



Cube  
Green  
Energy

# Wind turbines: Lubricants a slippery matter

The view of the operator

21/05/2024





## CGE in a nutshell



Total output of around 200 MW  
Repowering potential > 500 MW  
Development pipeline > 1 GW

**Mission: 24/7  
renewable energy  
production**



**The company fields  
of operation**

Your Partner in  
the energy  
transition



**Financial supporter**

# Topics

## Lubricants in wind turbines



**Oil & Grease** in the turbine



**Challenges** in operation



**Lifetime** and **exchange**



**Requirements** from permits



**Economic efficiency**

# Overview

Moving systems:

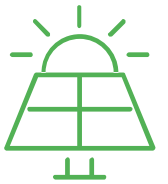
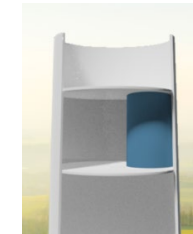
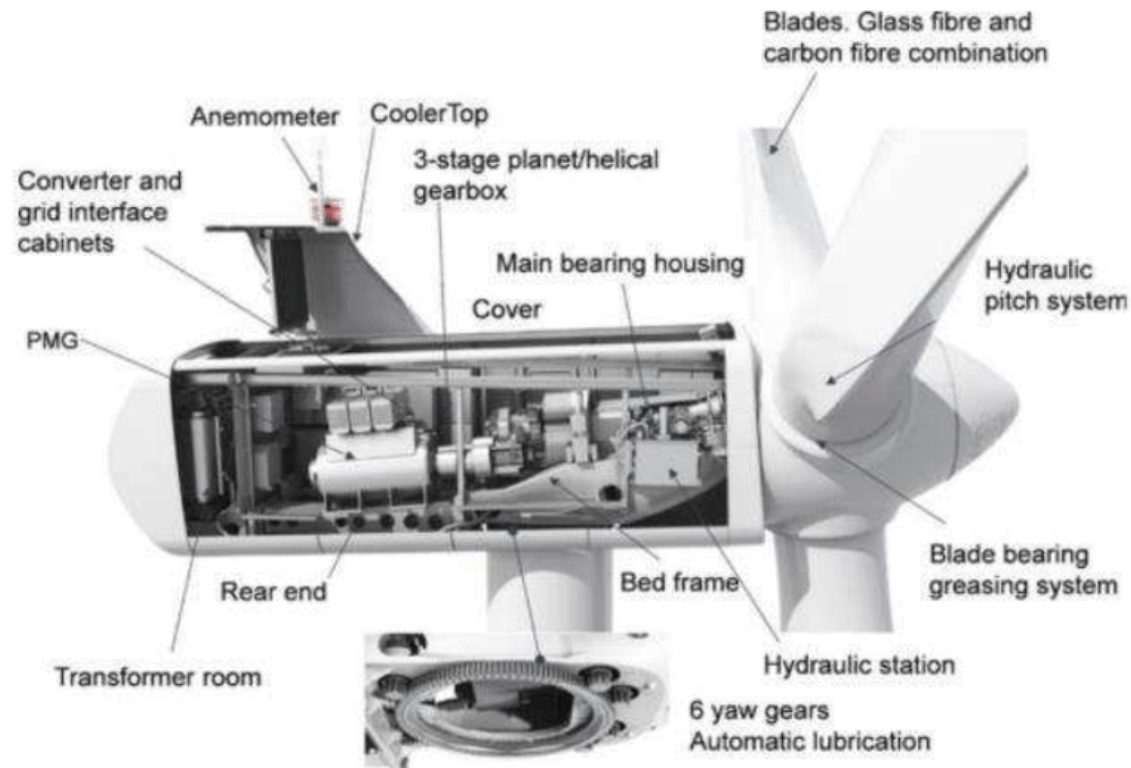
Oil in gearboxes and hydraulic systems

Grease in Bearings and on gear wheels

Static systems:

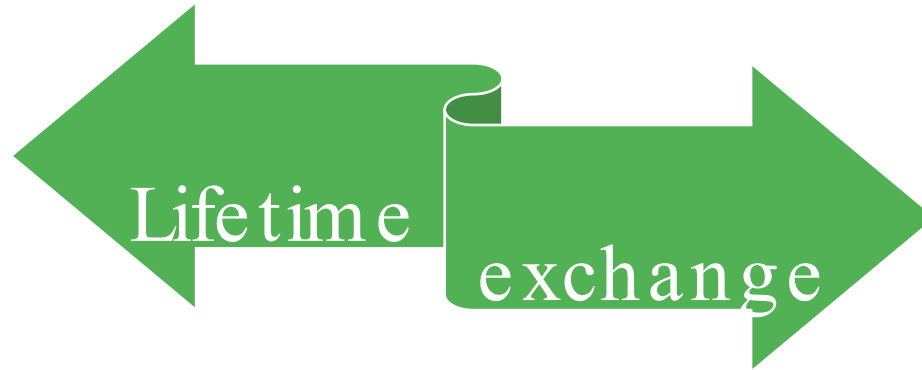
Oil Transformer or tower damper

Grease in pumps

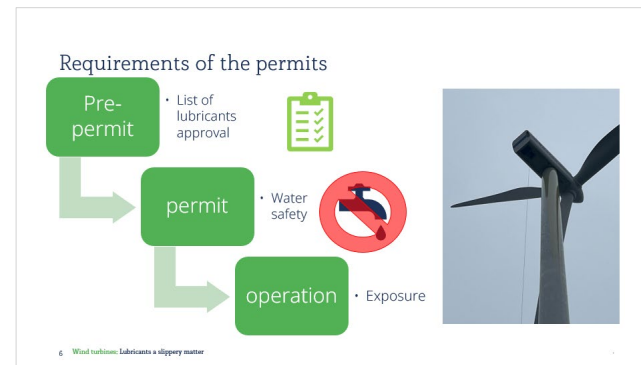


# Challenges in operation

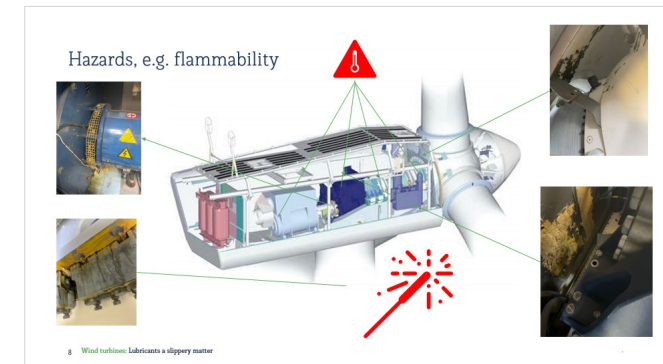
Oil & Grease is everywhere  
but on the Lubrication points



## Requirements

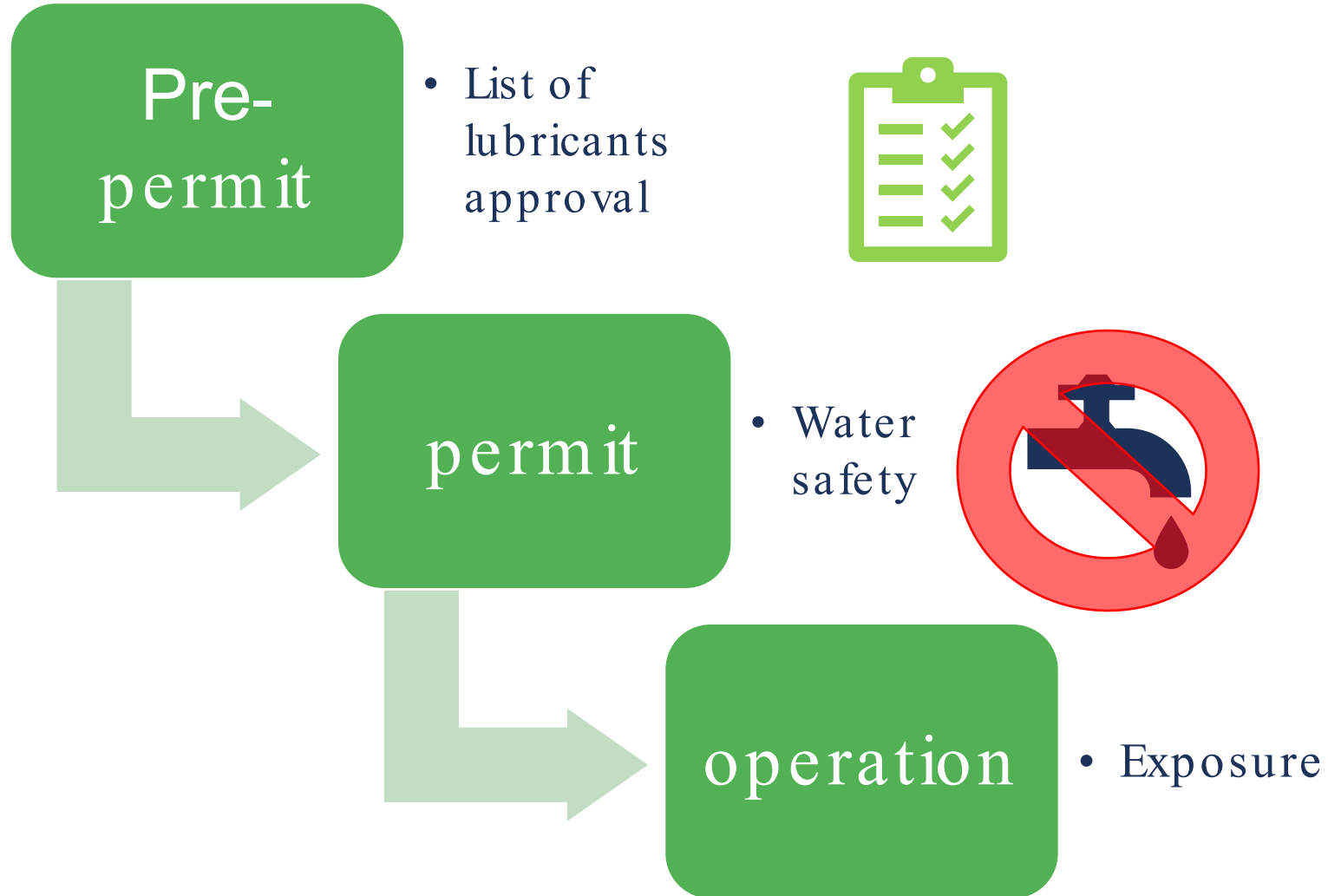


## Risks



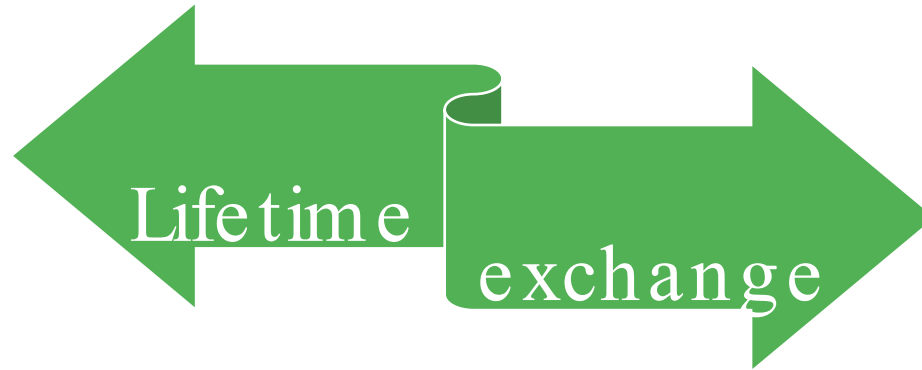


# Requirements of the permits

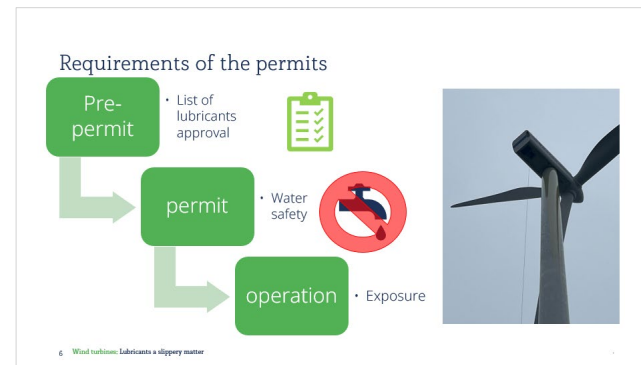


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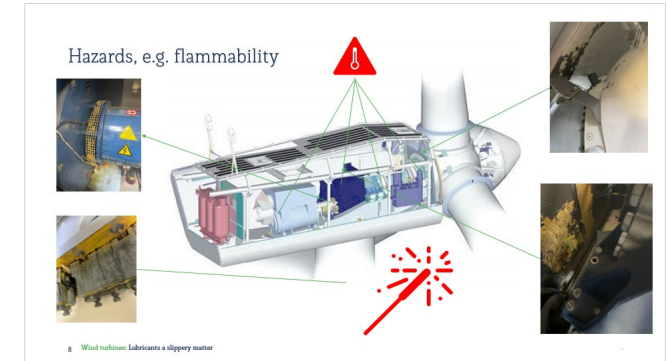
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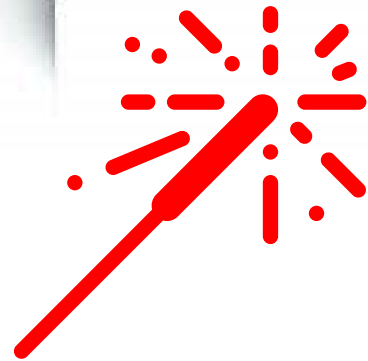
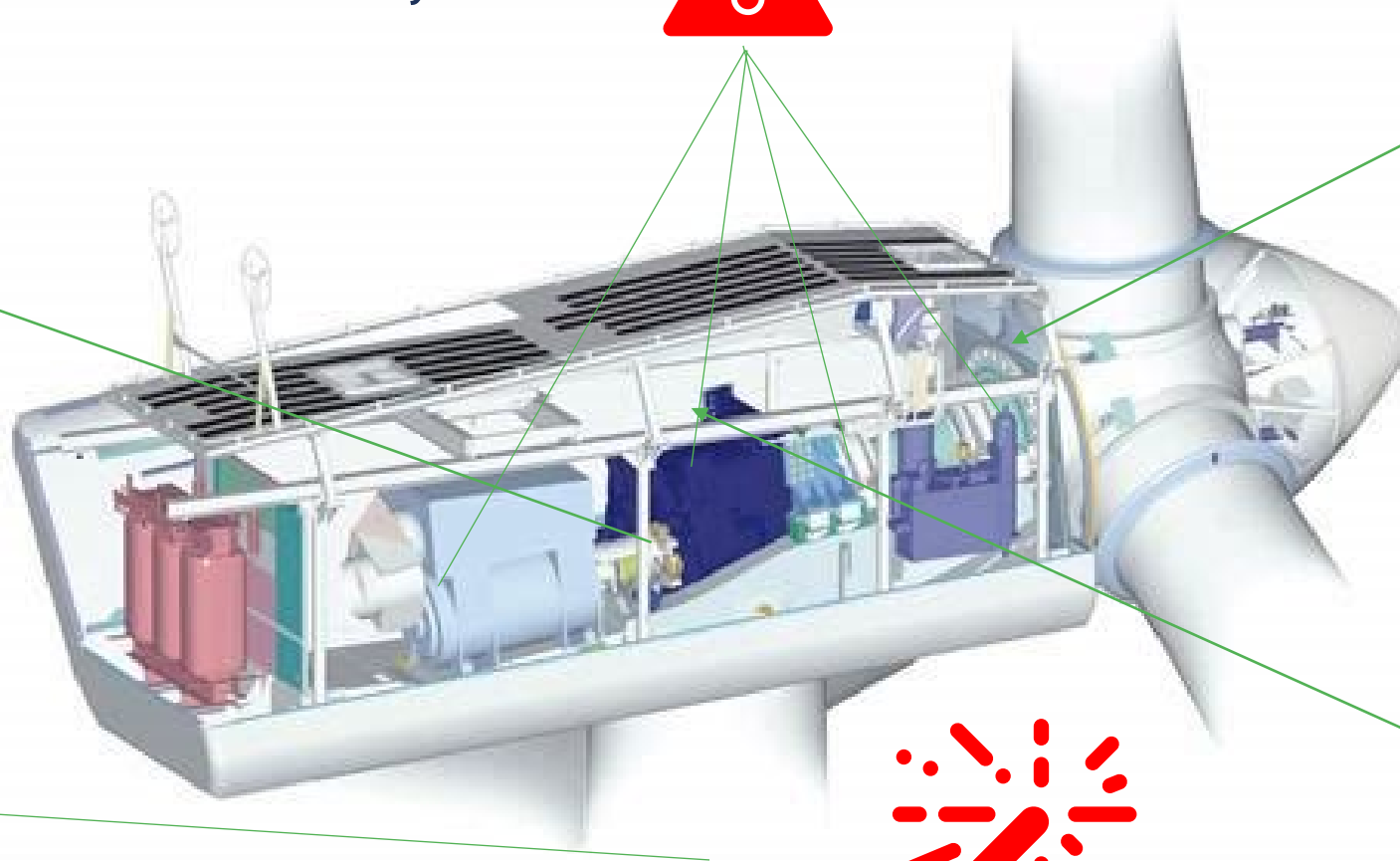
## Requirements



## Risks



# Hazards, e.g. flammability





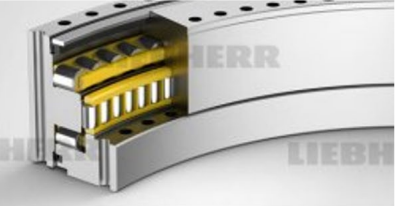
# Economic efficiency

Example  
V100 life-time reduction on blade bearing

**Idea**  
V90 to V100 only blade change

**Problem**  
blade bearings broke after 3 years

**Solution**  
Change of bearing grease



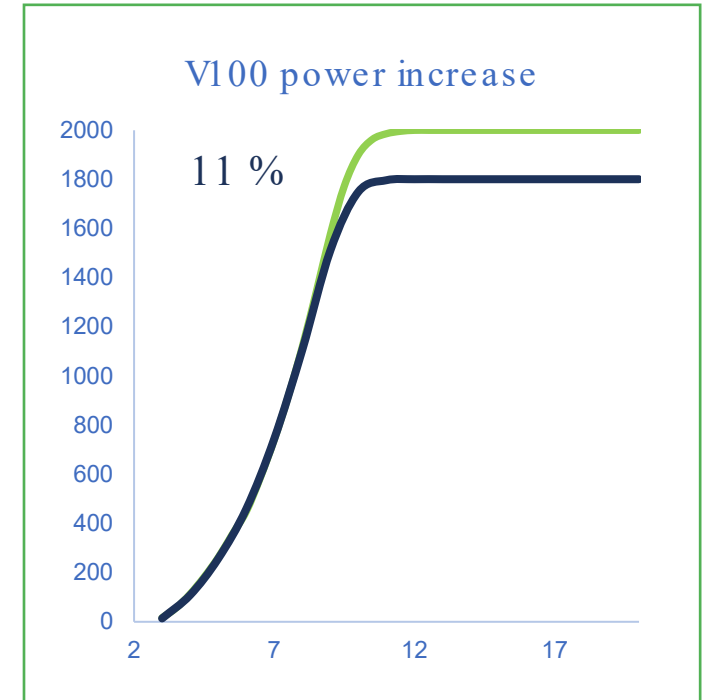
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Durability increase



3  
down  
5  
years

Material cost reduction



Energy yield increase

Example

## V100 life-time reduction on blade bearing

### Idea

V90 to V100 only  
blade change

### Problem

blade bearings  
broke after 3 years

### Solution

Change of  
bearing grease



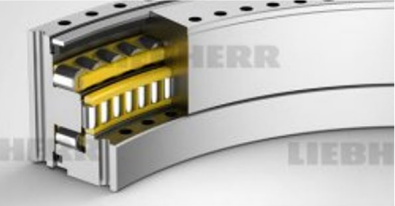
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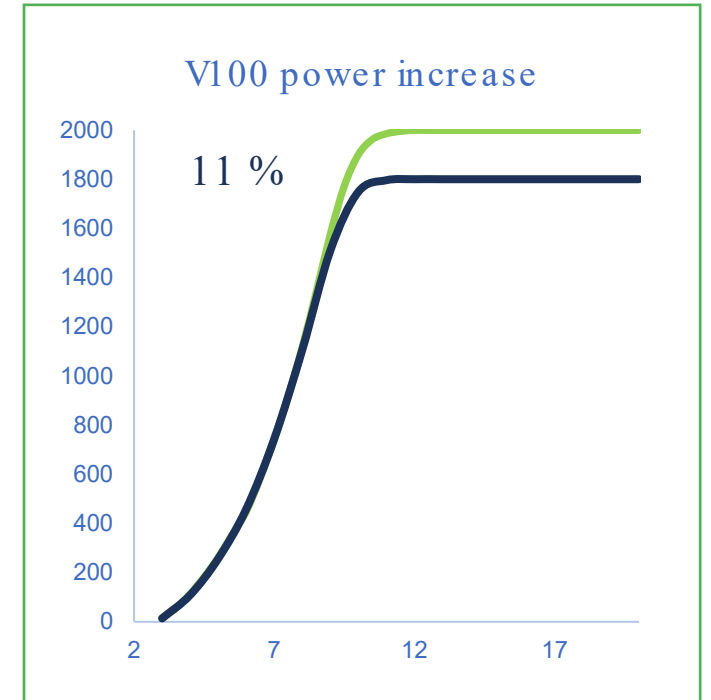
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Durability increase



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down  
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years

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Energy yield increase

# Summary

## Lubricants in wind turbines



**Oil & Grease** system-bound plant  
but everywhere in operation  
=> **A slippery matter**



Challenges in operation:

- Ensure adequate lubrication
- Conformity with authorisation
- Minimising environmental risks
- Lifetime



Economic efficiency achieved

- Durability increase
- Material costs reduction
- Energy yield increase



# Contact

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Thank you for your attention