SUPERCHARGE YOUR TEAM COMMUNICATIONS
WITH THE INDUSTRIAL INTERNET OF THINGS

2018 MOTOROLA SOLUTIONS ENERGY COMMUNICATIONS SURVEY REPORT

MOTOROLA *SOLUTIONS*
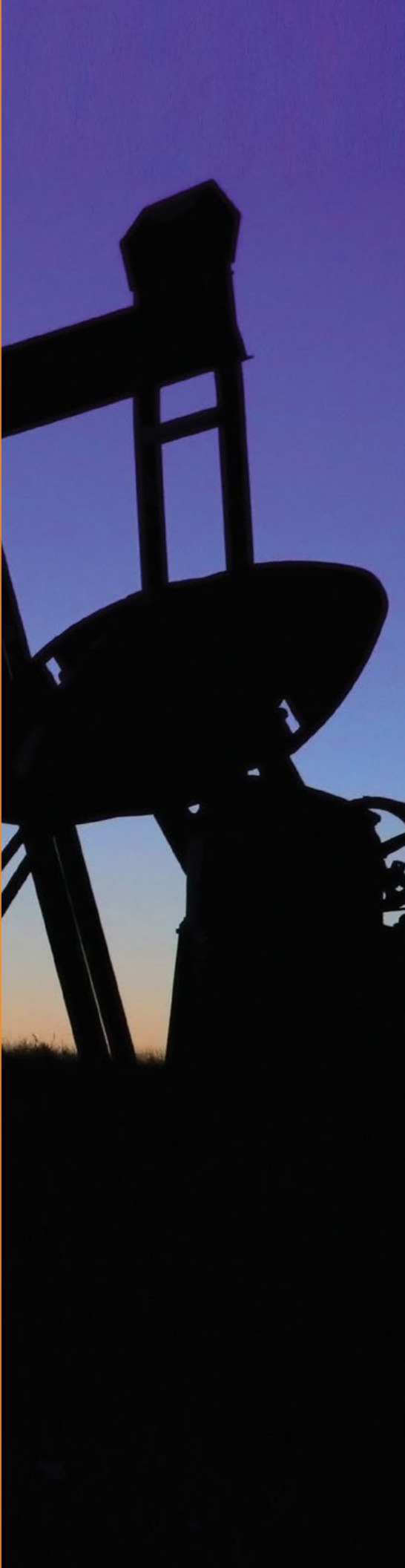
SUPERCHARGE YOUR TEAM COMMUNICATIONS WITH THE INDUSTRIAL INTERNET OF THINGS

In today's increasingly mobile world, Energy workers require instant communication and access to data intelligence wherever the job may take them. From the oil rig to the electric grid and everywhere in between, having the right data, in the right hands, at the right time, no matter the environment or device of choice — is simply non-negotiable. Organizations across various Energy segments — oil & gas, electric utilities, water utilities, and mining — are currently juggling a mix of communication devices and are hindered by gaps in coverage, poor battery life and fragile equipment that cannot withstand harsh environmental conditions.

Yet, citizens rely on their homes being heated in the winter, on clean running water, and on lights that turn on when they flip the switch. Meeting these expectations requires reliable, clear voice and data communications for Energy workers day-in and day-out. So oil & gas workers can communicate safely in hazardous environments. So precious resources are not wasted and efficient operations are maintained. So Energy companies can continue to exceed community expectations.

Communication is at the core of improving worker safety, efficiency, and production. But what if your voice communications were smarter? What if Energy workers could communicate instantly with machine data at their fingertips?
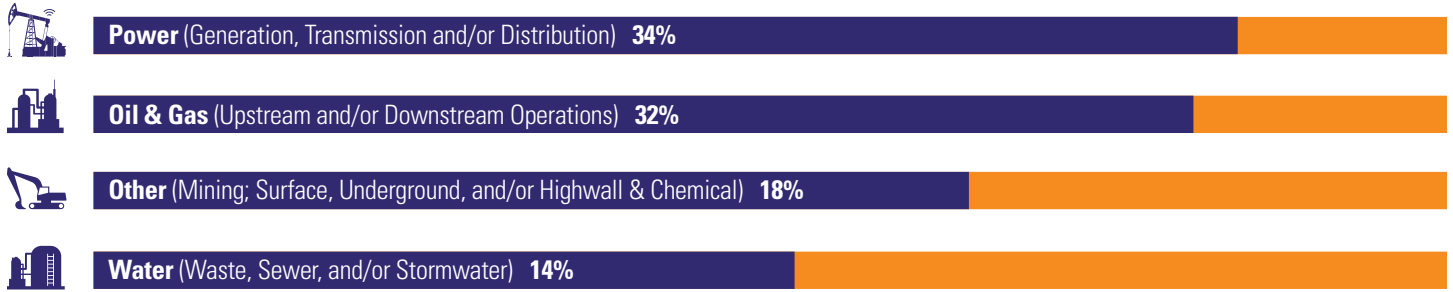
Motorola Solutions recently surveyed over **400** workers across various different functions in the energy industry. We set out to gauge how Energy workers are currently using communications technology, but took our questions one step further to look for answers around how Energy workers are using the Industrial Internet of Things. The takeaway? Energy companies already use reliable, mission-critical communications technology and networks every day. But they can gain a formidable competitive edge by taking that technology and seamlessly incorporating intelligence in the form of advanced Internet of Things solutions.
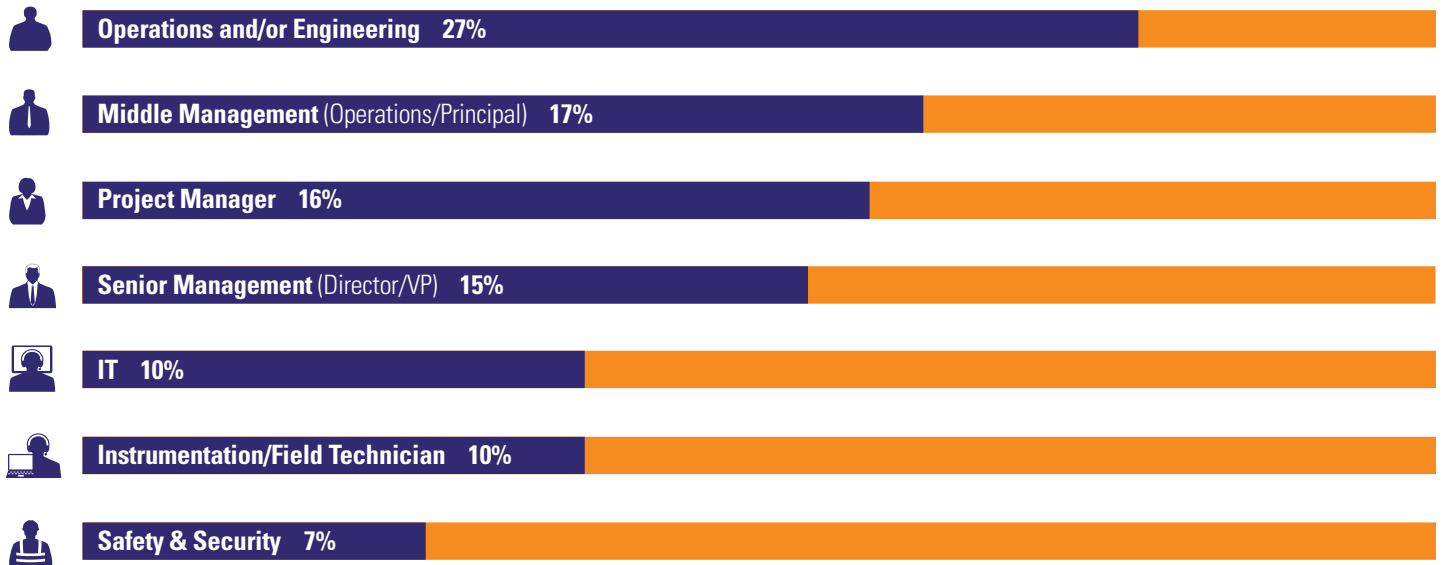
WHO DID WE HEAR FROM: RESPONDENTS DEMOGRAPHICS

Respondents represented a range of job functions within four key verticals.

Energy Organizations Represented

Power (Generation, Transmission and/or Distribution) **34%**

Oil & Gas (Upstream and/or Downstream Operations) **32%**

Other (Mining; Surface, Underground, and/or Highwall & Chemical) **18%**

Water (Waste, Sewer, and/or Stormwater) **14%**

Job Functions

Operations and/or Engineering **27%**

Middle Management (Operations/Principal) **17%**

Project Manager **16%**

Senior Management (Director/VP) **15%**

IT **10%**

Instrumentation/Field Technician **10%**

Safety & Security **7%**

BREAK DOWN INFORMATION SILOS WITH TEAM COMMUNICATIONS

Organizations across the energy industry are juggling a mix of different communication devices — from two-way radios, to smartphones, laptops, and everything in between. Energy Companies expressed their desire to be able to seamlessly connect all disparate devices, and create instant Team Communications from any location.

Some Key Takeaways From the Survey Data:

- Two-way radios are the device of choice among Oil & Gas and Electric Utility companies.
- Across the board, 90% of Energy organizations are using multiple devices to communicate with each other
- 100% of mining organizations using multiple devices

Yet, despite the large number of different devices being used within the energy sector, over a quarter of the respondents reported having difficulty finding communications devices to meet their workplace industry standards — such as Underwriters Laboratories (UL), the Canadian Standard Association (CSA), and Factory Mutual (FM).

UNIFIED TEAM COMMUNICATIONS PUTS THE POWER OF NOW IN WORKER'S FINGERTIPS

When it comes to unified Team Communications nothing is faster than right now. A leak needs immediate attention. Workers need to be sent to a specific location. A surplus of precious resources need to be monitored. When communications are slow, business slows. Unifying workers with Team Communications from Motorola Solutions will help Energy companies...

COMMUNICATE INSTANTLY...

Arm front-line and field workers with operations-critical radio products, built for professional and commercial split-second communications

WITHOUT BOUNDARIES...

On-site or off-site, management frontline workers and field teams are always in touch with PPT Work Group Communications.

WITH ADDED INTELLIGENCE...

Use purpose-built apps designed for specific jobs and responsabilities for immediate team mobilization.
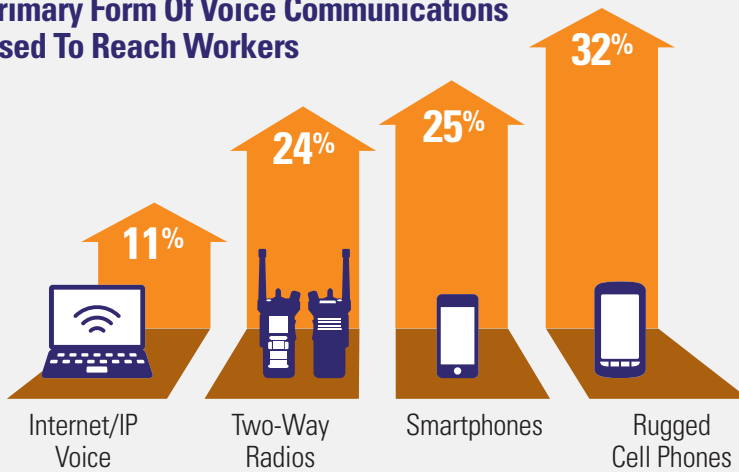
WITH CONFIDENCE...

Your precious in-house resources are already stretched too thin. With Managed & Support Services, reduce the complexity, time and cost of radio and infrastructure management.

BREAK DOWN INFORMATION SILOS WITH TEAM COMMUNICATIONS

Use Of Multiple Communication Devices

Mining: 100%

Electric Utilities: 92%

Water Utilities: 88%

Oil & Gas: 82%

Primary Form Of Voice Communications Used To Reach Workers

11% — Internet/IP Voice

24% — Two-Way Radios

25% — Smartphones

32% — Rugged Cell Phones

*8% reported "other" as their primary form of voice communication used to reach workers

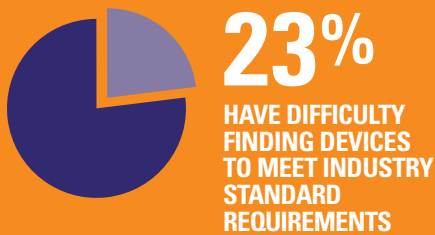## Primary Form Of Voice Communications Used To Reach Workers By Industry:

Oil & Gas
Two-Way Radios,
Followed by Cell Phones

Utilities
Cellphones,
Followed by Two-Way Radios

Mining
Cellphones,
Followed by Two-Way Radios

23%

**HAVE DIFFICULTY FINDING DEVICES TO MEET INDUSTRY STANDARD REQUIREMENTS**

The entire suite of Motorola Solutions two-way radios are designed to meet industry standards, so you can always be confident in your radios ability to function safely, in all types of challenging environments.

SEAMLESSLY CONNECT WORKERS WITH TECHNOLOGY DESIGNED FOR TODAY'S ENERGY NEEDS

Team Communications from Motorola Solutions helps you:

- Connect when it counts, from anywhere — share information that goes beyond voice in real-time to keep teams in the moment
- Effectively communicate on any device — radios, smartphones, laptops, tablets, landlines
- Leverage IIoT technology that streamlines information, automates processes and maximizes ROI
- Ensure safety is your top priority with better situational awareness

WAVE OnCloud by
MOTOROLA SOLUTIONS
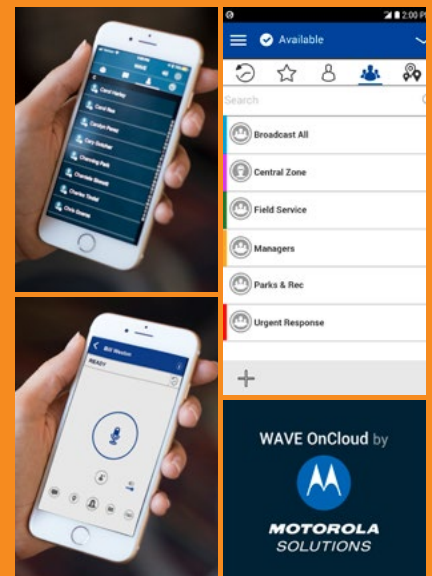
UNLOCK INTELLIGENCE ACROSS YOUR ORGANIZATION WITH THE INDUSTRIAL INTERNET OF THINGS

By enhancing Motorola Solutions Team Communications with added intelligence from the Industrial Internet of Things (IIoT), you can harness data hidden in the systems and devices you're already using. Armed with more insight into operations, Energy workers can achieve advanced levels of productivity and boost safety and operational efficiency – wherever mobile workers may be.
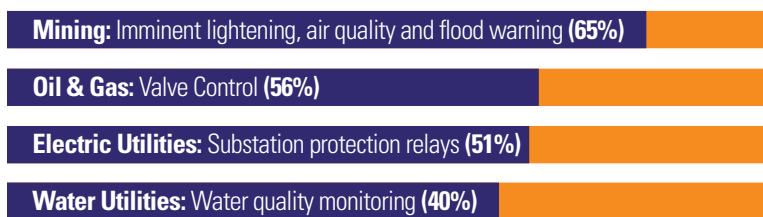
The survey revealed that while a quarter of Energy Companies are currently using at least one Internet of Things solution, nearly half are unsure of their future plans to implement such capabilities. Oil & Gas companies are most interested in taking advantage of IIoT-enabled communications to boost efficiency related to valve control, while Electric Utility companies see IIoT-enabled communications as an opportunity to better monitor and control substation protection relays.

Electric Utilities Lead The Way With Internet Of Things

Have you implemented one or more IIoT solutions in your organization?

- Electric Utilities: 33%
- Water Utilities: 31%
- Oil & Gas: 24%
- Mining: 20%

Energy Markets Are Most Interested In The Following IIoT-Enabled Capabilities

- **Mining:** Imminent lightening, air quality and flood warning **(65%)**
- **Oil & Gas:** Valve Control **(56%)**
- **Electric Utilities:** Substation protection relays **(51%)**
- **Water Utilities:** Water quality monitoring **(40%)**

Increasing Interest In IIoT-Enabled Mass Notification Siren Alerting System

- Oil & Gas: 21%
- Electric Utilities: 20%
- Mining: 20%
- Water Utilities: 11%

43%
OF ENERGY COMPANIES OVERALL ARE UNSURE OF PLANS TO IMPLEMENT IIoT SOLUTIONS

Enhancing unified workgroup communications with intelligent IIoT-enabled devices can create limitless possibilities across the Energy Industry. When devices, infrastructure, people, and industrial machines are connected, Energy workers can unlock new value, add new features, and access new forms of data for more accurate decision making. The survey found that the focus on IIoT in the Energy Industry is driven by a desire to improve safety, improve resiliency and increase reliability.

30%
OF RESPONDENTS ARE UNFAMILIAR WITH THE TERM "IIoT"

TRANSFORM YOUR ENERGY OPERATIONS WITH IIoT

When the equipment and infrastructure you use every day can talk to each other and to you, your operations will change forever. You can monitor how you operate with extraordinary detail and accuracy, replacing guesswork with a clear picture of what's happening, keep employees out of harm's way and give critical assets a whole new level of intelligence.

Which Next-Generation IIoT-Enabled Capabilities Would Your Organization Most Benefit From In The Future?

☑ Body worn video for employee safety

☑ Virtual assistant integrating voice and data intelligence

☑ Artificial intelligence with machine learning capabilities

INDUSTRIAL INTERNET OF THINGS AND TEAM COMMUNICATIONS: IN ACTION

Motorola Solutions has a long history of providing comprehensive solutions to the energy industry and understands the unique challenges Energy workers face on a daily basis. When Team Communications are combined with intelligence generated from the Industrial Internet of Things, the energy community can better safeguard workers, extend the life of crucial assets, and optimize efficiencies across all operations.

Comprised of three different components, Motorola Solutions Industrial IoT portfolio provides an end-to-end solution, customizable for a variety of applications:

- **Supervisory control and data acquisition (SCADA) remote terminal units (RTUs)** help organizations operate more efficiently with powerful process automation and expansive communication capabilities seamlessly integrated across your organization.
- **Machine-to-Machine (M2M) modems** expand organizational views and control by enabling enhanced operational technology connectivity and data communications.
- **Motorola's Network of Networks** integrates devices across a variety of communications systems for enhanced reliability, coverage and the ability to better leverage the networks you already have in place.

See how three real-world customers in the Energy Industry are taking advantage of Motorola Solutions Team Communications enhanced with IIoT solutions today:

Oil & Gas

A large natural gas distribution company, serving more than 600,000 customers, turned to a converged IIoT solution using a Motorola Solutions wireless network to increase control and productivity, reduce losses, and maximize profit.

Water & Wastewater Utilities

A county in the Western United States needed a water management system that would be able to communicate and coordinate with water departments across a 4,752 square-mile area. Motorola Solutions powerful IIoT solution enabled the county's entire water system to communicate on a single common infrastructure.

Nuclear Energy

A nuclear power plant in the Midwest needed to enhance the performance of its siren alerting system. Smart siren solutions from Motorola Solutions not only meet regulatory requirements, but also can be integrated with surrounding counties, all while saving time, cutting costs, and enhancing efficiency.

MOVING AT THE SPEED OF INNOVATION WITH IIoT IN THE ENERGY SECTOR

The future for IIoT looks bright, with rapid innovation supporting the needs of the energy sector.

The Smart Grid

Electric utilities are modernizing distribution grids to achieve greater supply reliability and to cut operating and maintenance costs. IIoT solutions provide computerized remote control and monitoring at medium-voltage substations and elsewhere on the grid. Using reliable wireless links, remote terminal units (RTUs) and machine-to-machine (M2M) modems connected to a variety of operational technologies – Programmable Logic Controllers (PLCs), capacitor bank controllers,transducer-less AC measurement units, fault passage detection units and more – organizations can monitor and control activity throughout the grid.

The Digital Oilfield

Oil & gas operations around the world depend on IIoT solutions to fuel the future. Remote terminal units (RTUs) and machine-to-machine (M2M) modems can be used for the many gas installations that require flow calculations required by American Gas Association (AGA) standards. Solutions are being deployed along oil pipelines to perform pressure monitoring and control using Proportional-Integral-Derivative (PID) based control routines and control cathodic protection rectifiers and other industry technologies.

Smart & Secure Water

IIoT solutions can oversee the continuous monitoring and control of water facilities, providing immediate problem detection and resolution. Well pumping can be automatically adjusted for water quality or energy costs and reservoir volumes and system pressures can be regulated to maximize the efficiency of the delivery system. Operators alerted to line breaks, equipment failures and possible unauthorized water use can react quickly to maintain the highest level of productivity. IIoT solutions are also routinely used to monitor and control the collection of waste water delivered to treatment facilities.

Early Warning Systems

IIoT solutions are being integrated into a range of siren equipment to support various activation options. Secure and encrypted communications minimize the possibility of false alarms or intrusion and systems can support combinations of tones or pre-recorded voice messages across multiple control centers.

Smart & Safe Cities

IIoT solutions are being deployed to enable a variety of cutting-edge applications. Examples include: monitoring door opening/closing across public safety entities (e.g. fire station alerting and automation) and industrial/commercial facilities; remote disaster recovery and response for critical network appliances; and control and management of municipal infrastructure such as highway lights, street lights, highway fast lane direction and more.
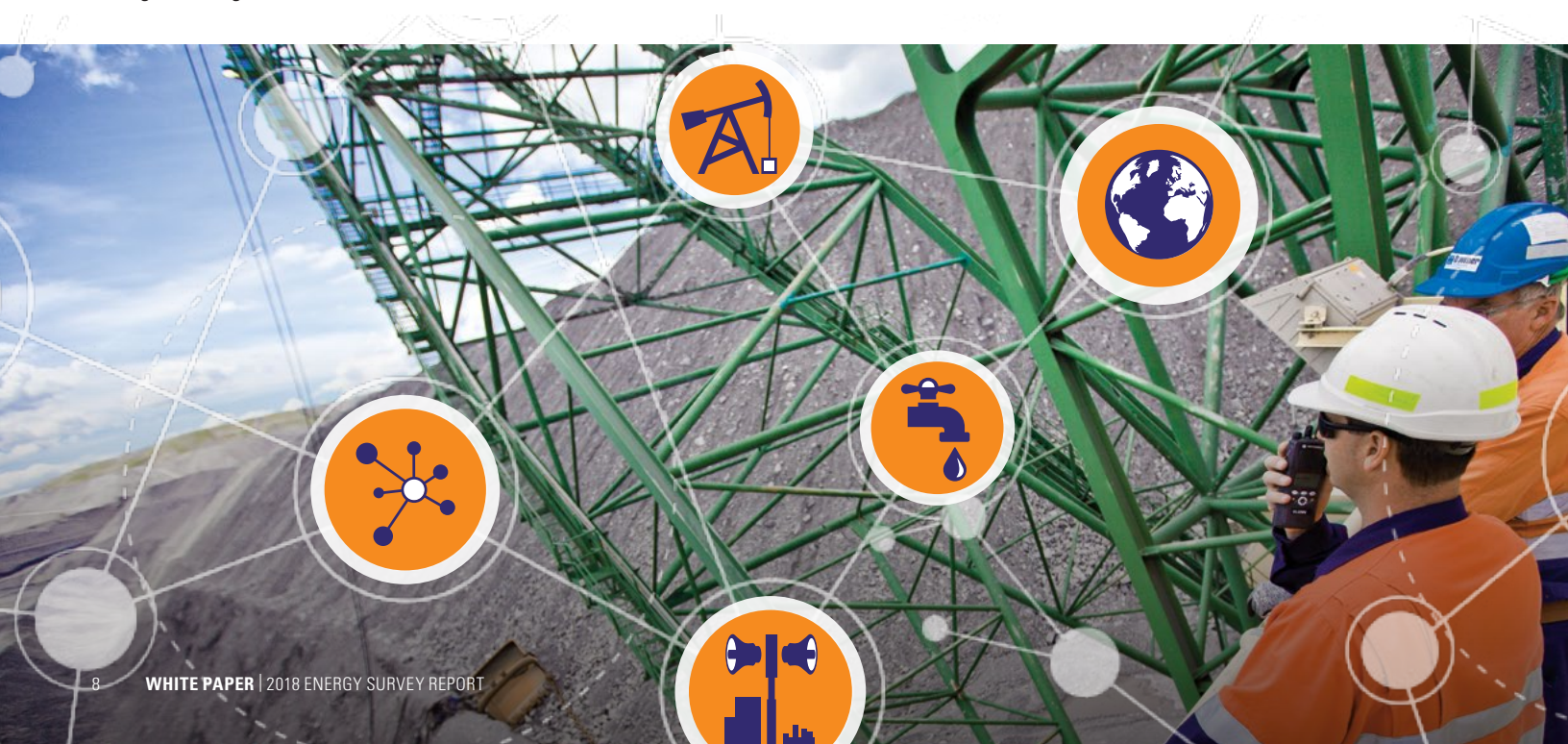
TAKE TEAM COMMUNICATIONS FURTHER WITH IIoT

What can Energy Companies do today to ensure a more informed and safer tomorrow?

As a key first step towards a safer and more productive tomorrow in the Energy industry, organizations are looking to bring together a multitude of different communication devices and bridge communication gaps to improve day-to-day operations. Workers need the ability to connect in an instant, from anywhere – no matter the hazards of the environment or their device of choice. Whether working at a secluded water plant or in a large oil refinery, converging voice and data with the Industrial Internet of Things will enable operations to become more streamlined than ever before.

That means Electric Utility Companies can identify where and when power is lost and take swift action. Reducing time cities spend in the dark. Water Utility Companies can raise alarms if chemical levels rise too high. Ensuring safer production of the world's most precious resource. Oil & gas companies can proactively control valves and immediately pinpoint leaks. Keeping vehicles running, homes heated in the winter, and the environment protected.

Team Communications enhanced with the added intelligence generated from the Industrial Internet of Things will allow employees to capitalize on real-time information, and shift from reactive to proactive operations, enhancing safety initiatives, supporting innovation and creating sustainable practices.

To learn more about how to supercharge your Team Communications with the Industrial Internet of Things, please visit **www.motorolasolutions.com/en_xl/solutions.html**

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