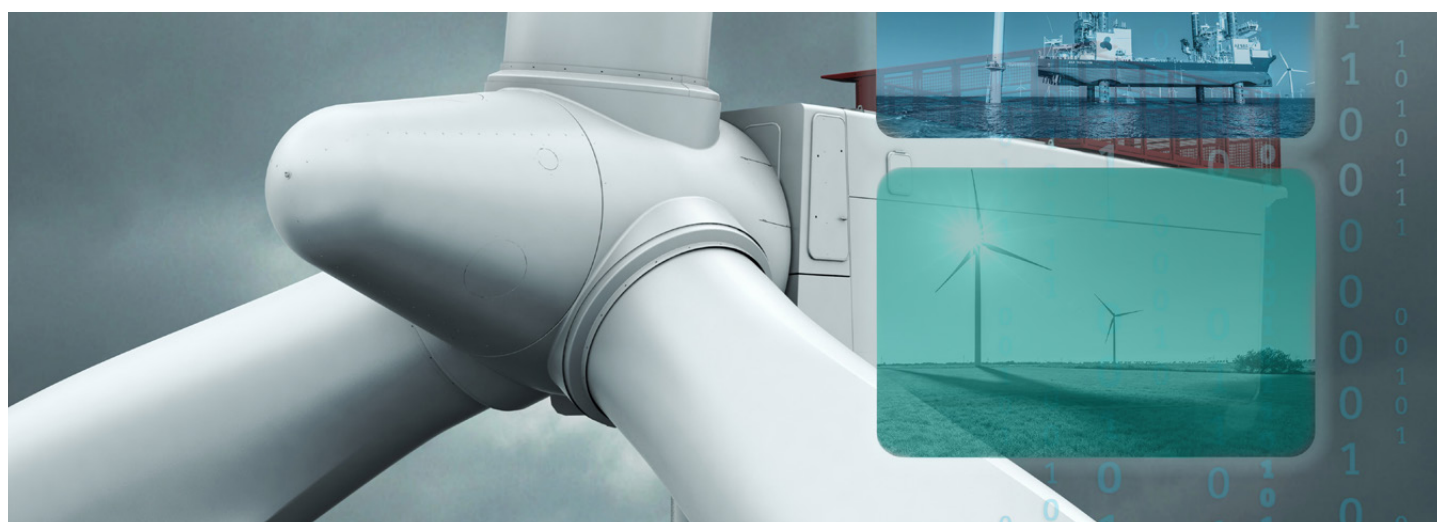


Critical communication and tracking for wind farms

Offshore and onshore wind park solutions



The demand for renewable energy sources is growing considerably worldwide, as reflected in the market for both onshore and offshore wind farms. Building and operating a wind farm requires very complex logistics and supply chain processes.

These activities also require the compliance to strict rules, especially with regard to health and safety. To meet the health and safety requirements, it is necessary for the installation and service teams to have the ability to communicate between the workers as well as with the coordination center at any time, as well as the ability to locate the workers wherever they are in the field.

During the last five years, Atos has been focusing on providing specific solutions for critical communication and tracking during the build, operation, and maintenance phases of wind farms.

Voice communication subsystem

The communication subsystem is provided as a fully integrated turnkey solution. It typically comprises a professional Mobile Radio system like TETRA, Marine VHF, Airtraffic VHF and IP telephony integrated with the corporate telephony system. Its core integration element is a market-leading dispatching system based on a full IP architecture capable to interconnect to all the different communication technologies, including public systems like GSM or LTE based mobile networks. In addition to the interconnection between such networks the system also provides the capability of conferencing across those networks. Apart from offering professional mobile radio features such as group call, emergency call, and others, the servers also enable unique features such as 'touch and call' to directly initiate a call with personnel from within a map by touching icons of tracked staff.

Deployments in:

- Germany
 - Borkum Riffgrund 1
 - Amrumbank
 - Gode Wind 1 & 2
- UK
 - London Array
 - Dudgeon
 - Westernmost Rough
- Netherlands
 - Gemini
 - Westermeerwind

As an additional crucial feature in such an environment, voice communication coverage inside wind turbines, offshore platforms and vessels operating in the field is guaranteed.

Broadband wireless subsystem

The demand for a mobile office environment in the wind farm drives the need for bandwidth in all areas of a wind farm. Atos can provide broadband solutions (e.g. for Internet access for vessels) utilizing WiMax or LTE for offshore locations. For onshore wind farms, wireless networks are typically available from public network providers.

People and vehicle tracking subsystem

The people and vehicle tracking subsystem provides a comprehensive application suite for tracking and managing staff and fleet elements.

This subsystem can handle position data from individuals carrying a tracking device such as TETRA handheld with GPS, smartphone, Bluetooth Beacon, or RFID card to swipe on dedicated gates.

Similarly, the subsystem can track vehicles such as cars, vessels, and helicopters utilizing different technologies to retrieve their position data.

In addition to real-time tracking data processing as described above, the subsystem provides a complete management package to manage people and vehicles and their corresponding trips and manifests. This makes it possible to keep track of them and enables activity planning, which is indispensable for operators wanting to make optimal use of their resources.

In the event that specific certificates for individual people are required for their planned tasks, the system can store such information and will also track the validity of those certificates.

Your benefits

Communication subsystem

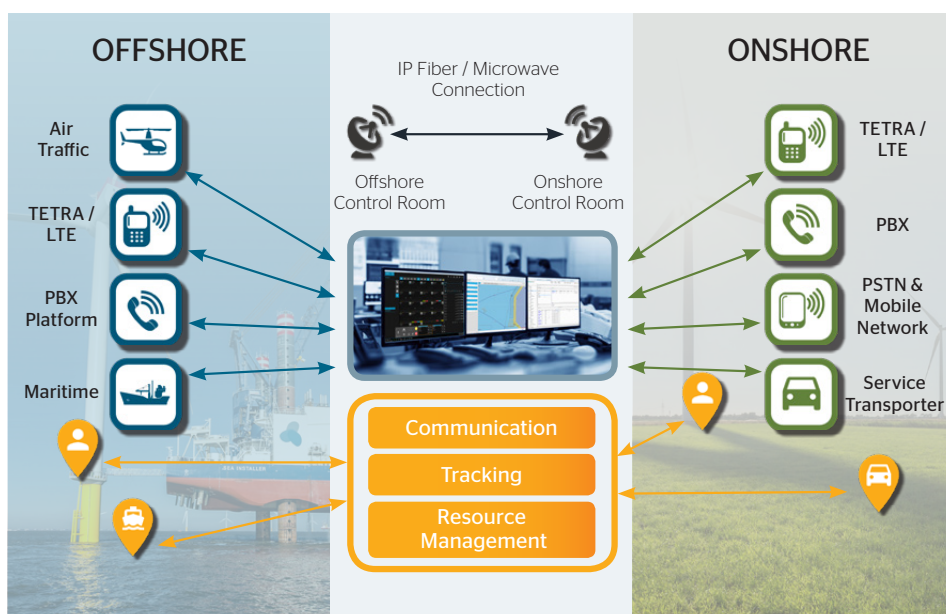
- Securing your business with a highly reliable and robust communication system based on professional mobile radio features such as group call, call priority and emergency call
- Unified communication system running across all types of communication systems involved, such as TETRA, PSTN, LTE, VHF marine, VHF aviation
- Solution designed for field operation: easy to use and ruggedized
- Dedicated communication channel for emergency cases
- Seamless in-tower communication

People and vehicle tracking subsystem

- Full control of your personnel and vehicles in the complete area of operations

- Unified tracking solution for people and vehicles utilizing different technologies for localization, such as GPS, AIS for vessels, ADS-B for helicopters, Bluetooth, and RFID
- Indoor and outdoor tracking
- Tracking of components
- Full control of people and vehicles in the field of operations
- Seamless integration with communication module
- Management of personnel and vehicles including the corresponding certificates
- Planning of manifests, including people and vehicles
- Notifications in case of deviations from planned activities
- Handles several wind farms from a single installation

The result is increased operational efficiency and improved health and safety.



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