Johannessen, also from our Board, and Dominique Trempont here from our Board. So we have three Board members here, plus myself. And we have the majority of our chief executives here to answer questions. And there are a handful of our top engineers in the room. We ask everybody to kind of scatter around and make themselves available. David Barnes, our new Chief Sales Officer, is here, and Audrey Bold, our Chief Marketing Officer.

If you have some questions, please feel free to ask a person sitting at the table with you. Nocair Bensala, who heads up our Manufacturing and Dr. Prem Krish, our Chief Technology Officer. We're all here to answer questions for you. And Andy Stroud, our head of HR. But the point is, we want to be able to answer your questions.

[Start of Q&A Session]

Tom Rooney: I'll point out in the room, we have the model over here if you want to take a look at it up close. Over here, we have an interesting display on kind of what is tungsten carbide. For years and years, people would try to pick up the white cylinder there, which is alumina. Very heavy—does a number on our board conference room table every time we pick it up and put it down.

If there's anybody in the audience that wants to try to pick up the tungsten carbide one, please do so. We actually have a thin sliver of it to show you, and it's incredibly heavy. But the point of which is a little bit of material science over here and an actual cartridge in what is the heart of the VorTeq. As I say, the model of the VorTeq over there.

We actually toyed with bringing the VorTeq, the first one, here. You know, big, grand event, show it downstairs, be very theatrical about it. But we took the wiser approach in bringing it virtually here. It's actually a very cool technology over there, to see it in three dimensions. There's virtual reality, where you can kind of do a fly through and also augmented reality. So if you enjoy cool technology, you can actually see it. You can actually, in effect, fly yourself into the middle of the device.

I'll open it up to questions. We've got a couple of people with microphones to walk around, and we're open for all of your questions.

Audience 13: Could you talk briefly about some of the patents that you have thatare covering some of this technology? And I know you showed many of them—I think you had several in the last 12 months. Are they all related to this technology? And have any of them been proven out so far? The patents, is there anything you've had to defend in the past?

Tom Rooney: We haven't had to defend patents in the recent past. The average time to formalize a patent and to recent the documents is measured in years. And so the first step is filing for the patents. We have outside legal counsel that works with us to make sure that they're written in the right way—we're certainly not novices at that. So we're confident that we will receive patents that are commensurate with the filings that we've got. So what are they covering? I believe 41 of the 53 patents filed recently pertain to VorTeq, the fracking technology. And there's a series of other patents pertaining to the IsoBoost and IsoGen and other deployments.

The patents pertaining to VorTeq go from fundamental, in terms of just the sheer act of using an intermediary, and a very hostile fluid, all the way through to the particulars. As we've learned, as each week and month goes by and testing, we end up having to tweak something to make the rotors spin faster in a sand environment or to move the wear surface somewhere else. So, like in any good patent portfolio, you'd hope to have a few fundamentals, which become really prohibitive in terms of anybody even thinking about entering the space.

But then so as not to ever be worked around, we addressed dozens of things that somebody would address if they were trying to do this and figure out the same things we did. We laid down a field of patents. So we feel very good about the strength of the patent portfolio in the fracking or the VorTeq, as well as the other technologies we have with IsoGen and IsoBoost.

Audience 14: Today, you've described an addressable market of 4 billion dollars. From me, it seems that you're going very wide and can you describe why you're not focusing on one of these markets, but trying to capture all of them? That's question number one. Secondly, I would like to know more about your go-to-market strategy. Are you intending to go to the end user yourself? Or are you partnering up with suppliers the same way you do with—in the water desalination business? And thirdly—by the way, congratulations with the VorTeq, it looks very nice. But if we see the fracking industry, you made a statement that you think the oil—the climb, is a blip. I don't know if it is or not. I hope it's a blip because I come from Norway and we live on oil. But still, I wonder how big a market is the addressable market now within fracking, given the new price of oil?

Tom Rooney: I'll try to remember the three-pronged question. Go wideinstead of concentrate, and so on. So, interestingly enough, three of the primary markets that we're attacking, those being gas processing, ammonia, and urea, are in effect the same. They just tend to be exactly the identical technology, just more end user. So I feel very good about that. VorTeq is completely different, but of course it turns on the core of what we've got. So we feel that we've got a nice portfolio of opportunities giving us the opportunity to be successful in four or five. I actually like it a lot, from the standpoint that it doesn't—large measure, it doesn't stress or strain our sales and marketing. It doesn't stress or strain our manufacturing. But it avails us of tremendous upside potential.

The second question, I think, was partners to go to market. And point of fact, in the water industry, we don't have any partners to go to market. We sell directly to the construction companies and the OEMs that use our technology. So we will do that the same thing here. So the people that will use our technologies, we're selling directly to. So if it's a plant that could use the IsoBoost, we'll sell directly to the plants. Now a few cases in countries, they'll tell us, "Okay, this is great. We own the plant, we want to do your IsoBoost. Here's an approved list of construction companies that can bolt it in for us. And would you please work with them to bolt it into our plant." Another case is they say, "Just sell it to me and I'll do that."

So we're going where the clients ask us and tell us to go, in terms of how to put it into the field. We're not really looking for channel partners, we're just looking for the end users for our technologies. And if—again, if it requires construction. So the IsoBoost, as an example, they pour a little concrete pad under it, they weld a couple pipes to attach it, and they might check—or they definitely connect the controls. Compared to the cost of buying our technology, not that big a deal.

So we don't plan to become the construction company that does all that little stuff around the fringe. Some of our clients are simply saying, "You sell it to me, I have got my little construction guys that will handle that." Another client has said, "I use these construction companies, you work with them and give me an all in." So that's about as far as we would go. I wouldn't call that a channel partner, but I'd call that more of a delivery vehicle at that point of attack.

And then the third was on the size of the global fracking market with crude oil prices up and down. So very interesting phenomenon. I've actually been interviewed by three oil and gas reporters already. And out of the chute, their first reaction was, "Have you seen crude oil prices now?" And I say, "Yep." And they instantly, without even prompting from me, say, "They're really going to like your product even more, aren't they?" The point of which is that fracking isn't going to stop anymore than crude oil's going to stop coming out of the ground. So people that do the oilfield activities, the pumpers and the frackers, are going to keep doing it. But they're going to be squeezed, pinched for margins.

And so with the E&Ps, the people who are producing the oil and gas, that reach out and have fracking companies do the fracking, are going to be far more keen to push the pricing down, and there'll be a lot more pricing pressure inside the industry. So what we expect in the near term with, say 70-dollar oil—now if oil goes to 25 bucks a barrel, I don't know how to answer that question. But at 70 dollars, where we are today, the expectation is there's going to be a lot of work done and a huge squeeze and an imperative to get costs out, get costs out, get costs out. Because a lot of these fracking companies own huge assets that they have to put to work. And they have to keep doing the fracking.

So in the near term, 70-dollar oil means that for the first 10, 15 clients or clients that we took a look at, they're likely going to be the clients that want to take the cost out. I would say in the long run, we love high oil prices. Because high oil prices creates the global, long-term demand and would cause the propelling of the five, six, seven, eight year growth. So in order to see 10 to 20 percent growth for this industry in the long run, you're going to want to see 100 dollars a barrel of oil and better.

But for early adoption for us, it's actually ironically not such a bad thing to have 70-dollar oil. Think about this. When oil companies and mining companies, the big asset-intensive clients that sell into commodity pricing, oil, copper, that kind of stuff, they tend to have a trigger. If oil gets below this, we cut off all CAPEX and we hunker down and try to cut costs as well. But don't even come to the CFO and ask for one nickel of CAPEX. Well guess what? We're in a leasing model. So we're not going to be asking for somebody to come out of pocket for CAPEX. So even if it's 70 dollars a barrel in oil and the Baker Hughes and Schlumberger are saying, "Hey, CAPEX freeze." We're an operating expense. And not only that, but we're an operating expense that returns almost immediately to benefit them.

So we think in the short run, 70-dollar oil will actually be an interesting price point to create more pull for our product. But in the long run, we're rooting for 100-dollar oil so that the industry grows in a beautiful way.

Audience 14: If you look at the wells that Ron put up, some of them have a breakeven cost that is much higher than the current oil price. So some of them will have to close down immediately. And the thing is, I think that—and I think it's a genius—I commend you for the operating lease model. But on the other hand, who wants to enter into a three-year or four-year or five-year, whatever length of a leasing model if they don't know what the oil price is tomorrow?

Tom Rooney: I doubt we're going to do multiyear leasing agreements. Certainly in the near term we're going to do multi-month leasing agreements. We're going to make it flexible for them. Why would we do that, by the way? Well, it's on wheels. So kind of like a repossession agent, right? If we—first of all, we have 850 crews that could use one of those today. So if we were to lease one to a client, as long as they're paying their bills, and six months into a one-year lease they say, "Hey, I can't use it anymore, I have to shut down." As long as the industry doesn't collapse, we just show up, pull it off, and take it to the next place. It's fungible. We can move it anywhere.

So in that regard, we have, in the early stages, the first year or two, we have all the incentive in the world to make it almost a monthly lease, to make it very easy for adoption. It is our expectation that this will become very addictive to these clients. You know, given the fact that the pain point is as high as it's characterized to be, and we're not asking for CAPEX and the payback will be very rapid, we think that if somebody uses this at a frac site for one or two or three months, which is one or two or three installations, it'll be hard for them to turn back. Now the pain point that they are experiencing is as high as you would imagine it to be. Or maybe it's hard to imagine how much pain they have with the highly destructive nature of pumping sandy water.

Audience 15: Is the maintenance included in the lease cost? Or is that an extraon top? And who takes that maintenance money, Liberty or you—and if you could give us an idea of the maintenance costs, both on the VorTeq side and on the other plant side, the ammonia, urea, desalination side?

Tom Rooney: The maintenance costs—so, to the extent that our device,our VorTeq needs to be maintained, we would do that. To the extent that everything else on site, the pumps that they have and everything else, they would continue to maintain that as they currently do. Joel showed a graphic where the current maintenance costs for the pumps on site was 4.1 million dollars. By virtue of deploying our device on site, that we maintain, the only remaining maintenance would be their same pumps, with a diminished rate of maintenance of I think it was 1.5 million. So there's a 2.6 million-dollar maintenance savings that happens on site. It's replaced by 1.6 million in lease costs to us, plus the million dollars of savings.

As to the maintenance costs in plants across urea and everything like that, that's a scatter diagram. There are people in the urea industry and the ammonia industry and the gas processing industry that go to enormous lengths to do preventative maintenance. The game is, "I have to process the gas or the ammonia or the urea. And the downtime for my plant is worth X. So if I want to avoid," and I think the example we showed was 2.5 million dollars per day, "if I want to avoid that, I have a number of strategies."

And the first strategy is actually accept it. Right? Accept downtime. They don't usually go that way. Some do. The second would be massive preventative maintenance. Which is having people changing out things before they wear out. And then the third, and more common strategy in addition to that is redundancy. If you need one pump, put three in. That kind of stuff. So what you see, then, is maintenance costs are all over the map, in terms of what—so what's the average cost of maintenance in an ammonia plant? Depends on who you talk to. But more interestingly, it's going to be the cost of redundancy that they put in.

Audience 15: [Inaudible]

Tom Rooney: We only lease that VorTeq fracking device. In every other industry that we've mentioned, we sell them a device, or sell them a technology. And then they would maintain our technology by frankly having us do it, and/or maintaining the plant.

Audience 15: Is it included in the lease cost?

Tom Rooney: No.

Audience 15: Or would you make an extra charge on top?

Tom Rooney: Again, we only lease the VorTeq, and we always maintain that.

Audience 15: But what do you make out of it? Do you charge an extra ten percent on top?

Tom Rooney: No. No. To maintain the VorTeq? No. No. We pull it onsite. It really doesn't take any proactive maintenance. We will typically pull it offsite to do offsite maintenance.

Male 16: What is the expected lifespan of your VorTeq unit?

Tom Rooney: The VorTeq unit looks like a truck on the bottom with a chassis and the wheels and stuff. Life expectancy on that is a really long time, because it will get very few miles on it, right? It's not like an 18-wheeler going across. Then you've got the pipes and the valves that sit there. The raw steel. Then you've got the core of our device. And all three of those, starting from the chassis up to the pipes, and then to our tungsten carbide, have different life expectancies. Where we stand right now, it's incredibly, incredibly good life expectancy. But we don't want to be any more specific than that, for competitive reasons. The extensive testing that we've been doing has been on the wear and tear inside the cartridge. Which is the point of attack of all the wear and tear.

We feel very, very good about the wear and tear—the wear characteristics there. But we don't want to publish, at this stage, anything about the life expectancy of the various components.

Audience 17: Related to your question, I believe your technology uses a thin film layer between the sleeve and the rotor and is capable of spinning at a high speed. But with the sand getting into the mix, how can you prevent that getting between the sleeve and the rotor?

Tom Rooney: Brilliant question. So the white cartridge is how we started off indesalination. And exactly what you're referring to is there is a circular plane or surface that enables the internal mechanism to spin. In effect, it's hydroplaning perpetually. To do that, we had to have milled tolerances down at the micron level. Introducing sand actually doesn't affect it. The reason it doesn't affect it is that a grain of sand is on the order of ten times larger than the opening. So a grain of sand can't get in there. It might be hard to believe, but like I said, it's on the order of ten times larger. Ron would tell you back there that they spend a lot of time, and completions engineers spend a lot of time specifying the size of the grain of sand.

By the way, it's finer than beach sand. It's very fine. And in order to do fracking work well and to propagate and prop open the fracture sites, they want very specific diameter. In fact, they get better specificity around the diameter when they go with manufactured ceramic pellets or proppants. So it's very predictable to estimate the size of the so-called sand or ceramic. As crazy as it sounds, even though the sand is finer than beach sand, it's on the order of ten times larger than the space that it could get into.

So when the proppants pass through the middle of ours, they're passing through the wide-open channels. It is the beauty of the design, is that we've always manufactured things to ridiculously tight tolerances. 15, 20 years ago, when our engineers conceived of doing this, the ceramic industry said, "You can't manufacture anything to that level of tolerances. It can't be done and hold structurally." Over the decades, we've actually figured out how to do it. So then when we went into this world where we were going to introduce a lot of sand, we had this amazing property where the sand particles just can't get there.

Now, if we were to process sand circularly around and around a million times, we might break down the sand, such that it could get in there. But everything here is a one pass. So if we happen to break individual sand particles, break them by the action of the thing moving, it would be a very small percentage of them, a tiny percentage of them, but it would never build up and they would pass through one time. So it's close to inconceivable that they get into the space that you're referring to.

Audience 18: Just following up on that, do you think that there are potential environmental benefits from the VorTeq? I know it's hard to say, but maybe in the future if they rethink the pumps—but then on the flip side are the potential negatives, like with the extra pressure?

Tom Rooney: The VorTeq wouldn't itself add any extra pressure. The pressure would stay the same. I suppose it's conceivable—well, then it's conceivable that there would be environmental benefits. I think Ron mentioned earlier that having fewer pumps onsite and less noise and things like that. So if and as the industry realizes they can deploy fewer pumps on the site, with less messy operations to maintain them, one could imagine certain environmental benefits. But they'd be subtle. Very subtle. And I don't know about environmental negatives. I don't think the deployment of our technology would create a negative of sorts.

Audience 19: Can you just comment on the possibility of using propane instead of sand in the fracking area? Is that something real or not?

Ron Gusek: Certainly fracking with propane is being done today by one very,very specific company. You run into a challenge, though, really just in terms of the volume of product that we pump down hole. So I always liken the idea of hydraulic fracturing to building a city. So you can imagine that if you had to cross New York City and the only thing available to you was side streets, that would be a very, very difficult undertaking. We put freeways through the middle of streets, or through the middle of cities, to make transit from one side to another much easier. We do the same thing underground with hydraulic fracturing.

As we deal with tighter and tighter reservoirs, we need larger and larger networks of free ways to move molecules. That takes larger and larger volumes of fluid. While propane is an interesting idea from that standpoint, the simple fact of the matter is you have to transport all of that fluid that you're going to use to pump down hole to a location and then put it in one spot to subsequently pump a frac job. That's easy to do with water. We can do that with pipelines and trucks pretty easily today. To do that with propane involves not only some significant logistical challenges, but it comes with some significant safety challenges and also some significant cost challenges associated with it.

Do I see propane replacing water as a frac fluid any time in the near future? Not likely. There are plenty of places where it's required. Reservoirs don't respond well to water in some cases. But I think it remains a niche technology.

Audience 20: I think you mentioned you're in your third year in a five-year initiative. In two years from now, how will you measure your own ability to execute? Is it based on number of customers? Units? Revenue? Operating profits? And how are you compensated?

Tom Rooney: What would be the key milestones and metrics that we woulduse to judge success into year five? It depends on which of those markets that we're penetrating. I would say two years from now urea, we would just be into trial projects. Conversely, on water, we would just be maintaining success in desal. Market share and so on. In fracking, I would hope in two years to have a very meaningful revenue and margins associated with that and be well into what I'd consider to be a steep commercial adoption cycle. In gas processing and ammonia, same thing. We would expect to see lots of contract signings and lots of revenue buildup.

I'd also like to think that two years from now we would have something past urea. We would have other new markets that we would be able to move into. We need to constantly be fresh in terms of new markets. We have enough opportunities yet out in front of us that we haven't even begun to put assets at. But I would hope that in addition to commercial take-up across a lot of these markets that we've talked about, we would also be opening new markets. You know, the paper and pulp industry has this stuff called black liquor—very nasty, corrosive fluid that they try to pump. You know, we're biting off plenty right now, but I think two years from now I'd like to think the scorecard would include some new and exciting stuff, moving up the queue into that.

How am I compensated? I have three prongs of compensation. My base pay. I think when you said, "How are you compensated?" I think you meant me. I have a salary, I have an annual cash bonus, and then I have typically annual grants of stock and stock options. I believe so much in what the company's doing that at the beginning of this year I went to the Board and said I would prefer not to have a cash bonus this year, I would prefer to trade that in in stock and stock options. And I approached the Board in February. So this year, I'm actually compensated with stock options and salary. Which I think better aligns with our shareholders, because it's been very hard to think about what the absolute metrics for success are and how you would compensate a CEO when the company really has two characteristics today.

We have a very quantifiable water business, and that's where all of the revenue comes through and you see in our quarterly reports and so on. And that business is doing what it's doing and, you know, what does management performance look like up against that? Well, if you accept the fact that this company can't change global demand for water, what we can do is profitability and market share. But in reality, that part of our business is quickly becoming disconnected from the real value proposition for shareholders and investors. The real value proposition is transitioning into what is otherwise would be characterized as a pre-revenue company. In large measure, a lot of the compensation for the management team is analogous to how you would compensate a pre-revenue company. A pre-revenue company that's aiming itself towards that five billion dollars worth of opportunity. And so much of the metrics that we're looking at, much of the compensation is along the lines of a pre-revenue company. Even though we are a revenue company. But 50 million dollars worth of revenue potential, compared to the five billion dollars worth of long-term value creation would suggest that the greater shareholder value is aimed there.

Audience 21: With regard to your partner Power Zone, what sort of capacity do they have to build the VorTeq, in case your business really takes off?

Tom Rooney: Power Zone has been a fantastic partner for us, or with us. We've got two of the top principals at Power Zone here. Power Zone has been a perfect partner for us in these exotic and extreme one-offs. And we've had conversations about what that means, in terms of our partnership going forward. The fact is, if we got an order for 100 VorTeqs, they would go past what Power Zone can do. And so we have to explore what it means for us in the future. We do have a number of options in addition to Power Zone, in terms of large-scale scale up. But we love the relationship that we have with Power Zone. Very, very creative, move fast, put stuff together for us, very flexible. So it's been perfect for us. They've been perfect with us.

Audience 22: Quick question on the missiles or the conventional missiles you have in the field right now. How costly are they? Are they generally leased? Are they generally owned by the companies, oilfield services companies? Or would there be minimal savings they would look out for to replace that with the VorTeq unit?

Tom Rooney: That's probably a good question for Ron to answer. And yourquestions are all about the missiles that you currently use and the economics of those.

Ron Gusek: I'd guess it costs us about three-quarters of a million dollars to buya missile today. And we buy those outright. So every one of our frac fleets we own a missile for today.

Tom Rooney: In the future, companies like Ron's would not buy thatthree-quarters of a million dollar device, wouldn't have to own it. Instead, they would just lease from us.

Audience 23: With the one million-dollar savings, they could just seea payback in the first year itself when replacing the conventional missile?

Tom Rooney: The million-dollar payback really, per year, is associated withthe maintenance costs. But yes, it would enable them to deploy new crews with three-quarters of a million dollars less CAPEX in it is probably the way to think about it.

Audience 23: A follow up on the VorTeq unit, what is the payback forEnergy Recovery, as you make 1.6 million revenues on those every year?

Tom Rooney: At this stage we don't want to be telegraphing to the market a lot about that. What I can say to you is this. Our water business historically—the Pressure Exchanger that we sell into the water industry has been known to enable us to have 67, 70 percent gross margins for PX sales. Our total gross margin as a company, which includes pumps and turbos and stuff, was 60 percent last year. It really swings with operating leverage. But my point is, the classic PX for us has garnered us on the order of 67 percent gross margins.

No further questions? Thank you all for coming.

[Applause; end]