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Staying ahead of environmental, social and governance goals

Investing in firms that champion environmental, social and governance (ESG) issues (TABLE 1) has been discussed for decades but is now moving to the forefront of corporate initiatives. ESG may have transitioned to reality in 2004 when the United Nations Secretary, Kofi Annan, asked 50 major financial institution Chief Executive Officers to join an initiative for finding ways to integrate ESG concepts into global markets. The term ESG was coined a year later in a report that explained how championing ESG factors made good business sense, created sustainable markets and benefited society.

Since that time, the movement has gained traction, with many investors and stakeholders actively demanding that companies engage in ESG improvements and publicly show their progress in key areas. The calls have been so great that the U.S. Security and Exchange Commission (SEC) is creating reporting guidelines so companies can provide consistent and accurate accounts of their ESG programs, alongside their standard financial reports.

Strong ESG performance is rapidly transitioning from a differentiator to a requirement for many corporations. Even though the standards and guidelines are not yet fully written, a wise company is already formulating meaningful goals and showing ESG improvements to proactively address issues.

ESG in the oil and gas industry. While social and governance issues apply to nearly all companies, petrochemical companies are naturally more focused on environmental issues. There is a great deal of public pressure on the industry to decarbonize product streams and reduce emissions of pollutants, especially greenhouse gases (GHGs). To accomplish these goals, most firms are utilizing a multipronged approach (FIG. 1).

One major initiative is the use of recycled and renewable feedstocks to create low-carbon alternative fuels. Such feedstocks might include soybean oil, corn oil, beef tallow, white grease and used cooking oils, as well as oils from algae, rapeseed and carinata. Other processes collect biogas from various agricultural and waste sources and then convert those potential GHG emissions to saleable biomethane for injection into natural gas pipelines.

Another source of environmental improvements comes from the reduction of intentional and fugitive methane emissions. Remote oil and gas production areas and pipelines often use natural gas as a motive force for instrumentation and valve actuation, and methane is vented with each stroke or bled continuously. Also, most control valves and/or pumps in chemical service tend to emit pollutants through packing and seal leaks. All these emissions sources can be substantially curtailed and even eliminated through proper equipment design, replacement with electric actuators or improved packing designs.

In addition, advanced controls tactics and strategies offer numerous ways for processing facilities to improve yields and run more efficiently, while reducing waste and emissions.

ESG improvements through automation. Like oil and gas companies, many automation industry firms are also pur-

TABLE 1. Increasingly, activists and investors are demanding companies focus on ESG issues, make goals and show continual progress and improvements

Environmental
Reducing greenhouse gas emissions
Tracking environmental footprint
Energy source decarbonization: Supporting low-carbon commitments
Emissions management
Collaborating with universities around the world
Protecting food quality and environmental sustainability
Social
Enabling safety and security
Workplace safety
Diversity, equity and inclusion
Employee engagement
Training and development
Training the workforce of the future
Advancing the future of communities
Science, technology, engineering and mathematics (STEM) education
Governance
Board diversity and structure
Corporate governance actions
Risk management and oversight
Integrity and ethics

suing multiple ways to reduce emissions. Most have initially focused on internal processes, such as building/energy improvements, improved manufacturing efficiency and a reduction in manufacturing waste and water usage. While these methods certainly have a positive impact on the environment, the most dramatic environmental improvements come from the development of new instrumentation and controls, which enable oil and gas companies to achieve their ESG goals in a more effective and less costly way.

Many investors and stakeholders are actively demanding that companies engage in ESG improvements and publicly show their progress in key areas. Strong ESG performance is rapidly transitioning from a differentiator to a requirement for many corporations.

Membrane technology, automated controls and advanced analytics have facilitated the installation of hundreds of biomethane processing and injection facilities all over the world.

The falling cost and improved performance of biogas processing units allow landfills, chicken and pig farms, and wastewater and food waste facilities to profitably convert their GHG emissions to market quality natural gas. The processes required use anaerobic digesters and self-contained biomethane processing/injection skids.

Another enabler of significant GHG emissions reduction are new designs in valve actuation that allow natural gas-actuated valves to be replaced with low and even zero-emissions alternatives. Often sold as retrofit kits, these relatively inexpensive instrumentation upgrades provide dramatic reduction in methane and GHG emissions.

Additionally, some automation suppliers offer a variety of low-bleed alternatives for natural gas-powered instrumentation, as well as very low power electrical alternatives, which can run on the power provided by small solar systems.

In many cases, the savings generated from the reduced methane emissions, reduced testing requirements and additional natural gas production pay for the instrument upgrade. All this equipment meets the much more stringent methane emissions regulations recently passed in the U.S. and Canada.

Other recent product developments include zero-leakage knife gate valves for applications with hazardous materials, along with significant improvements in valve design and valve packing designs.

These design innovations help the industry make significant strides in the reduction of hazardous liquid and gas emissions to the environment, even as they reduce maintenance costs and improve process efficiency.

Maximizing ESG progress through collaboration. While both oil and gas industry and automation suppliers are making significant strides towards achieving their environmental goals, best progress often results from a collaboration between these two groups. This is already happening in some areas, with oil and gas specialists working with automation leaders to address the most pressing challenges by designing innovative methods to address ESG issues.

Another area of collaboration can be found in joint partnerships between automation leaders and universities. Automation suppliers routinely fund sustainability forums, award grants and provide scholarships to further research in a variety of environmental fields. These efforts often result in next generation instrumentation and chemical processes, yielding significant environmental improvements.

Act now. The demands from shareholders, stakeholders, the U.S. SEC and the public for improvements in ESG initiatives are becoming insistent. Rather than wait for new regulations to be issued, most industry leaders are staying ahead of the curve by defining their own goals, tracking progress and publishing results. There are multiple benefits to this approach.

Improvements immediately benefit society and the environment, but they also allow a company to define its role and choose the best path forward to meet ESG goals. That option is almost always preferable to having governmental entities dictate goals and define required methods.

The most successful outcome for our planet results from collaboration between industries. Oil and gas companies may find it worthwhile to explain their environmental goals and operational challenges to their automation suppliers so they can suggest specific solutions and adjust product roadmaps. These types of collaborative efforts are already underway, with benefits being realized now, and more to come in the near future. HP

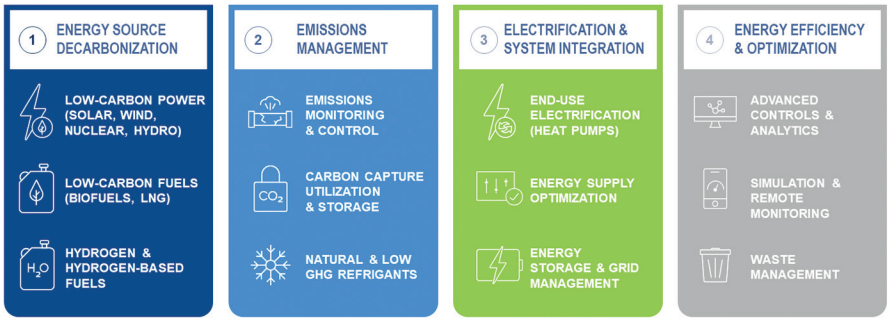

FIG. 1. Most oil and gas companies pursue a broad variety of methods to reduce GHG generation and emissions.

BRUCE OFORI is the Sales Development Manager for ESG at Emerson for its flow controls products. He works with customers to help them achieve their emissions and energy reduction targets. Mr. Ofori earned a Bch degree in chemical engineering from the Kwame Nkrumah University of Science and Technology in Ghana, and an MS degree in petroleum and gas engineering from the University of Salford in Manchester, England.