

National Oilwell Varco, Inc.

Analyst Day 2018

CLAY WILLIAMS

Chairman, President, and Chief Executive Officer

I want to thank Loren and Sam for organizing today's Investor Day. I also want to thank all of you for joining us. I know many of you have travelled great distances to be here today. We have some terrific things to share with you. I also want to welcome those of you who are listening in over our webcast. Thanks for your interest in National Oilwell Varco.

We last did this in 2014 when the world was a very, very different place. And there have been a lot of changes in our industry and our market since 2014. As a consequence, NOV has had to evolve and adapt and shift and pivot on new market opportunities. Importantly, we haven't changed our level of support for our traditional customers in the offshore, but instead have focused on enhancing our offering into unconventional shale technologies which we see as very transformative in the energy picture globally.

Today, we're going to take you through that story, our views on the marketplace, our views on opportunities that are out there. A lot has changed in four years. What hasn't changed is the level of passion and commitment of the world's greatest oilfield team that I have the great honor and privilege of working with every single day.

You are going to hear from some of our business leaders here as the day progresses. Our three segment presidents are going to present after I'm done. The core team at NOV is still focused in bringing ingenuity and creativity into the design and manufacture of the world's best oilfield equipment, of drilling rigs that are delivered by our Rig Technologies group.

Our Wellbore Technology segment is focused on helping our customers drive those assets to maximum performance, maximum efficiency at the highest levels of safety. And our Completion and Production Solutions group is focused on supporting the operations of our oil and gas customers out there as they maximize returns on their investments in oil and gas wells and infrastructure around the globe. So, we're going to be bringing that to you throughout the day.

But first, I'm going to start off with fundamentals because as in football, fundamentals in business matter. We're going to start with a simple model of the oil and gas ecosystem in which NOV works to help you contextualize our competitive advantages that we bring to the marketplace.

Then I'm going to share with you some analytical work that we've done through the downturn on the equipment intensity of the business. As oil shifts to come from new sources, what are the implications for an equipment manufacturer like NOV? And finally touch on some of the developments in the marketplace that we've been investing in through the downturn to bring to our customers to help them improve their economics.

Let's begin with the basics which, to me, are all about strategic positioning. I've always been very, very focused on the fundamentals. We have great management teams that are excellent at running their businesses, but we find that they do better, and NOV does better when we have strategic tailwinds at our backs.

We've taken our capital stewardship responsibilities very seriously here. Over the 24 years that I've been involved with the company, management has always focused on investing and deploying capital in a very disciplined framework. When you take a look at National Oilwell Varco's level of competitive advantage through a, for example, Michael Porter's five forces lens, I think the level of competitive advantage that we've been able to assemble here at National Oilwell Varco is extraordinary.

We think deeply and explicitly about alternatives that our customers may have. We think about the competitive nature of the markets that we serve. We think about the ability and flexibility of the supply chain to support growth in our business as we move forward and advance our business on behalf of our customers.

We have always used this as a guideline, a guidepost to improve the competitive positioning of our business and to deploy capital in a direction that makes our businesses better. The NOV that you know in 2018, we believe, has very, very compelling competitive advantages.

I'm going to start as I mentioned with the fundamentals of National Oilwell Varco that I think it's important for equity investors to understand to completely grasp the investment thesis here at NOV.

It begins with oil and gas companies who are at the top of the food chain in our oil and gas ecosystem in which NOV participates. Oil and gas producers obviously produce natural gas and oil which they are unable to differentiate, therefore, they have to focus on costs. These are commodities and so the focus is all around lowering the cost of development of oil and gas, lowering the cost of lifting per barrel.

A large and important industry, over 1,000 participants, they're fundamentally price-takers. So, everything that we do at NOV has to focus on helping them advance their mission of reducing development cost and lifting cost. It is a big and important business; which will spend nearly a quarter of a trillion dollars in 2018 and will drill and develop nearly 50,000 wells globally. Importantly, it's a very, very capital-intensive business and their primary job is allocating capital in a smart way.

Now, in the very early days of this industry, if you go back to the middle part of 19th century, oil companies necessarily had to be highly integrated. The first oil company to drill a well with a steam-powered drilling rig was Colonel Drake's Seneca Rock Oil Company. And Colonel Drake had to design the rig, build the rig, get the drill pipe, drill the well, find the oil, produce the oil, refine the oil, make kerosene and then market the kerosene to customers. It was, from beginning to end, completely integrated.

However, since those earliest days, the industry has continued to evolve to a much higher level of specialization and oil companies have farmed out almost all of their well construction requirements, breaking up this chain into discrete steps and enabling firms with very high level of expertise and specialization to focus on executing these.

If we take a look at the first part of our three-part ecosystem, oil and gas production is extraordinarily capital-intensive and as a consequence, most participants here focus on capital stewardship enhancing activities.

This all starts with the subsurface model; they have to understand the geology in the ground, its ability to produce oil and gas at a profitable level so they can assemble the right acreage position. Subsurface modeling is an area where they devote a lot of their resources and their attention.

And the second element has to do with capital formation, so financing their operations, risk management around their operations. This garners, I think, most of the attention of oil and gas companies. And the converse of that is that they have farmed out most of their well construction activities to other specialized firms which leads me to the second part of our oilfield ecosystem, which are oil and gas service companies.

There are dozens of discrete verticals within oil and gas services that are occupied by firms that bring a very high level of expertise and experience to focus on maximizing the performance around each one of these discrete steps, and many of these use very, very highly specialized equipment.

The core competencies in the oilfield services then are around the delivery, the execution, and operation of these well construction activities. They are very focused on workforce, on arriving at a culture that is very oriented towards service, about bringing the best technology to oil and gas companies' drilling and development needs, managing very complex logistics that characterize oil and gas operations and then marketing their service to oil and gas firms. These are the things that oilfield service companies have to get right in the same way that oil and gas producers have to get capital allocation right.

I'm going to take a look at one of these verticals just by way of example. We're going to take a look at the coiled tubing services vertical to think about the pressures that are on participants in this space, so that you can get a little better insight into how NOV works to address the challenges that participants in coiled tubing face.

I think we're all familiar with what coiled tubing is. It is a continuous length of steel tubing. It actually dates back to the early 1960s when Bowen began to butt-weld lengths of seven-eighths-inch tubing to run down a wellbore to pump out wells that had sanded up in South Louisiana as a way to clean out wellbores.

Since then, it's evolved to do a lot of other things in the oilfield. You probably best know it as the method that's used today to set plugs in these long laterals that characterize unconventional wells and to drill out those plugs. But it can also be run in through a well head into a well that's flowing under pressure to spot acid, to spot cement, to perform other operations to help remediate those wellbores. It's a big business globally, nearly \$5.5 billion, over 70 participants and, like other oilfield service verticals, it is a very challenging business.

Let's take a look at some of the challenges that a hypothetical coiled tubing provider named Bob will face in delivering his services to his oil and gas customers in the field. Challenge number one is actually getting these big, complex units to the well site. As the diameter of coiled tubing has increased from 7/8 inch to 2-inch to now two and five-eighths inch the reel sizes gets much larger because large diameter of tubing when bent around a small diameter reel will kink.

There is a physical limitation. These reels have gotten taller which means that they begin to encroach upon overhead restrictions like power lines, like overpasses, like bridges. Just getting the unit to the well site is a big challenge for Bob as you put 25,000 feet or more of tubing on one of these reels they get very heavy and they can exceed highway limitations or require permits to be moved.

The logistics around getting coiled tubing to the wellsite can be quite challenging and Bob benefits from having clever unit designs that help him manage this challenge.

The second challenge has to do with the nature of coiled tubing. This is one of the few industrial applications of steel that bends it past its plastic limit. As we uncoil this tubing off of the reel, it is straightened out and sent up over the gooseneck where it's bent again and then, as it goes downhole, it's straightened out again. When you come out of the wellbore you repeat all that and you count the number of times that that coiled tubing is bent and straightened out It is six times for every round trip in the wellbore.

Well, what happens to a piece of coat hanger wire when you bend and straighten it repeatedly? It's a phenomenon called work hardening wherein the steel becomes brittle and eventually breaks and the same thing happens to coiled tubing. So, in the real world, about every 60 days Bob has to swap out the reel of coiled tubing that he's using on each of these units.

His transportation challenges of getting the unit to the wellbore are exacerbated by the fact that about every 60 days he has to navigate bridges and power lines and the like again to replace that reel with a fresh reel of coiled tubing that's not subject to work hardening. And so, this is a

continuing problem that can be addressed by clever equipment designs that enable and speed the swap out of coiled tubing reels and help him manage that process.

Challenge number three has to do with the fact that if he takes that coiled tubing just a little bit too far, it might part. And if coiled tubing ends up down the wellbore, it will lock itself in by buckling into the wellbore, which is a terribly catastrophic thing to have happen to an oilfield service operation. Thankfully, it doesn't happen very often but when it does, it's almost impossible to fix. So, the customer is looking at probably losing that wellbore. Obviously, a big blow to Bob's financials and a big blow to Bob's reputation.

Knowing what the condition is of his coiled tubing is critically important to his success. A little later on, Kirk Shelton is going to show you some of the software tools that we provide to enable Bob to track the condition of his coiled tubing to avoid this catastrophic failure.

Challenge number four is uptime. When Bob's unit goes down, he will go to a reduced day rate, maybe no day rate, so he will feel the financial impact. Frequently, though, the coiled tubing unit is not the only thing that's on location. The impact, the pain felt by the customer is some multiple of what Bob feels along with the fact that the customer's first oil may be delayed until Bob gets his unit back up and running.

The uptime that Bob's unit exhibits in the field is critically important, again, to his reputation and to his financials. Having a unit that's easy to maintain, that has easy access panels and ports, the hydraulic hoses that can be accessed, grease nipples that can be accessed, again, is critically important to Bob's operations. Support by the OEM around aftermarket spare parts to keep that unit up and running, the reliability of the unit is also critically important to Bob's reputation.

Challenge number five is workforce management. We all know this is a very cyclical business. All of us in this business, including NOV, have to adjust the size of our workforce from time to time. In periods when business is growing, Bob and other oilfield service providers are growing their workforce, so they have less experienced people running their equipment.

What our oilfield service customers find is that they benefit from standardization on the software control systems that are used to run these units, as well as the maintenance processes and procedures. It makes it easier for them to onboard a workforce around a consistent standardized fleet of equipment with standardized look and feel around control systems, maintenance processes, and practices. Bob derives a lot of industrial efficiency out of fleet standardization.

When we think about coiled tubing, there are a lot of challenges here, right? But there are a lot of challenges across every oilfield service company and they're employing very, very specialized equipment. The design and the delivery of reliable equipment is a key success factor for all oilfield service companies - all the verticals that you see here within this part of the ecosystem.

I think this is worth going through because it sets the stage for the role that NOV plays in this industry and, in fact, all oil and gas equipment manufacturers play. Before I go there though, a couple more observations about oil and gas services.

This is a very entrepreneurial space. There's a lot of Bobs out there, right? If they have access to capital in periods of growth, they want to hang a shingle out. I mentioned over 70 coiled tubing providers; in a minute I'll show there are many more across all these verticals. When we go overseas, we find that national oil companies are seeking to have more localization in the countries where they serve, as a matter of public policy most of their host governments want to employ more locals. As such, they very actively sponsor local service companies.

This is a very fragmented and entrepreneurial space. It's also very capital-intensive, so oil and gas producers invest a lot in oil and gas wells. Oilfield service companies invest a lot in specialized equipment that's designed and fit-for-purpose to accomplish their well construction task on location.

What we've seen through the past generation is a little more financial sophistication. Equipment has become more fit-for-purpose. It's designed to manage down the capital that's required to accomplish the task, frequently by shrinking safety factors a little bit so this more fit-for-purpose equipment has smaller safety margins in many instances which tends to limit its life.

It's also being run very hard, right? So, you heard a lot about proppant loadings and the intensity of hydraulic fracture stimulation of drilling and the like. As operations in hydraulic fracture stimulation, for instance, have moved to zipper frac operations, more 24-hour-a-day operations means that the consumption of iron is rising.

A little later, I'm going to share with you some analysis that we pulled together around this. We think that the consumption of equipment required to develop a barrel of oil actually is rising as the industry shifts towards unconventional sources of oil.

Lastly, an inexperienced workforce that is charged with maintaining this sophisticated equipment sometimes forgets to do some things that they perhaps should have. As a consequence, that can limit the life of equipment as well.

So, this leads us to the third part of our oilfield services ecosystem. This is the place where NOV lives. And this is important to you because this describes about 70% of our revenues. Most of what we do is outfit these oilfield service company verticals with the equipment, with the consumables, with the tools that they need to do their very specialized well construction activities on location.

This is on purpose. We like this place because it has given NOV the capability to cultivate very compelling competitive advantages on behalf of our owners, our shareholders. What I would like to do next is take you through these.

I am going to start with scale economies, advantage number one. Obviously, if you're a larger equipment manufacturer and you're buying more ball bearings, your price per ball bearing is going to be less than a smaller purchaser of ball bearings. So, we get purchasing advantages.

We get advantages of loading our factories with a larger volume of equipment to be able to make things in a more efficient way. As market leader, we have certain marketing advantages, we're top of mind amongst the customer base so pretty standard, pretty generic advantages that come along with being market leader. And we are market leader. We're number one in just about everything that we do, not quite everywhere, but we are focused on attaining that number one position.

We also serve a very large group of customers who do a lot of work globally. If you look across our three segments, the volume of work done globally with tools that NOV is capable of providing through all three of our segments is over \$150 billion in 2018, back in 2014, it was about \$300 billion. NOV supports a very large part of the ecosystem through its tools and equipment.

Advantage number two is experience. The market leaders will continually be scaling a learning curve. A market leader by virtue of volume that moves through our system will climb that learning curve at a faster rate, which means that we are, as market leader, more likely to have encountered obstacles along the way and have successfully navigated the challenges that are out there.

When our customers come to us for equipment, for support we're more likely to have fixed more problems in this space than anybody else. That makes us a higher value solution for our customers and a higher value offering than others in the marketplace.

Advantage number three is standardization. We talked a lot about Bob's benefits from standardizing his fleet. As he's training a new workforce to run that equipment with consistent operating controls to maintain that equipment in a consistent way, Bob benefits a lot from standardization of the equipment that he puts in the field. Well, who's he going to choose?

The market leader has clear advantages when it comes to decisions around standardization. Bob knows that NOV doesn't compete with his operation. He knows that we have a global footprint, that we're well-capitalized, that we're going to be here for decades to come to support his operation as it grows.

We're the lowest risk choice when it comes to standardization. That's a great relationship and we love it when our customers standardize on our equipment. It really is the foundation for a long and prosperous relationship with those customers.

Advantage number four has to do with portfolio flexibility, and there are really two things here. The first is we have a diverse portfolio. Across most of the oilfield service verticals that you saw, we're the number one provider. What we see are varying levels of demand across those so our

machine shops and our rig-up yards are a little more generic, a little more flexible. We can make different kinds of products with the same manufacturing footprint.

By virtue of having multiple participations across multiple verticals, we can shift resources, we can shift machine tools to manufacture the equipment and the consumables that are in the highest demand at that time. We have flexibility with respect to our capital assets that are employed in our business, which gives us an advantage when it comes to return on capital.

The second is the fact that we have multiple verticals here that we participate in means that we can combine these in new and unique product offerings. For instance, we take downhole technologies from our Wellbore Technologies segment, that generate data about drilling and we transmit that up our drill pipe to be able to control rig equipment that's manufactured by our Rig Technologies group. That's a unique offering that had not been previously available in the marketplace and we're advancing that with our closed-loop automated drilling platform that you're going to hear a little bit more about from Isaac Joseph later today.

Advantage number five. As market leader, we have the largest installed base of equipment in most of these verticals and our customers need continually advancing and high levels of aftermarket support for their installed base of equipment. As I mentioned with Bob as with all oilfield service companies, uptime is critical to their financial success and reputation. There's a clear preference for OEM support within oilfield services and there's an even greater preference amongst oil and gas companies at the top of our oilfield ecosystem for OEM support of equipment.

That is a very compelling and very proprietary competitive advantage that NOV has through this installed base, which takes decades to build. One that we've been investing in and focused on throughout the downturn.

Advantage number six, which is an extension of that installed base, is software opportunities. A lot of advancements in the digital world that we've all been hearing about. As machines in the oilfield get smarter and smarter, we see opportunities for NOV to provide better software systems, to bring predictive analytics and predictive maintenance processes to our customers and to provide real time condition-based monitoring and maintenance. Again, you're going to hear a lot more about this from Joe Rovig here in just a moment.

Advantage number seven is the fact that we do serve a fragmented customer base. I mentioned over 70 global coiled tubing providers, but as you can see here there are dozens, if not hundreds, of participants in each of these oilfield service verticals around the globe. And, again, in periods of prosperity we find family capital, we find private equity capital sponsoring start-ups. Overseas, we see national oil companies and governments that really do want to have more localization that will actively sponsor local service companies and tends to drive a trend within that middle layer in the ecosystem towards more customers, more fragmentation, more participants.

Advantage number eight is the fact that we operate a low capital intensity business model. If you look at our financials, and you can go back as far as you want, we have always had relatively low levels of CAPEX. The reason for that is that our investment in factories, rig-up yards, machine tools is very small relative to the revenue that those assets are capable of generating in the oilfield.

Over time, oilfield manufacturers typically have a low level of maintenance CAPEX. If you look back over the last couple of years, the graph here is of NOV's level of CAPEX relative to its sales -- 2016, 2017, the lowest amongst the group that's depicted here.

That means for our equity investors that we're able to retain more of our EBITDA for reinvestment in technology, to provide to our shareholders, and that means we have higher free cash flow after CAPEX. As you see here over the last five-six years, we have been in the top quartile vis-à-vis integrated oilfield service companies in terms of free cash flow as a percent of revenue.

Finally, advantage number nine, few substitutes. If you need a wire line unit, not a lot else will work. If you need a coiled tubing unit, not a lot else will work. If you're going to drill a well in deepwater, you probably are going to need a deepwater floater.

Our customers have few substitutes, so if they want to pursue the development of their oil and gas then they're probably going to have to buy equipment from either NOV or our competitors. Again, a very compelling attribute when you think about our strategic positioning through a sort of a Porter five forces model.

We do face a couple of challenges. This is a highly cyclical industry across all parts of the ecosystem, subject to commodity price downturns like we've seen over the past couple of years. In some ways supply of capital equipment exacerbates that, right?

In periods of prosperity, customers have high cash flows, they have availability of capital, they tend to invest in their businesses for growth and, sometimes, they over-build. What that means is when we face a downturn like we did beginning in 2015, they curtail their expenditures.

However, as you've been seeing for the past four years, we were able to successfully navigate that because we have a diverse portfolio of equipment that we sell. This installed base provides aftermarket opportunities to support ongoing operations. The portfolio diversity and the geographic diversity certainly help us manage through that.

The second challenge that we face is that some of our oilfield service companies really want to make their own kit, and they see that as a way to differentiate their business model by providing something that they see as branded in servicing their customers. We don't think this is a particularly great idea in most instances because it requires a different skill set.

You think back to the core competencies I described around oilfield services, about workforce management culture, logistics, that sort of thing. Well, manufacturing has sort of a different set of core competencies. It requires that they redeploy capital out of their capital-intensive models into a manufacturing footprint, kind of a different space for them.

They forego the scale economies that we benefit from in our role. But I think most importantly I would submit to you, is the complexity of manufacturing oilfield equipment is moving up and to the right sharply. As the Internet of Things arrives in the oilfield, and as software controls become much more important, manufacturing is more about programming and less about welding than it used to be.

To summarize, three parts to our oilfield ecosystem that you see here with oil companies at the very top of the food chain that make the decisions, very focused on reducing their cost per barrel. Then, very specialized oilfield service companies that we support through sophisticated equipment and specialized equipment that goes in and to support their operations.

One of the things we've done for the past four years is to get more intentionally focused on the actual operators. Many of our direct customers through this model, which again accounts for about 70% of our revenues, are oilfield service companies. But knowing what their customers need and also educating their customers, oil and gas companies, about what we can make available to their operations has been very fruitful for NOV.

Now, moving to the next section, which is really an analysis of what's been going on in our industry over the past few years. This industry has a long history of deriving oil and gas by moving successively to more challenging environments or more challenging rock.

It has done that by utilizing more specialized equipment that's very focused on producing oil and gas out of whatever the particular target is. The most prominent example of that in the recent years has been the advent of unconventional technologies which emerged on the scene through the last ten, fifteen years or so and really are transforming what we see in oil and gas.

This is important for NOV because there are implications around the nature of equipment that is going to be needed to support this trend. To begin with, this is a 50-year look back at oil production globally.

And as you see here it's nearly doubled from about 50 million barrels a day back in 1970 to nearly a hundred million barrels a day today. It has been able to do that by moving into places like deepwater, which requires specialized equipment and more recently ultra-deepwater.

But the black wedge here in the middle of the graph illustrates the unconventional production phenomenon that I'm referring to. It really emerged on the scene in a big way about 2010 and we're going to zoom in on that slice of oil which has almost entirely come thus far from North America.

This is US production, which had been declining since 1971. The US was largely regarded as a kind of a very, very mature oil province. But some very talented and creative entrepreneurs in the oil and gas sector began to apply new technology to really, really poor-quality reservoir rocks and the phenomenon we know today as unconventional production emerged.

And oil began to rocket up in 2010. It made the US the fastest growing country with respect to oil production and now the second largest producer globally, lifting our production level. A very big move, very transformative. Arguably the most transformative sort of thing to emerge in the oil and gas production equation through the last half century or more.

So, what are the implications for National Oilwell Varco? What I'm going to share with you next is our attempt to determine how consumptive this new source of oil is with respect to equipment that we manufacture.

What I'm really trying to do here is link the capital assets that we sell from our part of the ecosystem to the oilfield services part of the ecosystem. And basically, all assets that are employed in oilfield services are designed to be translated and be developed and produce barrels, right? All these assets have a purpose, all of these consumables have a purpose and they're out there to develop oil.

We're going to start by looking at one asset, which is a drilling rig in North America. This is sort of a notional super-spec rig, 1,500 horsepower, walking system, 2,500 feet of setback, three mud pumps, four generator sets. About a \$22 million initial investment by a land drilling contractor today. And there are a lot of assumptions that I'm about to share with you in this. This is designed to be directionally accurate - and we can quibble about how precise it is - but this is just designed to share some insight into the equipment consumptive nature of oil and gas operations. We're going to start with a \$22 million drilling rig. We're going to assume that that rig drills for a 25-year career.

And over the course of that career, it's going to need a couple of new top drives. It's going to need some new iron roughnecks. Maybe a couple of mud pumps. And so, the owner of that rig is going to spend another \$6 million in rig capital for a total of \$28 million of capital that's consumed over that rig's 25-year life, pretty simple so far. We're going to further assume that this rig drills 17 wells a year in years where it's utilized. And it's utilized 80% of the time. So that \$28 million of rig capital gets translated into 340 unconventional wells.

This example is kind of a notional example out of West Texas, 340 wells. And we're going to assume that each of these wells develops 700,000 barrels EUR. So that rig will translate into the development of 238 million barrels through the course of its life.

We take the rig capital of \$28 million that is used in the consumption of that rig, which is consumed like all oilfield assets. What we find is that, when you divide that by the 238 million barrels, it is \$0.12 a barrel of rig capital that goes into support West Texas kind of unconventional drilling.

Everybody got it? In a lot of ways this is kind of similar to matching expenses of revenue in financial accounting. We're just trying to match the consumption of rig assets into the development of barrels.

Importantly, it's tied to the development of the barrels, not necessarily the production of the barrels. This is the EUR. You saw my EUR assumptions here. So, in essence, this is saying that for this drilling in West Texas, this is a level of consumption of rig capital. This is within the context of an oil and gas operator's AFE of a \$6.25 million well that develops those 700,000 barrels, so about a \$9 per barrel unit development cost is what ultimately will be spent on the drilling contractor drilling of the well which will have to cover his \$0.12 per share of iron consumption.

We didn't stop there. We continued on with other assets that we provide to the oilfield. So here is \$0.12 of rig capital equipment but a lot of assets go into the creation and the completion of that wellbore in West Texas. And again, I'll stress there are assumptions here around the life and the productivity of each of these assets, but it's designed to show their relative level of consumption to support the operation around an unconventional wellbore.

A couple of observations about this. First, if you add up all the tools that NOV is capable of making as you see here, it's \$2.17. And these are tools and consumables that are used by oilfield services. This is not NOV's market share. This is generically each of these categories. How they're consumed in a typically well-creation enterprise in West Texas. This is sort of our addressable market of tools that we can sell to oilfield service companies to accomplish this.

The second is, if you look at drill pipe at 7 cents per barrel, if you look at downhole tools, bits and MWD, and directional drilling tools, these operations are very consumptive of downhole tools. That makes sense, right? Because we're bending drill pipe around a 90-degree angle. We're drilling very sophisticated long laterals. Therefore, the level of consumption of these types of oilfield tool capital is actually pretty high.

But then you finally drop down to the bottom of the list and you look at the frac intensity of these wells. They consume a lot of frac equipment. They consume a lot of fluid ends, valves, frac consumables and the like. No surprise there. Again, directionally what this is saying is that these kinds of wells are very intensive when it comes to consuming frac equipment and equipment around directional drilling, less so when it comes to rig iron.

So that's \$2.17 of tools. We also, by the way sell other things, separators, processing equipment, flow lines, valves, etc. When we add in these - and again a lot of assumptions that go with this, right? Flow line per well - is at 200 feet or is it 5 miles? A lot of assumptions here, but just notionally our \$2.17 of tool available market rises to \$3.06 of total addressable market when we factor in other components that we can sell into this sort of unconventional drilling program.

So, \$3.06, but we didn't stop there. We moved into other regions and sought to analyze other types of oils. Here again is our \$6.3 million unconventional land well in the US. We then took a

look at a \$225 million deepwater well in the Gulf of Mexico and a couple of wells in the Middle East. A well drilled from a jack-up directionally in the Middle East and then a horizontal land well in the Middle East as well. So, four different types of wells with a same sort of analysis and assumption around the consumption of tools that are used to develop these wells and generate them.

Here is what we found. When you look at the available total addressable market for NOV across these four different well types, as a percent of the operator's cost of developing these barrels in the Deepwater Gulf of Mexico, 13%, then 26%, then 31%, and finally 34% for the unconventional land example that I just showed you.

This is what we view as NOV's market opportunity with respect to different types of barrels on a per barrel basis. What I would point out is the mixture is very different. I'd also add that our deepwater example here doesn't include an FPSO topsides package. If we add that in, that 13% rises to 23%, but a very different sort of mix across these different types of barrels.

If we zoom in, again, this is what we estimate our addressable market would be, so it's the \$3.06 that I showed you divided by the \$8.93 that I showed you for the unconventional well barrel earlier. If we zoom in on the tool consumption of this, again, tools that are used by our oilfield service companies, this is what it looks like. \$0.72 for the deepwater US Gulf of Mexico, \$1.28 in shallow water Middle East, \$0.76 in conventional land, and then our unconventional land well in West Texas, again very, very consumptive of tools given the pressure of the proppant loadings and the hydraulic fracture stimulation intensity of those wellbores. I would add too that we think that all these types of barrels are more consumptive of oilfield tools than barrels in the past.

To sum it all up, the development of barrels in the ground, the creation of a borehole, the completion of that borehole, the prep of a well to be able to produce is very consumptive of equipment in oilfield tools.

But the intensity in the mix is going to vary depending on the type of barrels that the industry is aiming at. We believe that unconventional are the most consumptive of oilfield tools given to the high intensity and the complexity of drilling long laterals.

We purposely focused on these four sources deepwater, unconventional, Middle East land and offshore because we think these four sources of oil have pretty strong growth prospects ahead and are likely to characterize future investments in the oilfield. Not perfectly, but to be a proxy for different types of oil. In fact, if you let them be a proxy for different types of oil and add them all up today, this group accounts for about 30% of current production.

When I talk about, for instance, a Gulf of Mexico deepwater well, I'm not talking about Gulf of Mexico deepwater production, but I'm using that to typify if you will, to be a proxy for all deepwater production globally.

So, does that make sense? Now, I'm going to move to a couple of things that we think are going to shape our future investments that we've had underway in technology for the benefit of our customers. And you're going to hear a lot more about these from our segment heads here in just a moment.

But by way of introduction, I showed you the intensity of directional drilling tool consumption around these long laterals in West Texas and also completion tools, NOVOS™, drilling automation and predictive analytics and completion or our condition-based maintenance.

Beginning with directional drilling tools, we observed the equipment consumptive nature of our customers' operations when it comes to these directional drilling tools in oilfield services. But we also listened to oilfield producers, and the very best unconventional producers -- folks like EOG here will tell you that landing the wellbore in the sweet spot of their shales is critically important.

Geosteering these wellbores, these long laterals, to the right spot in the stratigraphy to maximize production really drives success for them. I would add to this comment by Bill Thomas that reducing tortuosity reduces torque and drag, reduces well drilling and completion problems along the way. Drilling a gun barrel straight well in addition to precisely placing it in the right spot in the rock is critically important.

This is a great market opportunity for us. Again, a very fragmented market out there, 131 directional drilling providers, basically 127 of these don't really have access, in a cost-effective way, to a reliable, field proven rotary steerable tool, kind of state-of-the-art directional drilling tools.

So, for the past four years, we've been focused on cultivating that offering to this marketplace and actually have some really interesting things in this space that we're going to share with you in just a moment.

It is a big market. A lot of opportunity here for NOV for growth and Isaac Joseph a little bit later is going to share this with you, but \$9 billion with double-digit growth rates.

Likewise, our analysis of unconventional wells across the US indicates that they're very completions intensive. We had an opportunity to acquire a very unique and proprietary sliding sleeve offering and that's to go into a trend of rising completion spending per well in these unconventional wells. We have continued to invest in this offering through a combination of acquisitions and organic development and are assembling a really interesting completion tools business here. A promising market, again, nearly \$9 billion with double-digit growth rates.

We've talked a lot about our operating systems to control drilling rigs out there in the field and here I'm going to let you hear from our customers directly...

[Video plays]

Unidentified Speaker [NOV]: In 2016, a 30-year vision became a reality through the introduction of NOVOS™, an automation operating system that uses software to integrate and optimize the machine and process control on the rig. A 41% decrease in connection times proved its worth in the Permian and more recently NOVOS has tackled the harsh environment of the Alaskan North Slope, providing a future vision for BP and Parker drilling.

Bair Neufeld [BP]: Work in the North Slope is not that different than offshore, very isolated environment. Some challenges with logistics and, yes, just different formations including a permafrost, 2,000 feet of frozen ground. That's a very unique thing for us here.

Doug McCrae [BP]: BP has got an ambition to lead the industry in automation. It's about making it a safer environment and cost-effective and obviously that element as well. If we can get consistent and safe, that's nirvana for us, and keep people away from harm's way that's probably one of the biggest drivers.

Bair Neufeld: I think NOVOS has given us a glimpse into the possible future, what's coming our way, automation of heavy equipment to get a more consistent connection, more consistent work, less error. That's the benefit of NOVOS, it gets people out of the way and takes human error out of it.

Unidentified Speaker [NOV]: Another major benefit of the NOVOS system is the ability for customers to have a customized approach to their drilling program through the use of apps.

Louis Rom [BP]: But when you take that aspect of it as well as the NOVOS and all the various applications of independent apps that you can plug in whether it's steel mechanics or even real time well control, the step change is certainly feasible.

Doug McCrae: We had one specifically challenging well here that called for incredibly tight control to help protect the formations and NOVOS delivered that to a degree that I've never seen before or experienced before in my career.

I'm a big believer in standardization. People think, Well, you can do it a lot faster. Yes, one or two of them, but you can do them all at the same rate and a good rate, but as you benefit, this is the next big step to change technology in my humble opinion.

Unidentified Speaker [NOV]: With NOVOS, NOV is inviting everyone to be an active participant rather than a bystander in a safer, more consistent drilling experience.

[Video ends]

Clay Williams: Our NOVOS™ operating system really sets the foundation for the next opportunity which is around bringing a higher level of drilling automation to our customers. And I would tell you that very excited about this. This isn't vaporware. This is out in the field running, over 2

million feet drilled, 6,000 days operating, 32 apps written by our customers available to be run through their operations.

So, drilling automation, again, another very exciting trend in our marketplace and NOVOS is helping lay the foundation for this.

[Video plays]

John Willis [Occidental Petroleum]: Drilling is a complex process. And we don't know exactly what's underground, so there are a lot of challenges, a lot of technical complexities. Every time we have a new person operating the rig, we have to go through an additional learning curve and train that person or our contractors have to train that.

But when they make a mistake, then we end up paying for it. So we want consistent, excellent performance. So automation is a way that we can capture the best practices and apply those consistently from well to well.

The wired drill pipe is a huge opportunity to better understand what's happening downhole to improve the quality of automating those drilling processes.

Years ago, when we drilled with no sensors downhole, it was like a dark room. And mud pulse telemetry gave us new insights, so that's like having a little bit of a light in the room that we could shine around and identify some, but only some very specific things.

The wired drilled pipe is like having a bunch of flashlights that we could point in several different directions at one time. It gives us immediate understanding of what's happening downhole when we change the input parameters at the surface.

We are very focused on reducing the cost of drilling and fracking the wells. So, in one area, we've been able to drill the entire vertical section with two bits instead of historically three or maybe more.

So that's very clear time savings and cost savings. So, we had another well where we were running casing and we had problems of getting the pipe down the well. But because we knew what had happened with the wire drill pipe and we understood the problem, we were confident that if we continued to do certain practices of rotating the pipe and circulating that we could work at the bottom and we did.

We were able to successfully get it to TD. The lower that we can bring the cost of the wells, the more profitable our unconventional operations are and the more areas that we can develop profitably.

[Video ends]

Clay Williams: Again, this is for real. We have about a half a dozen jobs underway right now that's going to grow to about 10 or 11 here in the first quarter of 2019 One and a half million feet drilled, 33,000 hours logged. This is becoming more and more routine in the oilfield. And I think very, very promising to be able to harness this technology.

And then finally, we're also harnessing the power of big data with our predictive analytics, condition-based maintenance and monitoring to our customers as well.

[Video plays]

Carl Fehres [NOV]: Analytics basically enhance both the process and equipment, which means our customers know when a component is going to fail with high level of confidence. And they can change their strategy around maintenance or operations so that their cost structure is lower, and their reliability and their nonproductive time is dropped.

Jimmy Morrison [NOV]: It's a closed loop feedback system to where we provide insight to equipment health and anomalies with the equipment and overall status of operation.

Lindsay Sallee [NOV]: When you are the guy who designed the equipment, the lady who designed the equipment, you know the material specification. You know the limits, the wear tolerance. It's all of those things, right?

That comes right to the discussion on it can't just be data. It has to be data with domain knowledge to really execute these and make them successful.

Carl Fehres: MAX™ is the data aggregator. It's the edge device that collects and stores and analyze the data in the field. Transmits data to our MAX cloud infrastructure, which, again, stores it and at scale, you can use it to analyze massive amounts of data to generate these artificial intelligence-based optimization algorithms or predictive analytics solutions.

Lindsay Sallee: When we talk to a customer about their ownership cost, we look holistically, the entire piece of the pie, so work that they may have done themselves, work that they may have hired their third-parties out to do it often and work that they've had NOV perform. So in this, we're picking up quite a bit of scope. We are eliminating third-parties. We're picking up work that they would have traditionally done.

Carl Fehres: We build the biggest and the best oilfield equipment in the world. And we know what our customers need in this space. And we know what problems they are having because we're talking to them. And we focus the technology on solving problems for the customer.

Jimmy Morrison: We're getting feedback from the customer saying, you know what? The suggestion that you made and the notification that you had, you did have a leaking regulator or we did have an open under pressure and by you notifying us, NOV, we were able to save time and money in operations. And that's really what we're after.

[Video ends]

Clay Williams: Some exciting growth opportunities ahead and again you're going to hear more about these as we progress. With respect to this specific one, several customers now are using it on 55 rigs in the offshore and we've notified our customers 57 times around potential equipment problems ahead.

So, in 2018, as we approach a more robust recovery four years into a generational downturn, we are seeing now two years of fairly steadily rising commodity prices following a falloff in oil and gas investment that's fallen by half since 2014.

To us the stronger commodity prices are signaling a tightening supply and demand picture. We see recovery in North America and green shoots emerging in the offshore and in international markets.

However, our customers, particularly North America have been very, very careful about their investments. I think they're hearing a lot from their shareholders around capital discipline, returns on capital and return of capital.

It's been a little more measured, I think, response to higher oil prices than we would have otherwise expected. We find ourselves four years into a generational downturn. One of the questions that I think the industry is asking itself is what's the potential productive capacity of these North American unconventional, and while they will clearly play a big role, probably the largest role in supplying future incremental demand globally, we don't think they're going to be sufficient to supply all of the incremental global demand.

We do think there'll be a call on sources of oil from international and offshore markets as the recovery progresses and as the world demands higher levels of energy. We do think that operators overseas have seen what's happen in North America, employing this unconventional technology. Every basin has tight reservoirs. We think that operators overseas are going to employ these unconventional technologies to their own resource base and that will be a growing opportunity for NOV.

Four years into a generational downturn, we've had to adjust and evolve and pivot. When we met in 2014, we were nearly two-thirds offshore. Today, we're two-thirds land. And we are continuing to shift our business and focus on bringing new offerings around horizontal drilling, hydraulic fracture stimulation that really make these unconventional work, along with investing in opportunities that are proprietary around our installed base.

New ways of supporting our customers through aftermarket support and spares, software products that bring new digital technologies to their operations to help them improve, make for a very exciting time.

We have enhanced our optionality across all these different barrels of oil, very focused on areas that we see an opportunity to deploy capital into strengthening our business models and strengthening our strategic position.

And we've done that kind of the old-fashioned way. We've made small acquisitions along the way. We've invested organically. In lieu of going out and doing a big multi-billion-dollar blockbuster deal.

And I would stress, to me this is really the roots of this company. We built our business franchises beginning over two decades ago, kind of acquisition by acquisition, being very careful about what we pay, utilizing our infrastructure where we can to drive capital efficiency, because ultimately, I think this is the best way to drive the highest capital returns on behalf of our shareholders.

To sum it all up, National Oilwell Varco has a great position in the supply of equipment into an industry that eats equipment voraciously every day, to develop oil and gas reserves requires a lot of this specialized equipment and it's consumed in day-to-day operations.

We have the largest installed base out there. That gives us proprietary opportunities around software, around aftermarket support for our customers. Our business model is low capital intensity. And from that, we derive high free cash flow and have a great track record through the downturn of that. We've been making a strategic pivot to go where our customers are going. More emphasis on this very durable and surprisingly sustainable unconventional model that's only gotten better since it's been stress-tested through the downturn. And we've made a technical pivot to bring these new big data digital opportunities to our customers as well.