

# Lift off for greater productivity

Modern wind turbines are commonly equipped with service lifts, but what can be done to upgrade those old wind towers that only have climbing ladders? Limited space and costly modifications have made it impossible to install lifts on older turbines, reducing its energy output and compromising worker safety and health. Wind farm owners and operators have been actively seeking the optimal approach to retrofit.



3S Lift, a leading global player in this segment, has provided the Climb Auto System (CAS) and installed over 80,000 units in 5000 wind farms worldwide. As a single-technician ladder-mounted lift, the CAS helps technicians easily reach the top of turbine towers while putting zero stress on their muscles and joints. This advanced system can transport personnel and equipment to the top of an 80 meter tower in five minutes.

Since its fall protection system is independent from the technician's fall arrester, it offers redundant protection, improves health and safety, maximises economic returns, and can be retrofitted to any existing ladders in 8 hours without costly modifications. The CAS is a more flexible option for owners and operators, but the potential value it could bring is underrated.

### Productivity improved through downtime reduction

Wind turbines cannot always produce peak output because of changing wind conditions and service downtime. Wind techs generally offer scheduled maintenance, testing, fault resets, and occasional upgrades or repairs. These tasks require the turbine to be non-operational so that techs can climb up and down to the nacelle at 100 to 400 feet. For instance, scheduled wind turbine maintenance is usually completed twice a year, resulting in about 20 hours of downtime for each event. However, if the damage is too

complex or a power outage occurs, it may take several days to repair.

We can't control the changes in wind, but we can reduce the downtime as much as possible to maximise its energy capacity. Wind farms with Climb Auto Systems enable technicians to ascend towers faster. The number of tower ascents yearly has nearly doubled after Climb Auto Systems replaced Climb Assists. According to the proven cases from 3S Lift, the average maintenance downtime was reduced by 9.9% after retrofitting with CAS. In addition, necessary maintenance is completed on time, and technicians reach the top of the wind turbine fresh and ready to begin efficient work immediately, leading to increased uptime, higher productivity and improved AEP.

### Reduced inspection and maintenance costs

As a ladder-mounted climber, the CAS is a way-out solution to reduce upfront capital expenditure and lower operating costs compared to a service lift, as no state inspection and certification are required for the CAS.

Additionally, the CAS helps to lower repair costs and boost maintenance efficiency. A wind project in Kansas installed Climb Auto Systems from 3S Lift after an unexpected outage knocked out all 135 WTGs; the owner only appointed two techs to get up 30 to 40 turbines in a day, enabling the site to return online. Before the CAS, it would have taken all ten techs one week

to climb to reset all the turbines. With this 3S Lift's retrofit solution, the wind turbine fleet transformed and improved overall operation efficiency, reducing labor and repair costs.

#### Boost employee motivation and retention

The repetitive motion of climbing towers puts extraordinary strain on the muscles and joints of technicians and causes countless injuries. These lead to sick days and reduced motivation among technicians. A high turnover rate also reduces the availability of technical staff, with the average cost of losing a technician being \$93,000, according to the Bureau of Labor and Statistics in the US.

What CAS offers is the ability to extend the job longevity of technicians, increase employee satisfaction, and retain employees by reducing their physical exertion and improving their safety and health. Keeping experienced wind technicians in place can effectively increase the AEP of wind farms. Higher employee retention will also lead to lower hiring and training costs, as most of those who stay are experienced employees.

Since the distance to work is different for wind techs in Europe, there isn't a site office; techs are mobilising to each location. Even if the two wind farms are far apart, techs can get to work when they arrive and climb the ladder. Because of CAS, they are no longer limited by rising, significantly increasing their satisfaction and productivity.

#### Improved safety-oriented culture at your workplace

OSHA has called for 'green jobs to be good jobs when they are safe jobs'. It also pointed out that employers must avoid known health and safety hazards in their workplace. There is no doubt that creating



a hazard-free working environment is an integral part of corporate responsibilities. Products like Climb Auto Systems are designed with this safety and health concept in mind. After years of market proof, the CAS has not been identified as a cause of any recordable injuries.

Using the CAS for automatic climbing also helps technicians feel valued in their role. The insight from 3S Lift's clients is that more technicians are willing to work for companies that invest in CAS, and the culture and morale of those companies are improving due to CAS. Wind business owners must realise that they are investing in people and that technicians are a valuable asset in improving operational efficiency and bringing in revenue.

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