



# The 2-year refresher cycle

Addressing skills fade and maintaining safety for wind energy workers

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## Introduction

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GWO's continuing focus is to ensure the work environment stays as injury free as possible for all wind power technicians.

A main consideration in this regard is the skills fade wind power technicians are subjected to in the normal course of their work.

GWO as an Organisation, member companies individually and training providers are actively scoping, developing and deploying initiatives to mitigate potential skill fade, and we are in that process revisiting some of the definitions used for defining when a training must be refreshed.

In this report, we share the GWO view on refresher training to ensure that the individual technician retains their skills by being retrained in a timely manner.

## Scope

There is a high complexity and a significant amount of uncertainties involved in assessing skill fade and refresher duration in the scope of an organisation that has a global operational deployment sphere across numerous job roles.

The variables are almost infinite, and it is therefore important to state that the chosen solution may be suboptimal in some settings. GWO does however utilize several indicators enabling a generic principle approach to skills fade and refresher duration definition and usage.

This report will share GWO view on the following parameters used when defining addressing skills fade and subsequently defining refresher training duration:

- Active and passive knowledge and skills
- Legal framework
- Industry refresher rates
- Skill fade studies and theory

None of the above can stand alone when defining the need for refresher training and will all be framed by considerations of how they influence the impact of time and length break from utilizing the applicable skillset and mitigating steps. The combined analysis is the foundation for the GWO approach to refresher training application.

## Parameters

The following parameters are part of the GWO analysis on refresher training duration and are supported by different sources depending on the parameter.

## Active and passive knowledge and skills

GWO is of the position that there are two types of learning objectives throughout the training standard portfolio. The ones that covers skills, knowledge and attitude that the technician will be using as part of his/her everyday work life, and on the other side, learning objectives covering skills and knowledge that should hopefully never be utilized.

As a guideline GWO training standards that are significantly related to safety aspects and learning objectives focusing on skills and knowledge of the passive nature will have a mandatory refresher connected to them – examples of this are the BST package, enhanced first aid and advanced rescue. Training standards that primarily have learning objectives supporting active skills and knowledge will not have a mandatory refresher connected to them – examples of this are the BTT package, slinger signaler and blade repair.

## Legal framework

Before addressing how a skill gap can be mitigated, it is prudent to verify the responsibility to gain the skill in the first place, and therefore the first parameter is the legal framework. The key take-away when addressing

the legal framework is that the employer/duty holder is responsible for the employee's competency to solve the task safely which in connection with evident skill fade means that the responsibility is continuous.

GWO at its creation had a strong Scandinavian and United Kingdom connection and therefore it was natural to look at the Management of Health and Safety at Work Regulations from 1999 – Regulation 12<sup>1</sup>, which states the following:

*Persons working in host employers' or self-employed persons' undertakings*

*12.—(1) Every employer and every self-employed person shall ensure that the employer of any employees from an outside undertaking who are working in his undertaking is provided with comprehensible information on—*

*(a) the risks to those employees' health and safety arising out of or in connection with the conduct by that first-mentioned employer or by that self-employed person of his undertaking*

In layman's terms it is the responsibility of the employer that the employee is aware of the risks and hazards – the Danish Work Environment Authority also stipulates<sup>2</sup> that it is the employer's responsibility to ensure that the employee is skilled and instructed to do the task.

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<sup>1</sup> <http://www.legislation.gov.uk/uksi/1999/3242/regulation/12/made>

<sup>2</sup> <https://at.dk/regler/at-vejledninger/oplaering-instruktion-tilsyn-1-7-1/oplaering-1-7-1/>

Particularly relevant for the wind industry are the elements covering manual handling<sup>3</sup> and PPE<sup>4</sup> which in both cases stipulate that the responsibility for ensuring that the employees are instructed to a capable usage level is on the employer. Throughout the footprint of GWO (training providers operate in 43 separate countries as of June 2020) there are similar legal systems ensuring that it is the right of the employee to be sufficiently trained within the field he/she will be working in.

### Relevance to Covid 19

In March-May 2020, up to 75% of global training centres closed during the Covid-19 Lock down. This heightened the challenge for employers focused on managing skills fade in their workforce as technicians whose two year validity was expiring had limited means of refreshing their skills.

GWO published extended flexibility guidance which states:

*Participants who allow their training validity to expire are ordinarily not allowed to refresh validity through a refresher course. They are required to attend the initial course to obtain a new record. However, GWO has agreed to allow as a temporary measure 31st December 2020: 1. Course participants unable to refresh previous training within the 24 months validity period, are granted*

*an option to take the planned refresher training up until 60 days after expiry.*

*The measures to allow attendance to refresher courses up until 60 days after expiry does not constitute an extension of agreed validity periods for GWO training and does not constitute a general exemption towards employers and duty-holders to ensure employees have adequate safety competences. It remains an employer prerogative to make decisions on whether to require valid training or give exemption."*

This guidance accepts the risks related to situations where an employer does not actively initiate measures to mitigate skills fade. Any discussion about GWO prolonging the extension period must consider the additional risks GWO potentially places onto the global work force. As an example, the similar organisation OPITO has a 3-month extension rule for unforeseen events. This rule can be enacted under special circumstances only for persons who are working off-shore on a regular basis. Extension will only be given based upon review of the individuals' frequency of participation in drills and exercises since the last pre-requisite training.

GWO does not have a supporting structure of drills and exercises to mitigate skills fade and support a longer extension periods.

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<sup>3</sup> <https://at.dk/regler/bekendtgoerelser/manuel-haandtering-1164/>

<sup>4</sup> <https://at.dk/regler/bekendtgoerelser/brug-personlige-vaernemidler-1706-sam/>

## Industry practices

The wind industry is still young, and it is therefore only natural to address how other comparable industries are handling skill fade and refresher duration.

It is natural to compare the industry to oil and gas and maritime as there are many shared characteristics such as high-risk environment, split between national and international legislation and industry wide organizations providing guidelines and best practices.

Furthermore, the key training structure is very similar with separated safety and technical elements and recognized certificate organization/systems.

The trainings do however have refresher requirements that are both longer in duration than in the wind industry, respectively four<sup>5</sup> and five years<sup>6</sup>.

GWO assessment is that although there are many comparable elements across the three industries, a key one determining the skill fade and refresher training is that the oil and gas and the maritime sectors have both requirements<sup>7</sup> and tradition for conducting exercises in a structured manner, thus mitigating the skill fade actively.

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<sup>5</sup> <https://www.opito.com/standards-and-qualifications/about-opito-standards>

<sup>6</sup>

<https://www.dma.dk/SoefarendeBemanding/SoefartsbogBeviser/genopkvalificering/Side%20r/default.aspx>

This parameter is taken into account when GWO determines their refresher duration.

## Skill fade studies and theory

While the legal framework sets the starting point and the industry practice informs the direction, GWO seeks to inform its approach to skill fade and refresher duration by utilizing learning theory and studies. As there are currently no significant studies on learning retention for wind power technicians, several transferable studies are utilised. The indicators support that refresher training is needed but should be structured in such a manner that training and work life are connected, closing the loop between acquiring new knowledge and operationalizing it through experience and reflection.

The wind power industry is a high-risk environment where the technicians are dependent on their aptitude for solving their assigned task. This is very much the case in the armed forces, as well where an extensive study<sup>8</sup> on skills fade has been conducted. A group of scientists from Austin university lead by Alice F. Healy found that pilots being away for a few months lost 20% of their proficiency, and longer periods of being away would lead to an estimated retained proficiency of 40-30%<sup>9</sup>.

<sup>7</sup> <http://www.imo.org/en/KnowledgeCentre/IndexofIMOResolutions/Maritime-Safety-Committee-%28MSC%29/Documents/MSC.416%2897%29.pdf>

<sup>8</sup> <https://link.springer.com/content/pdf/10.3758/BF03193378.pdf>

<sup>9</sup> <https://www.gmc-uk.org/-/media/gmc-site-images/about/skills-fade-literature-review-full-report.pdf?la=en&hash=8E0E20E07337E2344A5467F9B302C2D83CF2EBA5> point 7.2.2

A study such as this is an indicator of the skill fade that a wind power technician not using a specific skill set would be subjected to.

Another solid argument for refresher training is spaced training in comparison with massed practice which according to the U.S. Army Research Institute research report number 1864<sup>10</sup> gives a better retention effect.

From a learning theory perspective, Kolb's Learning cycle<sup>11</sup> is well known by training professionals and is used when GWO develops training standards.

It supports ensuring that current or in the making wind power technicians go through the steps of observation, conceptualization, experience and experimentation when participating in a GWO training and as such it is key for achieving the learning objectives in any of the current and coming GWO standards.

The learning circle is however not only used for designing the initial training; the principle upon which it is built is very much the foundation for the refresher training as well. Kolb states that experimental learning has six key characteristics, one of them being that learning is a continuous process grounded in experience.

Therein lies one of the corner stones for refresher training. The technician will mitigate the skill fade by being able to return to training where he/she can continue building on their experience. From a GWO standpoint we are certain that skills fade is mitigated by using refresher

trainings and ensures that the delegates continuously build on their initially acquired skillset.

## Conclusion, maintain a refresher duration of 24 months

Respecting case studies from comparable industries and learning theories GWO maintains a 2-year refresher period for training standards that have a significant amount of learning objectives focusing on passive knowledge and skill.

This connects directly with the GWO mission statement to ensure an injury free environment for wind power technicians.

Additionally, as the industry grows and matures, the parameters for how a refresher duration period is defined will change. In an environment where duty holders agree on organized site drills and exercises in a controlled and documented manner, this refresher duration can be changed/augmented according to the setup.

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<sup>10</sup> <https://apps.dtic.mil/dtic/tr/fulltext/u2/a470707.pdf>

<sup>11</sup> Knud Illeris, Læring, Roskilde Universitet page 65-69