

Natural Gas TODAY

For Municipal Gas Systems



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TAKING TO THE SKIES Launching an Oil and Gas Drone Inspection Program

The United States is home to more than 2.4 million miles of pipeline, making its network of energy pipelines the largest in the world. For an oil and gas firm, managing that amount of pipeline requires regular inspections that often come with inherent risks and significant costs.

Driving trucks can be hazardous due to lease roads that develop potholes and washed-out areas thanks to inclement weather. While performing routine inspections and maintenance - such as walking a pipeline or checking well pad equipment - field workers frequently encounter hazards relate to their sheer proximity to the equipment. The larger the standoff distance a technician has while inspecting assets, the better, but other methods of inspection that increase the stand-off distance of crews carry additional cost. Manned aircraft, such as helicopters, can cost up to \$1250 USD per rotor hour and image quality is generally lackluster.

Drones have proven to be an effective tool in improving oil and gas asset management due to their ability to collect quality images and geospatial data while keeping inspection crews away from hazardous equipment. Using this technology, leading oil and gas enterprises have replace manned aircraft inspections with drone deployments, ultimately gaining unprecedented insight into the condition of critical assets. stream and downstream applications with some achieving up to a 50 percent reduction in inspection costs. So, how do you go about deploying a drone-based inspection program that not only increases the overall efficiency of your asset management processes, but also makes conditions safer for your staff? Here are the five key steps to planning and launching a successful oil and gas drone inspection program.

Step 1 Discovery

The launch of any new program should begin with identifying the problems you're trying to solve and the resources available to you to address those problems. But, before you dive into researching the difference between the various commercial drones on the market, take the time to create a summary of what you want to get out of a drone program.

- What are your key pain points?
- What types of data are you looking to collect?
- Who is going to collect the data internal or external drone pilots?
- How will the data be processed?
- What analytics are required for

Butterfield Introduces Bipartisan Bill to Protect Natural Gas Ratepayers

Congressman G.K. Butterfield (NC-01) and Congressman Billy Long (MO-07) introduced the Protecting Natural Gas Consumers from Overcharges Act of 2020. The bipartisan bill aims to protect natural gas consumers, residential and industrial, from overpaying for their use of natural gas. The bill amends the National Gas Act to give the Federal Energy Regulatory Commission (FERC) the authority to set a refund effective date and order a refund when an interstate pipeline is found to be overcharging for its services. FERC currently has these authorities under the Federal Power Act to order refunds from interstate electric utilities when they determine overcharges have been made.

"Natural gas customers in eastern North Carolina and across the country deserve to pay fair rates for the natural gas they use, and they deserve the same federal rate protections as consumers that use electricity," said Congressman Butterfield. "I am proud to introduce the Protecting Natural Gas Consumers from Overcharges Act of 2020 to ensure families and businesses in my congressional district don't overpay for the natural gas they use."

"Under current law, if FERC determines a natural gas distributor has charged an unreasonable fee for their services, natural gas consumers do not have the ability to recoup any money," said Congressman Long. "In Southwest Missouri, utilities that use natural gas to power people's homes work to provide affordable and reliable energy to their customers. The Protecting Natural Gas Consumers from Overcharges Act gives FERC the proper authority to order refunds for over collections from pipeline distributors which will allow consumers to recoup any funds that were overcharged. I believe in holding companies accountable and putting constituents first, which is why I am proud to cosponsor this legislation. I am proud to work with Rep. Butterfield on bipartisan, commonsense legislation to reduce energy costs for natural gas consumers."

Interstate Municipal Gas Agency 1310 West Jefferson Auburn, IL 62615 RETURN SERVICE REQUESTED

Drone inspection programs not only offer a more flexible and costeffective way to manage assets, but also a data-intensive structure for tracking conditions over time. These programs can be deployed across the hydrocarbon supply chain. Oil and gas operators have found success across a variety of upstream, midthis data to be useful in the field?

The question of who should collect data about your assets' health is a big one and the answer depends on your requirements, timeline, budget and appetite for risk. There are three common strategies to consider, each with its own set of benefits and drawbacks.

In an outsourced approach, a thirdparty provider will manage the drone deployment from end-to-end. This approach allows you to save on costs and offers great scalability options,

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The Protecting Natural Gas Consumers from Overcharges Act of 2020 has the support of:

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Taking to the Skies

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however the drone operations will be separate from general maintenance procedures.

Another approach to consider is insourcing. This entails hiring your own drone operators and purchasing the required equipment yourself. The main benefit of this approach is that you can cross-train existing staff and integrate the drone program fully into existing operations. However, there are greater upfront costs associated with this model, and you'll also be fully exposed to aerospace regulatory and safety risks. The third option for launching a drone program is to take a hybrid approach. Like the name suggests, this approach incorporates aspects of both outsourced and insourced models. A hybrid strategy involves establishing a staff of drone operators and augmenting that staff with third-party providers when needed. Drawbacks to this approach include higher up-front costs, similar to those associated with insourced programs, and increased coordination requirements between internal and third-party teams.

Whether you decide to go it alone or ring in a third party (or a little of both), you'll need to define a comprehensive drone strategy. With a complete strategy in place, you can identify cost centers and forecast your return on investment, as well as determine existing processes that need to be updated or integrated into the new drone program. It's also important to consider current operations and safety protocols as they may impact future drone operations.

With a thoughtfully designed program based on these details, you'll be taking to the skies in no time.

Step 2 Waivers and Certifications

Securing the correct certifications and waivers is essential to a successful drone program. Penalties for flying a commercial drone without a license, or hiring a non-licensed drone pilot, can result in the suspension or revocation of existing licenses, denial of an application for a pilot's license and significant civil penalties. Although rare, the Federal Aviation Administration (FAA) may also impose criminal sanctions for unlicensed or illegal drone operations.

If you decide to proceed with launching an insourced drone inspection program, you will need to confirm that whoever will be operating your drones is fully certified and that all necessary waivers are secured. All commercial drone pilots must be certified under the FAA's Small Unmanned Aerial System (UAS) Rule (Part 107). This certificate demonstrates that the pilot understands the regulations, operating requirements and procedures for safely flying drones. Any drone pilot who is not Part 107-certified is not authorized to fly drones for any commercial purpose.

While Part 107 offers a general license for commercial drone operations, some types of missions aren't permitted. For instance, in order to fly beyond visual line of sight (BVLOS) to capture more area in a single deployment, flying drones over people, flying in restricted areas of airspace and nighttime operation requires a waiver from the FAA.

If you decided to adopt an outsourced drone program, these certification and waiver requirements will be a nonissue, as any reputable drone service



Drone inspection programs offer a flexible and cost-effective way to manage assets. Operators have found success across a variety of upstream, midstream and downstream applications with some achieving up to a 50 percent reduction in inspection costs

provider only employs credentialed drone operators and flight planners.

Step 3 Equipment

Now that you have your Part 107certified drone operator and all the necessary waivers to fly drones commercially for your business, it's time to look at the technology itself.

Hardware

A safe and productive flight is dependent on good hardware, but oil fields and pipelines present a challenging environment for any aircraft as they are often in windy, wet or rugged terrain. Drone operators need hardware that's purpose-built for these challenging environments. In order to remain agile in high-wind operations, drones must be lightweight and robust. They also need to include guards for the propellers to mitigate damage or personal injury (this also allows for deployments in close quarters). However, one of the most important aspects of using drones for aerial inspections is the addition of a quality, cutting-edge sensor. By adding the correct sensor to your hardware, your drone operator can balance advanced data fidelity while ensuring the safety of your drone mission.

Multiple types of data are required in order to effectively manage oil and gas assets. Drone operators working with oil and gas firms today typically deploy a range of sensors including thermal, infrared and LiDAR sensors as well as methane detection lasers and optical gas indicators (OGI). In short, the higher the quality of the sensor payload, the higher the quality of the data.

Software

Leading-edge drone software allows operators to deliver enhanced data analytics from their inspections, rather than simply delivering imagery.

By using software that provides increased analytical outputs, operators can create 2D and 3D orthomosaics that offer a more detailed view of damage, such as cracks or erosion, without having to halt production. Advanced flight software also allows operators to automate flights, review

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Step 4 Safety and Insurance

While pilots licensed under Part 107 have already demonstrated that they have the proper certifications for commercial drone activities, operating in the oil and gas industry requires that you take additional safety precautions. While drone crashes that result in damage or injury are rare, accidents can still occur. Independent drone service providers should carry their own hull and liability insurance, both for the equipment and for bodily injury, but if you're planning to

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Taking to the Skies

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launch a fully-fledged drone inspection program, you should consider carrying additional, internal policies. It's also recommended that oil and gas firms develop a dedicated safety manual for drone operations that's compliant with OSHA and consistent with existing safety protocols.

Beyond the quality of the drones and flight software, the skills of your drone operators are critical to the safety and effectiveness of your drone-based inspections. The pilot in command must understand your objectives and follow rigorous procedures, regardless of whether they're your own staff or a third-party drone service provider. Pilots should understand the assets and area of interest to be inspected and should complete training specific to the oil and gas environment. They should also follow flight standards, maintain safety management systems and protect mission data. These are just a few of the requirements you should demand of your pilots in order to ensure safe and secure operations.

Step 5 Data Management

As discussed in the equipment section, drones are more than just flying cameras. When equipped with the right sensors, multiple highresolution cameras and cutting-edge software, the data that can be collected and delivered via drones is unparalleled in both quantity and quality. As such, having a strategy in place for data analysis and delivery is crucial to getting the most out of your drone investment.

Similar to the approach you took to designing your drone program, you'll need to evaluate if you want to keep the data analysis process in-house or outsource it to a third party. Consider the security and privacy requirements for your organization and ensure that you have complete control over the data value chain for your drone program. Even if you decide on an outsourced approach, having a comprehensive data management strategy will ensure that you're converting data into actionable insights.

Take Off!

Congratulations on launching your drone inspection program. If you followed these steps, found the right partners and did your due diligence, you should soon see the fruits of your labor. The cost savings resulting from drone inspection programs are significant: one oil and gas firm determined that the use of drones reduced inspection costs by approximately 66%, from \$80–\$90 per well pad from traditional inspection methodology to \$45–\$60 per well pad.

A safe and productive flight is dependent on good hardware, but oil fields and pinelines pre-

Seasonal Temperature Outlook February – March – April

A safe and productive flight is dependent on good hardware, but oil fields and pipelines present a challenging environment for any aircraft as they are often in windy, wet or rugged terrain.

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The American Public Gas Association, American Forest and Paper Association, American Public Power Association, Arcelor Mittal, Cargill, Eastman Chemical, Industrial Energy Consumers of America, National Rural Electric Cooperative Association, Natural Gas Supply Association, Nutrien.

Following is a response from APGA:

On February 5, Rich Worsinger, Director of the municipal utility Wilson Energy located in Wilson, N.C., testified on behalf of the American Public Gas Association (APGA) before the House Energy and Commerce Committee's Subcommittee on Energy at a hearing titled,

"Modernizing the Natural Gas Act to Ensure it Works for Everyone." Mr. Worsinger strongly supported amending the Natural Gas Act to make it consistent with the Federal Power Act, ensuring that the Federal Energy Regulatory Commission (FERC) may

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Shakeups at FERC By Steve Weiler, NAO&G Pipelines

The intrigue surrounding FERC commissioner nominees continues. There are currently two open seats, given the death of Kevin McIntyre (R) January 2019 and retirement of Cheryl LaFleur (D) last August. The remaining three Commissioners -Chairman Neil Chatterjee (R), Bernard McNamee (R) and Richard Glick (D) - constitute a quorum. That is important for the oil and natural gas pipeline industry because gas infrastructure orders have generally passed on a razor thin 2-1 vote (with Commissioner Glick dissenting due to unaddressed concerns with climate change).

For some time it's been rumored that James Danly, FERC's current general counsel, would be tapped for the Republican seat, and Allison Clements, a renewable energy lawyer, would be the Democratic nominee. Normally, when there are two open positions (one from each party), a pair of candidates in nominated for Senate approval. But our current political situation is anything but normal. On Oct. 15, President Donald Trump nominated Danly to fill McIntyre's remaining term ending in 2023. Clements was not nominated. Democrats cried foul. Here's the backstory.

If the administration had nominated a replacement for McIntyre last spring,

there would be no controversy. It did not, and the delay resulted in a second open seat (LaFleur's). So the administration was in a pickle: If both-Danly and Clements were nominated, FERC would have five commissioners until McNamee's term expires June 30, 2020 (or the end of the Congressional session at the latest). McNamee's re-nomination and confirmation could stall during the presdential election year, producing an open seat, and if a Democrat wins the 2020 presidential election, he/she would be entitled to nominate a Democrat for McNamee's vacated seat, giving Democrats a 3-2 margin.

Against this backdrop, Trump's strategy started to take shape. Assuming Danly's confirmation, FERC will likely be comprised of three Republicans and one Democrat until after the election. Some speculate that the president might offer to pair Clements with McNamee, but that might be a non-starter for Democrats. Assuming McNamee remains at FERC until after the election, some speculate that the president might renominate him and seek confirmation from a lame duck Senate. Another possible scenario involves the open seats of LaFleur and McNamee filled by the next president. As such, who nominates these two replacements and which party controls FERC could be decided by the 2020 election. At bottom, one thing is certain - the political tug-of-war at FERC is just beginning.

providers to overcharge in the first place.

However, FERC does not have the same authority under Section 5 of the Natural Gas Act. A finding that interstate pipeline rates are too high and must be lowered can be made effective only after that determination, prospectively. There is no good reason to treat these energy consumers differently. Congress' failure to amend the Natural Gas Act, in the same manner in which it amended the one pipeline. Such a so-called Federal Power Act in 1988 and 2005, 'captive customer' must rely on being overcharged hundreds of millions of dollars by regulated interstate pipelines annually.

2020 NATURAL GAS UTILITY WORKERS' DAY

ACROSS THE COUNTRY, NATURAL GAS WORKERS ARE RECOGNIZED

Natural gas utility workers will be recognized across the country on March 18th. This nationwide event is intended to build public awareness about the hard work done by the employees of natural gas utilities. These employees tirelessly provide safe and reliable service to millions of customers from coast to coast. This day of recognition is a time when communities have an opportunity to give recognition to the employees who provide one of their most valuable assets - their natural gas utility.

This marks the 5th year in which natural gas utility workers have been recognized and honored. In 2015, the Marketing & Sales Committee of the American Public Gas Association (APGA) began discussing how they believed natural gas utility workers deserved a day to be recognized for their hard work and accomplishments. After several months of planning, the committee named March 18 the day in which natural gas utility workers around the country will be honored each year.

The decision to hold this day on March 18 was made by a poll on the APGA Community. March 18 is the date of the New London, Texas school explosion in 1937 that led to the widespread odorization of natural gas and an increased emphasis on safety. Safety is a vital aspect to natu-

about 95 percent are served by just has resulted in natural gas consumers FERC regulation to determine that its troduced in the House of Representamonopoly pipeline is not overcharging. But the current system allows the N.C.) and Long (R-MO), and which pipelines to keep overcharges rather than refunding ratepayers.

ral gas distribution and the employees of distribution companies endeavor to make natural gas delivery as safe a possible.

This annual nationwide event is not only intended to build public awareness about the hard work done by the employees of natural gas utilities, but natural gas utilities across America will also educate residents on the environmental, safety and cost benefits of using clean, reliable and affordable natural gas. Customers recognize the need to access reliable, affordable, safe energy and depend on the service of natural gas utility employees for that need.

Communities and natural gas utilities may honor natural gas utility workers by planning events, and through communications and social media posts. The state of Georgia even went as far as having the Governor sign a proclamation this year proclaiming March 18, 2020 as Natural Gas Utility Workers' Day in Georgia.

Safety is a core value for the natural gas industry and utility workers continue to bring safe, reliable natural gas into homes and businesses across the nation. Natural gas is a premier energy source for our country. As the cleanest burning fossil fuel, natural gas can help us achieve energy security and build a more competitive economy.

lation, such as the "Protecting Natural Gas Consumers from Overcharges Act of 2020," which was recently intives by Congressmen Butterfield (Dwould provide FERC with the ability to protect natural gas consumers from being overcharged by interstate pipelines.

Butterfield Introduces

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order refunds when it has been proven that consumers were overcharged for the regulated transportation of energy to their homes and businesses.

Under the Federal Power Act, if a rate complaint is filed and FERC later rules that the rates paid by the customers were unjust and unreasonable, FERC has the authority to make a just and reasonable rate effective from when the complaint case began. This means customers receive refunds, including interest, of the overcharges that persisted throughout the lengthy rate inquiry. This is not only fair but tempers the tendency of transmission

This is particularly concerning for public natural gas systems because

APGA supports the passage of legis-

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