

The Chart Industries and Kathairos Solution for zero methane emissions at the well head



Using cryogenics to eliminate GHG emissions

First in the Hero to Net Zero Series

The Oil and Gas Industry is the hero of the energy world. Throughout modern history, the oil and gas industry has been a key enabler of building economies, industries, and raising living standards. The industry never ceases to be challenged and one of the latest is to reduce their carbon emissions. Zero emissions by 2050.

Methane venting on remote oil and gas wells has been an ongoing environmental issue in the US, Canada and globally. Remote wells routinely release tonnes of methane into the air by way of the normal operation of the well pneumatics using wellhead gas pressure. However, a zero site emissions solution for those same *Oil and Gas Well Head pneumatics* is now available thru the partnership of Chart Industries and Kathairos Solutions.

Kathairos, a cleantech company with a mission to lead decarbonization in the oil industry, is having proven successes in the field. Imagine eliminating the 'routine' site venting from pneumatic devices -efficiently, reliably, affordably, and sustainably with a simple yet innovate technology built around Liquid Nitrogen (LN2).

Chart supports this process by providing our cryogenic leadership and expertise, along with the patented Perma-Cyl® system for onsite storage of the liquid nitrogen. Chart's Microbulk system has *no moving parts, requires no onsite power, and engineered to provide continuous unattended* supply of nitrogen. With over 55,000 units used around the world, it is primed for use at remote wellheads.

'One of Chart's key focuses is on engineering environmental cryogenic solutions for our customers and supporting end users' ESG initiatives' said Jillian Evanko, President and CEO of Chart Industries. 'We are very proud to be a key part of the technology platform that allows Kathairos to eliminate methane emissions of their clients' well pneumatics utilizing our Perma-Cyl tanks.'



The backbone of the system for creating ZERO site emissions from operating pneumatics starts with the underappreciated power in LN2. As in many applications in cryogenics, the natural thermodynamic tendency of cryogenic liquids is to warm over time, return to a gas phase and create a rise in pressure. This rising pressure can be used to operate valves and pumps. No methane fuel needed, just gaseous nitrogen. Wondering what the carbon footprint is to deliver LN2 to each site? Less than 3% of the total emissions eliminated.

Nitrogen makes up to 70% of atmospheric gases. Cooled to -320F. Non-corrosive, non-flammable, non-polluting. Operating in -50 degrees? No problem as the LN2 is -320 so -50 has NO effect on the cryogenic storage and system operations.

The LN2 based system offered thru Kathairos includes telemetry and cloud based data portal to provide producers with accessible emissions mitigation and carbon offset data. Chart is honored to be part of the journey to Net Zero in the Oil and Gas industry.

For more details on the partnership, click [HERE](#).
To visit Kathairos, click [HERE](#).

For information on Chart Industries, visit www.Chartindustries.com

Product and Application Information: 1-952-243-8800 or 1-800-247-4446