COMMERCIALISING HIGH-VALUE GREEN TECHNOLOGIES

Among our biggest opportunities to deliver stakeholder value is running our businesses well and driving growth through delivery of top commercial programmes that enable sustainability performance for and through our customers.

We support customers and industries that are leading the way to a sustainable future by developing and implementing green technology solutions targeting climate risk, energy transition and next generation, efficient infrastructure. Our unique engineering capabilities and technologies position us strongly to support customers on this vital journey and we are targeting new product development opportunities in growth markets where our technology and capabilities offer differentiated value through improved sustainability performance.

Developing and commercialising sustainability-advantaged products and services will enable Smiths to have an even greater positive impact on global environmental priorities than we could achieve on our own.

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ESG strategic priorities

Each of our divisions has active projects and technology that address customer needs for sustainability performance including energy efficiency, GHG emissions reduction, renewable energy and electrification. During FY2022 we embedded these and other sustainability performance criteria, including safety and security, as well as product environmental performance such as reduced waste, more deeply into our NPD processes. Like most, we are closer to the beginning than the end of our work to apply our capabilities toward sustainability performance. And, like many of our customers and partners, we have committed to a 15+ year path to reach Net Zero GHG emissions. As we advance on this journey, we will gain ever-deeper understanding and sharper focus on critical needs and barriers to success. As we see clearly already, these ambitious commitments are driving profound transitions as well as demand for high-value innovative solutions across the markets we serve. For Smiths, these translate to real and immediate growth opportunities – applying our capabilities to develop practical, commercial solutions that solve customer needs today and into the future.

For FY2023, we have identified top sustainable growth NPD programmes and commercial launches across each division that promise to deliver both significant revenue growth and sustainability value. These programmes include eliminating methane emissions associated with oil and gas production as needed to meet the UN Global Methane Challenge; step-change improvement in the energy efficiency of baggage scanning systems; electrical heating solutions to decarbonise steel manufacturing and other industrial processes; and applying space-proven technology to develop next generation electrical connectors for safe and efficient electrification of infrastructure.

Successful commercialisation of these programmes is incorporated in our FY2023 AIP incentive plans for NPD. See page 11.

JOHN CRANE

John Crane is uniquely positioned to support global industries and countries as they transform to meet increasing demand for energy, while pursuing critical decarbonisation and the transition to clean energy sources.

To meet this monumental challenge, future energy systems will need to be more operationally reliable and energy efficient, more interconnected and digitally enabled, and use more diverse low-carbon energy sources. This will require significant investment in new infrastructure and retrofits to existing infrastructure, as well as new technologies to drive down cost and accelerate the deployment of cleaner energy. John Crane's history of innovation, core capabilities and strategic global partnerships will enable us to take the lead and contribute to successfully delivering this future, supporting customers in their energy transition roadmaps.

John Crane provides and is developing enabling technologies across many key pillars to Net Zero: reliable operating performance and energy efficiency; emissions control and reduction; and lower carbon and cleaner alternative energy sources including biofuels, low carbon hydrogen, net zero liquefied natural gas (LNG) and vital supporting processes such as CCUS (carbon capture, utilisation and storage).

GHG emission reductions

John Crane's seal and compression products lie at the heart of established oil and gas ecosystems, pushing reliability and continuous improvement in efficiency and environmental protection by preventing leaks. While the world must ultimately move from fossil fuels to lower-carbon energy sources, oil and gas will continue to play an important role in the energy supply chain for the foreseeable future as this transition takes place, with natural gas increasing its share of the energy mix.

Improving energy efficiency, enhancing reliability and reducing emissions from these energy sources is essential and offers a fast and cost-effective strategy to lower greenhouse gas intensity in the near term.

Eliminating methane emissions associated with traditional fuel production and conveyance is a particularly urgent need that we are mobilising to support. Methane warms the planet more than CO_2. It is more than 80 times more potent over a 20-year period and is also a harmful air pollutant for human, animal and plant health. Oil and gas methane emissions are more concentrated than other sectors and can therefore be subject to specific and targeted action. The majority of these solutions are cost neutral, especially in the gas sector where 2-8% of global production is lost to methane leaks. John Crane's methane abatement products will help meet ambitious industry and government targets to significantly reduce the methane footprint of oil and gas by 2030.

John Crane provides an extensive portfolio of proven, API (American Petroleum Institute) compliant technology solutions that can be applied to reduce leaks across much of the oil and gas value stream, from upstream boosting to midstream processing, LNG, and downstream refineries and petrochemical facilities.

John Crane is currently engaged in over 20 CCUS projects worldwide, and is developing new solutions toward improving the reliability, cost and efficiency of transporting carbon dioxide. At the present time, nearly 80% of all carbon dioxide injected underground uses John Crane sealing technologies.

In traditionally water-intensive industries such as pulp and paper and mining, John Crane dynamic lift seals save an average of one million gallons of water per seal per year. Additionally, diamond face seals are designed to reduce friction, lowering energy use, yielding similar water savings and extending life.

In March 2022, John Crane announced a partnership with NatureWorks – one of the largest global producers of biopolymers – to support development of a new polymer manufacturing facility in Thailand. John Crane will provide a polymer melt filtration system to remove contaminants from the production process for biopolymers which produce less greenhouse gas and are more energy-efficient to manufacture than traditional petroleum-based plastics.

Alternative fuels and renewables

Today, low-carbon hydrogen – hydrogen produced through electrolysis powered by renewable or nuclear energy; and hydrogen produced through natural gas reforming technologies retrofitted with carbon capture solutions – is one lead example of alternative fuels that are emerging to lower carbon emissions across many hard-to-abate sectors.

John Crane is a market leader in hydrogen compression sealing with over 40 years' experience and a portfolio of hydrogen-ready products that can be applied to solve the challenges associated with compressing, transporting, and storing hydrogen and its derivatives. Methane abatement and CCUS are fundamental to the success of hydrogen produced through natural gas reforming. John Crane is working with existing hydrogen and CCUS facilities.

Looking further ahead, accelerated deployment of all available clean energy technologies – hydrogen, nuclear, solar, wind, hydroelectric, geothermal and carbon capture – will be required to hit global GHG goals. John Crane's expertise will support this rapid scaling with existing and new technology for compression and conveyance in challenging operating environments. And development and expansion of existing energy hubs means that John Crane is already on the ground close to operating partners and stakeholders.

SMITHS DETECTION

Smiths Detection is a global leader in the detection and identification of threats and contraband, supporting safety, security and freedom of movement across a range of markets including aviation, ports and borders and urban security. Customers operating in these sectors share our objectives to reduce energy use and emissions while maintaining the integrity and effectiveness of the infrastructure and systems that keep us safe.

Energy efficiency and extending equipment lifespans

Smiths Detection is focused on supporting customers to extend the lifespans of their installed base through repairs, refurbishment and mid-life upgrades; and improving design, modes of operation and implementing digital solutions to drive step changes in energy efficiency in the current and next generation of equipment.

Looking further ahead, the application and integration of new technologies will enhance threat detection ability, making security processes faster and more effective, thus saving resources of all kinds, while enabling operators to respond to the evolving threat environment and continue to keep us safe.

With global reach and installations in countries across the world, Smiths Detection is positioned to play an important role in helping customers meet their environmental commitments and reduce cost of ownership of these vital systems.

Smiths Detection's HI-SCAN 6040 CTiX cabin baggage scanner has the lowest energy use compared to similar products on the market. It also meets the ECAC EDS CB C3 checkpoint security standard which enables passengers, when jurisdictions permit, to leave liquids in their bags, helping reduce the need for single use plastic bags and other small plastic containers.

Smiths Detection collaborated with Microsoft and London Heathrow Airport on the development of a first-of-its-kind multispecies AI model designed to uncover illegally trafficked wildlife concealed in baggage and air cargo. An extensive library of X-ray images taken from Smiths Detection baggage scanners at Heathrow was used to train the Microsoft AI for Good model. Initial testing of the model had a success rate of over 70% in identifying trafficked animals and ivory.