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HSE Letter 20022023

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Dear Kate and Emma,

HEALTH AND SAFETY AT WORK ETC ACT 1974

At our recent liaison meeting we discussed the issues of integrating service lifts and their declaration of conformity within wind turbines. The key aspects are summarised in the appendix to this letter. I would be grateful if you can disseminate this information to your members, such that they can review their own installations and where necessary take appropriate action.

HSE's feedback follows a recent investigation and highlights relevant requirements of the Supply of Machinery Regulations 2008, in relation to design aspects and the integration of service lifts.

We have clear expectations that operators must consider collective measures that ensure further risk reduction for work activities on or near existing service lifts, such that personnel are not in a position of danger. Future installations will need to meet the requirements of the new standard, which is due for publication early March 2023.

If you wish to discuss further, please contact me.

Yours sincerely,



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Executive**Appendix:****Introduction**

HSE engaged with industry in relation to the safety of Wind Turbine Generators (WTGs) at the Safe by Design workshop held in September 2016. Key concerns were identified with WTG design, operation, and maintenance in respect of service lifts.

HSE wishes to remind industry of the concerns regarding the integration of service lifts in WTGs, and to draw attention to a new design standard, to enable improvements in the safety for those working on, in and around these installations

The absence of defined industry standards for the safe design of the service lifts within WTGs has resulted in inconsistent application of safeguards by manufacturers, and potential risks to users. A new standard – *BS EN 81-44. Safety rules for the construction and installation of lifts. Special lifts for the transport of persons and goods. Part 44. Lifting appliances in wind turbines* is due to be published. <https://standardsdevelopment.bsigroup.com/projects/2019-02986> This standard sets the benchmark for the safe design of service lifts and associated safeguards. New WTGs manufactured after the date of publication should refer to this standard when conformity assessing their WTG, as it establishes the 'state of the art' in relation to compliance with the EHSRs for this element of their machinery.

The incident

HSE investigated an incident that occurred where the design of the WTG allowed contact with moving parts – namely the service lift. During a routine servicing procedure on a WTG, the service technician was able to place his hand into an aperture while sending the lift down using the external controls. This resulted in serious injuries to his fingers as they became trapped between fixed and moving parts.

HSE's findings

The WTG (including the service lift) was supplied to the end user with a Declaration of Conformity, which claimed that the WTG met all the relevant provisions of the Machinery Directive 2006/42/EC, the requirements of which are implemented in the UK by the Supply of Machinery (Safety) Regulations 2008.

The design of the base and upper level landing gates and guarding, and their integration with the lift car operation, did not eliminate or reduce the access to dangerous moving parts of the lift car. It was possible to reach the lift car and become crushed or sheared by it against the rigid portions of the gate when operating the external controls, resulting in the risk of serious injury. The design of the landing gates allowed access to dangerous moving parts, as a result of a failure to follow the established standard for reach distances (BS EN ISO 13857) when designing the landing gates. The incident could have been prevented by adequate gate design, such that they prevented access to the moving parts during the send and call operations of the lift.

The failures identified mirror key concerns about features and challenges within WTG design, operation and maintenance identified at the Safe by Design workshop held in September 2016

HSE's conclusions

The above investigation is one example of unnecessary risk created by the integration of service lifts into WTGs. During investigations and inspections of both operational and under construction WTGs, HSE have identified similar failings, highlighting significant scope for improvement in the on and offshore wind industry. **HSE are concerned about a lack of industry wide progress and draw the conclusion that these risks require further attention and improvements to enable enhanced safety provisions.**

Where HSE becomes aware of equipment supplied to the GB market without provision of adequate means of preventing contact with parts of machinery that could lead to injury, HSE's Product Safety and Market Surveillance Unit (PSMSU) will evaluate the risk presented by the equipment. Inadequately guarded service lifts are likely to be considered by HSE to create a serious risk to users.

HSE is required to ensure that products presenting a serious risk are reported to the Secretary of State responsible for product safety law, currently via the Office of Product Safety and Standards.

Recommendations

HSE encourage the industry, under leadership from SafetyOn and G+ to consider collective measures that could ensure further risk reduction for work activities on or near existing service lifts.

Soon to be published Standard BS EN 81-44 – the Globally relevant standard for lifts in wind turbines, addresses the issues identified above for new installations. It offers a table to determine the correct level of safeguarding required depending on the access to dangerous moving parts and the distance to them from for example, a closed gate. Had this been adopted, then either a full height gate would have been applicable or a lower gate with additional safeguards such as a light curtain or sensors to prevent movement if reaching in. This standard was not available at the time and is not retrospective, but it demonstrates a suitable assessment to prevent access to dangerous moving parts. The safety of the whole installation should be assessed from the access gates at the base and landings to the car and exit from the car to the landings.

Given the risk, from any retrofit programme, HSE will not normally require replacement access gates/landing guarding, but operators must assess and adopt suitable hierarchical control measures.

The lifts used within wind turbines are not used by everyday members of the public and should only be accessed by trained authorised individuals. However, the safety of these lifts should not make it any less safe to travel in them but, there will likely be compromises due to the restricted envelope size they are located within, resulting in some areas where additional procedures are required to compensate for the lack of possible safeguards in other situations. The lift is both a means of access and a labour-saving piece of equipment, as if restricted to ladder access only, the time and effort needed to ascend and descend can be considerable.

The proper implementation of BS EN 81-44 should improve the safety of new WTG's. It also sets a benchmark standard for existing service lift installations to aim for where this is reasonably practicable. Those involved in the supply of WTGs should consider updating their operating instructions in relation to current risks associated with integrated service lifts not

designed in line with BS EN 81-44. They should also work with users to improve the safety of their machines, where possible.

Original Equipment Manufacturers (OEMs) should ensure that any Wind Turbine Generators you manufacture and place on the market in Great Britain are designed in such a way that there are no moving parts in which it is possible for a person to become caught or drawn in, in line with the requirements of the Machinery Directive and the Supply of Machinery (Safety) Regulations. Those in the supply chain should ensure that they comply with their duties to ensure that work equipment they supply is safe, so far as reasonably practicable; and end-users should ensure that they take a responsible approach to procurement in order to assist with their duties to comply with the Provision and Use of Work Equipment Regulation. The following HSE guide may assist [Buying new machinery \(hse.gov.uk\)](https://www.hse.gov.uk/buyingnewmachinery/)