



# THE PLAINS RENEWABLE ENERGY PARK

## DECOMMISSIONING FACTSHEET

ENGIE has received feedback from the local community about how the proposed wind turbines will be decommissioned following their operational life. At the end of the project's operating life, ENGIE will be required to remove all wind turbines, solar panels and other fittings, and rehabilitate the land to its former condition, as part of the Government's approval conditions and landowner agreements.

A wind farm has two options at the end of life which are repowering or decommissioning. The choice between repowering and decommissioning depends on various factors, including the condition of the existing wind turbines, technological advancements, economic viability, and regulatory requirements.



### DECOMMISSIONING

The first step in decommissioning is typically the removal of wind turbines and involves dismantling the turbine components, including the tower, nacelle (housing the generator and gearbox), and blades. This work is done using specialised cranes and equipment, and the components are usually transported offsite for recycling, resale, or disposal.

Following the removal of the turbines, other infrastructure such as access roads, substations, and electrical infrastructure may also be taken down and removed from the site.

Once the turbines and related infrastructure are removed, the site is often rehabilitated. This may involve grading and re-seeding the land, installing erosion control measures, and removal of any temporary structures or equipment that were used during the decommissioning process.

In some cases, post-decommissioning monitoring and reporting may be required to ensure that the site is rehabilitated and meets the agreed-upon environmental standards that are outlined by the Department of Planning and Environment (DPE) once the project has been approved. This may include environmental assessments and soil and water testing.



### REPOWERING

Repowering involves upgrading or replacing the existing wind turbines with newer, more advanced technology while keeping the existing wind farm site operational. This is the preferred option to keep generating renewable energy from the same location but with improved energy output and efficiency.

The process of repowering usually involves removing the old wind turbines and replacing them with new turbines that are larger, more efficient, and technologically advanced. This may also include upgrading other infrastructure such as electrical systems, substations, and access roads to accommodate the new turbines.

# RECYCLING

**On average, it is estimated that around 85-90% of a wind turbine's components can be recycled.**

The percentage of a wind turbine that is recyclable depends on the specific design, materials used, and recycling capabilities in a given region.

## Wind Turbine Recycling Process

### Blade separation

Wind turbine blades are typically made of composite materials, such as fiberglass or carbon fibre-reinforced polymer. Separating the blades from the rest of the turbine is an important step in the recycling process. Several methods can be used, including mechanical crushing, thermal treatment, or chemical processes.

### Material separation

Once the components are dismantled, the materials can be separated for recycling. This may involve further disassembling the nacelle and tower, sorting different metals, and preparing the materials for further processing.

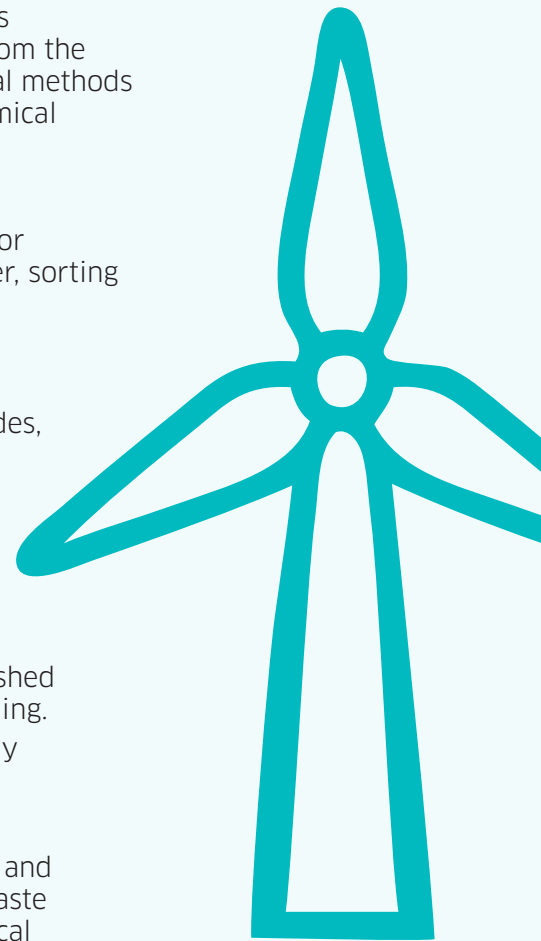
### Recycling and reusing materials

The separated materials are sent to specialised recycling facilities. Different parts of the wind turbine, such as the tower, nacelle, and blades, require different recycling methods.

- Metals, including steel and copper, can be recycled and used for various purposes.
- Fiberglass or carbon fibre composite materials from the blades can be mechanically crushed and processed into smaller particles for reuse in other products like construction materials or cement.
- Some components, such as the generator or gearbox, may be refurbished if suitable, or their valuable parts can be salvaged for reuse or recycling.
- Any hazardous materials, like lubricating oils or coolants, are carefully handled and disposed of according to environmental regulations.

### Waste management

The wind turbine recycling process aims to minimise waste generation and dispose of any non-recyclable materials responsibly. Any remaining waste that cannot be recycled or repurposed is treated in accordance with local waste management regulations.



It's important to note that wind turbine recycling is an evolving field, and different recycling techniques and technologies are being developed to improve efficiency and sustainability. Efforts are being made to increase the recyclability of wind turbine components and find innovative ways to reuse or repurpose the materials.



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