

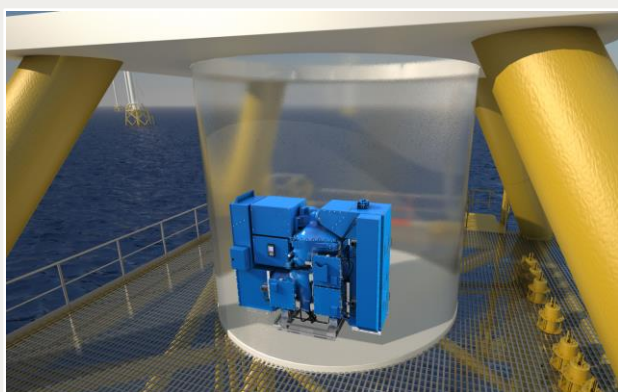
# An Innovative and Sustainable future with Offshore Wind Power



**cigre**

For power system expertise

## Base points of the development and the sustainable wind of change



The journey of wind

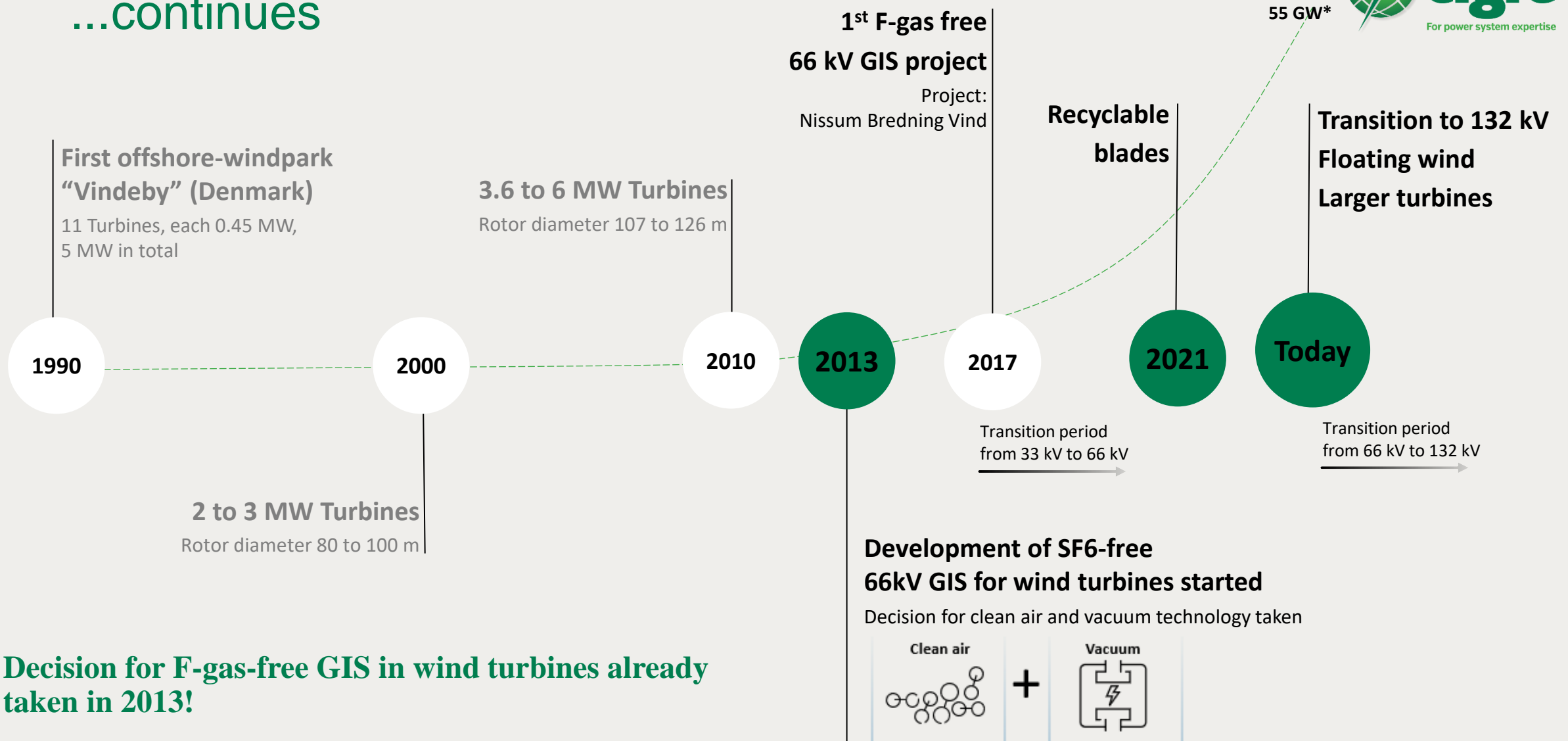
The expectations and future of wind

Taking responsibility

# The journey of wind...



...continues



**Decision for F-gas-free GIS in wind turbines already taken in 2013!**

(Six years before Greta Thunberg's speech at U.N. Climate Action Summit in New York)

**Development of SF6-free 66kV GIS for wind turbines started**

Decision for clean air and vacuum technology taken



## The expectations



Recyclable materials



Faster assembly



Higher quality



Safer installation



Earlier revenue generation

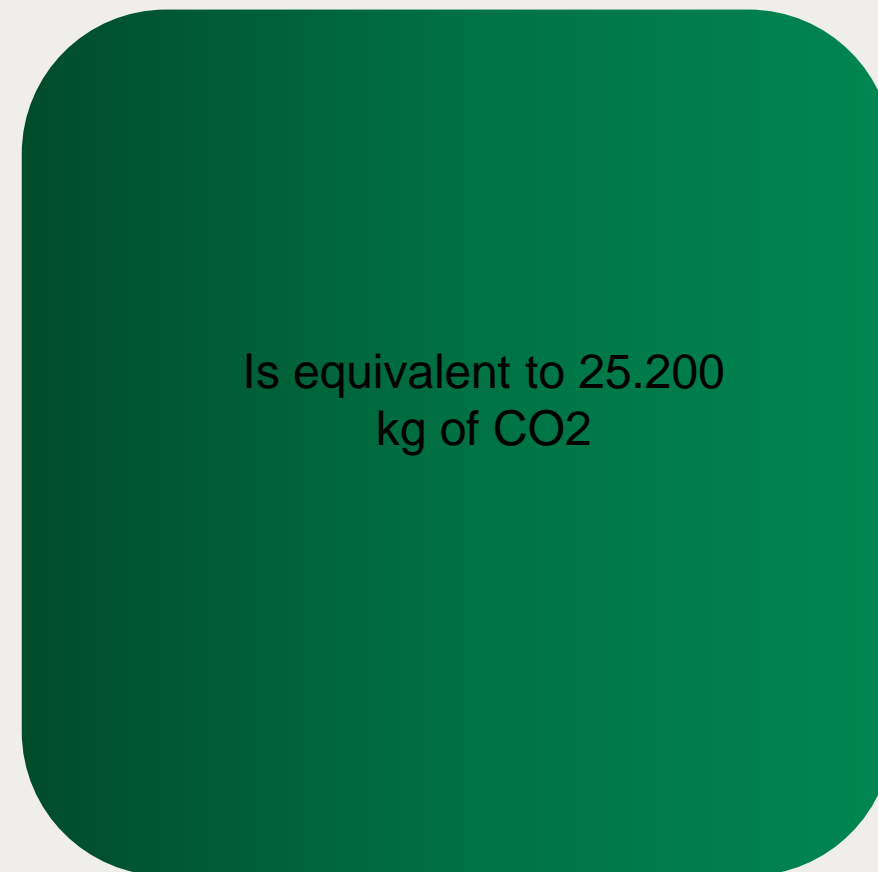
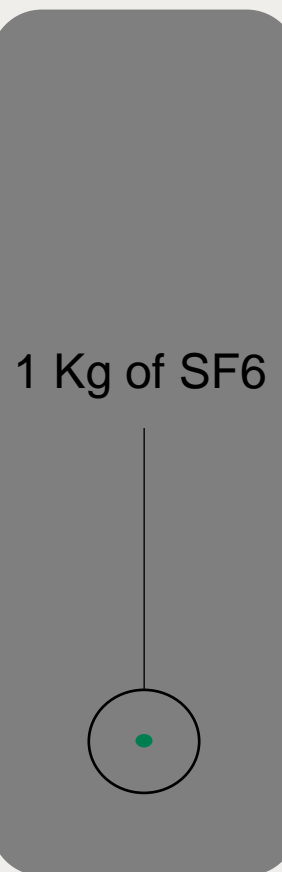


More output

## Taking responsibility: F-gas free GIS

Today's power grid still relies on the most potent greenhouse gas: **SF6**

**The wind of change  
is happening right now...**



# Driving the #Energytransition and #NetZero

## Natural-origin gases (**GWP < 1**)

If used by everyone it is the most environment friendly switchgear technology of the world

### No Harm

On health and environment

0 trees



## Fluoronitrile C4-FN mix (**GWP ~ 500**)

10,000 tons F-gases are needed annually for SF6 replacement in new installations, which means around 50 tons of leakage (= 20 million kg CO2).

It takes 30 years until the nature absorbs it

### No Harm

Fluoronitrile belongs to PFAS, its decomposition is toxic

321,600,000 trees



## Latest News

<https://California Sues 3M and DuPont Over PFAS Chemicals - WSJ>

<https://news.3m.com/2022-12-20-3M-to-Exit-PFAS-Manufacturing-by-the-End-of-2025>



# UN Sustainable Development Goals, that encourage Sustainable Products enabling Energy Transition



## Regulatory frameworks



- Regulations
- Climate protection laws (e.g. EU Net-Zero 2050)
- Green deal

## Enterprises



- Sustainability part of the corporate strategy

## Society



- Climate change
- Sustainability
- Environmental protection

- ✓ F-Gas ban / restrictions
- ✓ PFAS ban / restrictions



- ✓ Emission-free products
- ✓ Decarbonised operations and supply chains

- ✓ Purchasing decisions
- ✓ Investment decisions



## Taking responsibility: Blade by blade.

Increased government focus on legislation related to re-using materials and avoiding waste.

- Landfill bans in Austria, Finland, Germany and the Netherlands.
- Specific circularity legislation in France. NL announced circularity in future OF tenders.



# Driving #Sustainability

## Decommission



Disassemble and transport.

## Immerse in mild acidic solution



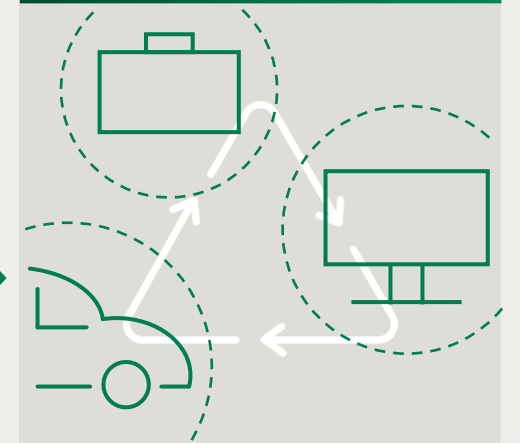
Resin dissolves in mild acidic solution at elevated temperature after a few hours.

## Reclaim separated components



Filter and coagulate resin + rinse and dry glass fiber etc.

## Reuse



Glass fiber, resin, wood and metal can now be reused in other industries.

# Contact information

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