Making wind energy maintenance more efficient

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In this, the first of four articles, we look at how ActSafe Powered Ascenders are making wind turbine maintenance quicker and more efficient.

We are all familiar with the adage "time is money", and in offshore wind energy nothing could be more true. Getting people and material onsite quicker and allowing work tasks to be completed more efficiently can save thousands of euros per annum. ActSafe Powered Ascenders are helping to make wind turbine construction and maintenance cheaper by enabling personnel to get themselves in difficult to reach places and manage tools and components more easily, saving both time and material costs.

Personnel access and work positioning

In wind energy, it is imperative that maintenance and construction personnel can reach their place of work. The technicians need to be able to perform tasks, as efficiently as possible, to reduce work time and get tasks completed during available weather windows.

Although many tasks can be performed from existing access platforms, there are still some areas of a wind turbine that are difficult to reach. These include;

1. The interior of the transition piece
2. The exterior of the nacelle
3. The exterior of the spinner
4. Wind turbine blades
5. The exterior of the tower
6. Some areas of the interior of the tower.

ActSafe Powered Ascenders allow easy, quick and efficient access to all areas of a wind turbine that have previously proven difficult to access. For access to the exterior of the wind turbine, Powered ascenders augment traditional rope access techniques, to allow workers to reach difficult areas of the wind turbine, for inspection, repair and cleaning tasks. Once ropes are established, it is equally viable to work from 'bottom up' as 'top down' which doubles the efficiency and speed of inspection.

Even where blade repair platforms are being used, ActSafe Powered Ascenders can be used to allow workers access to the suspended platform for meal and toilet breaks, massively reducing down-time and improving operations.

For operations, down into the transition piece, some of which may be considered confined spaces, Powered Ascenders allow access to be performed quickly, reducing exposure to potentially hazardous environments. Rescue planning is built into

the access methodology.

Powered Ascenders can also be used for a wide range of work positioning tasks in the interior of the turbine to reach areas where existing platforms don't allow, such as; tower cabling; elevator cabling, light fixtures and transformers. ActSafe Powered Ascenders can even be rigged as a climb assist system on the access ladder way.

Load lifting

ActSafe Powered Ascenders are already a mainstay in the offshore wind energy environment for enabling personnel to lift tools and components. They are able to provide a temporary solution for lifting tools and components from vessel to transition piece, an auxiliary lifting capacity. If for some reason the primary chain hoist or crane is not functioning Powered Ascenders ensure that work can continue and personnel are not left idle.

Powered Ascenders can also be used for many tasks within a wind turbine, where the weight of tools must be managed and positioned, within restricted spaces and multiple decks. Adding an optional AC power source ActSafe Powered Ascenders could potentially replace other lifting equipment on the wind turbine. They are extremely portable and so are stored offsite, which greatly improves line maintenance, ensuring the equipment always performs when it is needed most.

Some specific examples of maintenance tasks that can be performed by ActSafe Powered Ascenders;

1. Lifting tools and components from transfer vessels to the transition piece.
2. Lifting tools and components inside the tower, especially where work is being carried out on intermediate platforms.
3. Positioning and replacing electric and hydraulic motors, particularly those in restricted spaces such as pitch motors.

Rescue and evacuation

In onshore wind energy applications, rescue and evacuation has always been planned using gravity to assist people to the ground, however, in the offshore environment the best egress may in fact be up towards a helicopter winching deck. ActSafe Powered Ascenders make these tasks easy, allowing Health & Safety Managers to plan and risk assess around rescue up scenarios and deal with a range of complex rescue tasks.

Rescue scenarios such as: navigating a stretchered patient within complex internal spaces, negotiating a 200kg rescue load up several decks, or lifting a stretchered patient 100m from the transition piece to a winching deck on the outside of the turbine, can all be achieved easily and efficiently by all personnel with a minimum level of training.

If ActSafe Powered Ascenders are being used for personnel and load lifting; they are immediately available for an emergency. Personnel are better equipped to deal with an emergency as they are more practiced with the equipment, rigging is easier and a single person can easily manage a 200kg rescue load. Using the equipment daily for a range of lifting and work positioning tasks, reduces the need for constant refresher training. They are able to cope with the specific emergency procedures and this also reduces the need to supply and maintain specialist rescue equipment onsite.

Conclusion

Here is a single tool which enables a wide range of load lifting and personnel access tasks to be completed quickly and efficiently. Rescue planning is built in and training costs are lowered, as being a daily use working tool, personnel are familiar and practiced in handling the machine and the various ways of rigging it to do lifting tasks.

In future articles, we will examine specific case studies in which Actsafe Powered Ascenders are solving access problems and making wind turbine maintenance quicker and more efficient.

For more information on how ActSafe can improve your Wind Energy Maintenance program, please contact: info@ActSafe.se

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