John Crane Deep Dive – New Energy Solutions - Transcript

Frank Ma, VP New Energy Solutions, John Crane

30 November 2023

Slide 1: Cover slide - New energy solutions

Slide 2: Frank Ma, VP New Energy Solutions, John Crane

Good morning. My name is Frank Ma, and I'm the Vice President of New Energy Solutions at John Crane, responsible for shaping and navigating John Crane through the energy transition AND leading our internal sustainability efforts.

I've been working at John Crane for 9 years in various roles including recently as the VP of our filtration business and head of strategy and M&A. Prior to John Crane, I worked at GE Power Systems as a combustion turbine engineer, and at the Boston Consulting Group advising energy and industrial clients.

So in summary, my entire career has focused on industrial technology within the energy sector, and I am really excited to share how we think about the energy transition in John Crane and why we believe we are well-positioned to maximise the growth opportunity ahead.

Slide 3: Executive summary

Let me start with our underlying presumption that evolution of energy sources will happen, even if the pace of change is uncertain. And our strategic view is that this presents growth opportunities in BOTH conventional and new energy markets. Importantly, John Crane already plays in both conventional and new energy markets, and we believe we are well-positioned in all energy transition scenarios.

Today, our existing portfolio already helps our energy and industrial customers decarbonize existing operations, while increasing efficiency and reliability. And I will show some examples of how we are doing this. And these EXISTING products and solutions will also play a critical role in enabling new energy markets, such as carbon capture utilization and storage, or commonly known as CCUS, hydrogen and other low carbon fuels. And I will share some case studies of these new energy solutions in action

Importantly, we are actively partnering with many of our customers to develop and scale up new technologies and innovation that will meet future requirements, which you'll see during our tour later today. Overall, we believe we are well-positioned today for the energy transition, and our strategy will enable us to maximise the growth opportunity ahead.

Slide 4: Evolution of energy to meet decarbonisation goals

Let's start with an overview of the energy landscape to set the scene: our market outlook is that oil, natural gas and fossil based energy, which contributes to the vast majority of energy supply today, will continue to play a large role in energy supply to 2030 and beyond, driven by energy demand growth from emerging markets and the importance of energy security

We also expect energy investments, especially in clean energy, to accelerate. Last year, total global energy investment was $2.5 trillion with the majority in clean energy supply. Overall energy investment is forecasted to more than double by 2030 and to exceed $100 trillion by 2050. From a decarbonisation standpoint, our view is that all technologies will have to play a role, from energy efficiency, to greenhouse gas emissions reduction, to deployment of renewables, nuclear, and new markets such as CCUS and hydrogen. We strongly believe that John Crane is well positioned across all energy transition

scenarios as we have diverse exposure not only in fossil fuels, but also across the majority of clean energy segments including in hydrogen, bioenergy, nuclear, geothermal and CCUS

Slide 5: Our energy transition solutions

So let me tell you a bit more about how we think about our opportunities in energy transition. We are focused on two key growth themes where we believe we can build material revenues over the medium and longer term horizon, and help our customers achieve their net zero ambitions. The first theme is decarbonizing existing energy and industrial sectors through energy efficiency, enabling LNG and reducing greenhouse gas, or GHG, emissions

The second theme is scaling high growth new markets including CCUS, Hydrogen, and bioenergy and sustainable aviation fuels. Importantly, we already have a proven portfolio of products and solutions across most of these markets which allows us to start winning active projects and capturing growth today. And we are investing in new technologies and innovation that will enable scaling of new ecosystems in hydrogen, CCUS, and green house gas emissions reduction

Overall, as Bernard highlighted earlier, nearly 30% of our sales come from products and services which provide some type of decarbonisation benefit. In the next few slides, I will share more detail on how we're supporting our customers across each of these growth pillars.

Slide 6: Improving our customers' energy efficiency

Let me start with energy efficiency, which is often referred to as the "first fuel" in energy transition, because it's the largest and most cost effective decarbonization lever, and this is where many of our energy and industrial customers are focusing. Importantly, rotating equipment such as pumps and compressors matter, because they typically are responsible for 25 – 50% of our customer sites total energy consumption.

And at John Crane, we have a broad set of proven solutions that can help our customers reduce their energy consumption such as John Crane Diamond, which was part of an acquisition we made in 2019), pump gas seals, and our upstream pump seal, or USP solution.

As an example, the USP solution is a unique technology that has been deployed in energy intensive applications across oil and gas. In this case study presented here, our Type 8600 USP helped an O&G customer reduce water pumping requirements by over 1 million liters per year, resulting in significant energy savings and improved reliability. So overall, we believe our solutions will play a critical role to help customers with their energy efficiency efforts

Slide 7: Enabling LNG for energy security

Next, LNG is seen as a bridge fuel to a low-carbon energy system and is critical for energy security especially given today's geopolitical challenges. John Crane is a market leader when it comes to LNG sealing. We have been engaged in LNG since the development of the industry and today, over 80% of global LNG export facilities use John Crane dry gas seals , along with other products such as filtration. And the mission critical nature of LNG facilities plays to our strengths. These include advanced technologies for challenging applications, and our global network of turbomachinery service centers and

field service engineers, and the need to achieve low emissions LNG.

On the right side of the chart is a case study for a LNG operator in the USA that produces up to $15m per day in revenue. During a site turnaround, our agility and service capabilities enabled a team of field service engineers to install a large number of dry gas seals as part of scheduled maintenance, ensuring that the customer minimise downtime and enhance availability to improve energy security.

Overall, we are very well positioned to grow our business through the expansion of new LNG capacity and servicing our market leading installed base

Slide 8: Delivering significant reductions in GHG emissions

Finally, reducing greenhouse gas or GHG emissions, is a critical initiative for many oil and gas companies today especially with pending regulations from the US Inflation Reduction Act and EU's Methane Action Plan. According to the Environmental Protection Agency, GHG leaks account for around 3% to 4% of total gas production; that translates to annual potential revenue losses of up to $30 billion for the oil and gas sector.

John Crane, as a pioneering sealing company, has been in the business of reducing emissions and fixing leaks for decades. We have a portfolio of solutions that help our customers reduce GHG emissions. These include our dual pressurized seals, our compressor retrofit service, and our seal gas recovery system. As an example, we provide retrofits that convert compressors with wet seals to dry gas seal technologies. This can reduce a compressor's emissions by ~95% percent and offer energy efficiency savings to the facility. We estimate that our retrofits completed over the past 10 years are reducing ~280,000 tonnes of CO2 equivalent per annum, which is roughly 11x more than all of the scope 1 and 2 emissions produced by John Crane today.

Finally, we are currently investing in future emissions reduction services and technologies to help our customers reduce leaks and save money. So, through emissions reduction, energy efficiency, and enabling LNG, we are playing a key role to decarbonize the energy and industrial sectors, while improving global energy security.

Slide 9: We are well positioned in CCUS

Let me move on towards our second growth theme, enabling our customers to scale high-growth new energy markets. Let's start with carbon capture utilization and storage, or CCUS, which is a market we are very excited about. CCUS will play a key role in achieving net zero, in particular for hard to abate sectors such as oil and gas, chemical and cement. The market is here today and growth is accelerating driven by large projects to decarbonize existing infrastructure.

As shown on the chart in the top right, the total CO2 captured is forecasted to increase 6 times by 2030. While most of the projects are still in feasibility stage, we believe many of these projects will be approved given the attractive incentives that governments in countries like the US and UK have made available. Importantly, CCUS is not new to us. John Crane has been active in this market for decades with a broad range of proven products and solutions. As Paul referenced earlier, if we consider the 40 or so operational CCUS facilities today, nearly ~80% of all carbon dioxide injected underground uses John Crane sealing solutions. Our products are used extensively across the entire value chain, from amine

circulation pumps in the capture phase, to pumps used to transport CO2, and to compressors used to inject CO2 deep underground.

We're also currently engaged in over 50 CCUS projects including in blue hydrogen, and this is reflected in our growing opportunity funnel. We have won several major orders including Canada's largest CCUS and blue hydrogen complex. And we're doing this in particular by leveraging our strong relationships and asset base with existing oil and gas customers, to win these projects

Importantly, we are also witnessing similar aftermarket dynamics in CCUS as our traditional oil and gas business. Finally, we're investing in new technologies to scale the ecosystem. Recently we were awarded a 1 million GBP grant funding from the UK government to develop a high-temperature sealing solution for supercritical CO2. So overall, this is a market we're very excited about

Slide 10: Our solutions are critical to scale clean hydrogen ecosystem

When it comes to hydrogen, similar to CCUS it is not new for John Crane. We have been offering products and solutions into conventional hydrogen applications since the 1970s and have the largest installed base in the industry. Now the clean hydrogen industry represents a small proportion of total hydrogen production today, but is expected to grow rapidly. While many projects are small scale demonstration sites and are in early feasibility stage, many countries and industries have high ambitions and the market is forecasted to accelerate towards the end of this decade. For example, the US Department of Energy recently announced $7 billion in funding to establish a number of regional Hydrogen Hubs around the country.

We believe our solutions are critical to scale the hydrogen ecosystem, especially in midstream. This includes in compressors for transporting hydrogen by pipeline, and other applications such as ammonia and hydrogen liquefaction. We're currently engaged in over 20 clean hydrogen projects and many of these projects are expected to be operational towards 2030. Critically, scaling of clean hydrogen presents some significant technology challenges and we are partnering with our customers to invest in new technologies and solutions. These include seals for higher speed compressor applications, which requires advanced materials and test rigs. Overall, we are excited about the opportunities that hydrogen presents over the longer term.

Slide 11: New energy in action

Let me briefly share two recent wins for us in CCUS and hydrogen. On the left, we recently won the majority of gas seals and filters for the world's largest offshore CCUS project based in Malaysia. This facility will capture up to 3.3Mt of CO2 to be stored in depleted gas fields offshore.

Importantly, this win highlights our proven experience in CCUS and CO2 injection, and also our strong relationship with our turbomachinery OEM and end user customers. On the right, we recently won orders for mechanical seals, systems, and seal gas filters for a flagship blue hydrogen project in the Gulf Coast. This Clean Energy Complex will produce over 650,000 tonnes of clean hydrogen per annum, enough to power 3 million cars daily. The CO2 will be captured and stored over a mile underground. With our proven sealing and filtration solutions and strong service network, we are well positioned to capture future aftermarket once the site becomes operational in 2026.

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Slide 12: Closing remarks

So to conclude, let me summarize the following key points. The energy transition is a $100 trillion megatrend that will bring growth opportunities to both our conventional and new energy markets. We are a market leader with proven solutions to help our customers decarbonise, both in existing O&G infrastructure and to scale high-growth new energy markets. The breadth of our technical expertise and capabilities enables us to be agile and respond to changing new energy demands. We are actively partnering with many of our customers to develop and scale up new technologies that will meet future frontier requirements. Overall, we believe we are well-positioned today for the energy transition, and our strategy will help us maximise this growth opportunity ahead. With that, let me say thank you, and I will hand over to Rob.