

## Oil & gas field communication networks

# Top 10 reasons to trust Hitachi Energy Wireless

### Solution overview

Operators in all parts of the oil and gas value chain need fast, flexible and reliable connectivity to their field facilities. Hitachi Energy offers the product portfolio and services to provide end-to-end wireless IP network solutions for connected global operations.

#### 1. Turnkey solution

Hitachi Energy Wireless offers the product breadth, maintenance services, and business processes needed to provide end-to-end, turnkey wireless IP network solutions for industrial applications throughout their entire lifecycle. We provide network design and integration services and support, and we have local teams to service systems throughout North America and the world. Purchasing from Hitachi Energy Wireless is not simply a transaction; it is part of an ongoing lifecycle partnership.

#### 2. Optimized technology mix

Hitachi Energy Wireless has deployed hundreds of wireless networks over the past 15 years utilizing an optimal mix of broadband mesh, broadband point-to-multipoint (PTMP) and point-to-point (PTP), narrowband PTMP/PTP, and other technologies. We understand the value and best role of each technology in building resilient and cost-effective outdoor communication networks. Typically, broadband mesh provides ubiquitous high-performance coverage to remote facilities. Broadband PTMP/PTP links are used to extend ultra-high bandwidth to key facilities in the field. Narrowband PTMP/PTP links offer targeted, economical communication links in remote areas, with higher performance than typical SCADA radios. It is rare that any single wireless technology can economically meet all performance and coverage requirements. Our wireless products can be deployed in an optimized technology mix that meets requirements of digital oilfield applications while minimizing cost and infrastructure.



#### 3. Interoperability/open standards

Oilfield deployment requires collaboration among vendors and technologies. Interoperability can only be accomplished economically using open standards. Standards supported by Hitachi Energy Wireless solutions include IEEE 802.11 wireless, IEEE 10/100/1000BASE-T wired Ethernet and IETF TCP/UDP/IP, DNP3, Modbus and IEC 61850. Hitachi Energy Wireless products also include serial options with RS-232/485 interfaces for connectivity to legacy devices, even those using proprietary communications protocols. Finally, the TeleOS and ArcheOS product lines provide analog and digital I/O capability to communicate process values from 4-20mA loops, 1-5VDC and wet/dry contacts.

#### 4. Multi-use networks

Hitachi Energy Wireless networks support multiple applications and user groups concurrently. The same physical infrastructure can be leveraged for applications such as SCADA, emergency shutdown, process control, video surveillance, video analytics, mobility and Wi-Fi access. Hitachi Energy Wireless networks provide multi-Mbps throughput to the edge, can scale to a capacity of more than 1 TB per day and have latency low enough to support most latency sensitive applications. They enable creation of multiple virtual networks, each with their own IP address space, QoS policies and security policies, segregating the traffic of different applications and user groups.

## 5. Highly available

To support mission-critical applications, Hitachi Energy's wireless networks provide high resiliency and can be configured with multiple redundant communications pathways to ensure that there is no single point of failure. In addition, the networks leverage multiple frequency bands, including broadband 2.4/5 GHz and 200/400/700/900 MHz narrowband. In the Tropos product line, the 2.4 GHz and 5 GHz frequency bands simultaneously and dynamically manage airtime, helping to avoid localized interference on any one frequency band. Dynamic channel selection, adaptive noise immunity and other advanced RF resource management techniques provide added resiliency. Hitachi Energy Wireless networks can be architected to deliver 99.999% availability.

## 6. Secure

Hitachi Energy Wireless networks support a multilayer, defense-in-depth security architecture. Multiple virtual networks over a single physical infrastructure are supported with traffic segregation across applications and user groups. IEEE 802.11i link-layer security provides authentication using RADIUS and EAP plus AES encryption for all control and data traffic. Additionally, jamming and Denial-of-Service detection features alert operators to intrusion risks that are localized and logged in the database.

## 7. High capacity and low latency

Supporting multiple current and future oilfield applications requires high capacity and low latency. Hitachi Energy often designs networks to provide 10+ Mbps to key endpoints, but low latency allows for multiple mesh hops and fast round trip times to deliver performance for control applications. Some networks connect facilities that are separated by long distances, or assets that are outlying and need a low-power, low-cost connectivity option. Hitachi Energy delivers solutions for all budgets, performance and power needs.

## 8. Centralized network management

Hitachi Energy Wireless networks support centralized management using Supros, a comprehensive wired and wireless network management system that provides the functionality required to manage Hitachi Energy communication networks as a single system – including Tropos wireless mesh routers, MicrOS broadband wireless Ethernet endpoints, TeleOS unlicensed band PTP/PTMP radios and ArcheOS licensed band PTP/PTMP radios plus Hitachi Energy Ethernet switches and routers.

# 99.999%

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Supros streamlines and minimizes costs of deployment, optimization, operation, and maintenance of Hitachi Energy communication networks. A key advantage of Supros is the ease with which initial network deployments, expansions, and reconfigurations take place. Through use of advanced auto-discovery, networks devices such as mesh routers can automatically find one another, reducing the need for extensive pre-planning, and streamlining network deployment.

## 9. Customer-driven product development

Hitachi Energy wireless has over 60 US patents that cover our unique, software-driven radio technologies. As an example of our attention to the market, we have delivered 15 new software and hardware features specifically at the request of oil and gas customers in the past year. No other global vendor is more nimble or more focused on outdoor, industrial wireless networking solutions with a product portfolio designed specifically for oil & gas field network applications.

## 10. One vendor for all automation & telecommunications needs

Hitachi Energy Wireless solutions connect oil and gas operators to the power of the Industrial Internet of Things and, through our services and expertise, go further by turning data insights into the direct action that “closes the loop” and generates business value in the physical world.

While the Hitachi Energy Wireless team focuses on communications solutions, we collaborate with all divisions to make life easier for the customer, with one Hitachi Energy to call for all power, automation and communication needs.