CORPORATE INFORMATION

FOR EMPLOYEES AND STAKEHOLDERS

DACERO | WINDAR | IDESA | TADARSA | DANIMA | TADARSA LOGISTICS

ENVIRONMENTAL COMMITTENT

Grupo Daniel Alonso

GD000567-R.05

Environmental committment

Committed to the enviroment

Preservation and protection of the environment is a part of our sustainable development strategy, an issue integrated at all levels in the company that involves decision-making in this regard by Senior Management.

The reasons are clear and motivated by a current climate situation that favors the energy transition towards new energy models, which contribute to our competitiveness and that of the renewable energy industry, favoring society in general.

This is why we are responsibly committed to ensuring the preservation of the environments where we conduct our business.

To this end, we have implemented clear and defined action policies and commitments, through a management system based on the most recognized environmental and sustainability principles and standards, as well as a commitment to the UN 2030 Agenda and its objectives of sustainable development.

Our businesses, activities and industrial processes can generate risks and impacts, both positive and negative, on the environment and the societies of which we are part, throughout the entire life cycle of the products and services that our clients demand of us.

Negative impacts are those environmental aspects that may have an influence on the environment when they materialize, that is, emissions into the atmosphere, spills, waste generated, ..., which arise as a consequence of different risk scenarios.

However, there are also positive impacts, such as the amounts of CO2 that we avoid emitting into the atmosphere, thanks to our participation and production of towers and foundations, placed on the market annually within the wind industry sector.

Therefore, the company is focused on improving its ability to reduce these impacts locally and globally, obtaining profitability that reaches all of our stakeholders.

However, positive impacts can also be generated on the environment and that is where we find sources of new opportunities.

"We are committed to applying business practices that are respectful of the environment, contributing to the development of our environment in a sustainable way, responding to the needs of not compromising the interests of our future generations.

Likewise, during the development of the activities and the manufacture of the products, let us globally favor the reduction of traditional fossil fuels, in favor of the use of renewable energies, to reduce our CO2 emissions and the generation of waste as a result of these activities".

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Life cycle analysis

To determine our impacts, we must first identify and assess the risk-generating aspects, from the perspective of the entire Life Cycle of the products and services we supply.

This analytical work includes the following five phases:

1. Design, analyzing the aspects and impacts derived from the use of materials, to provide innovative and sustainable solutions that meet the needs demanded by our stakeholders,

2. Risks and impacts during the purchasing and supply processes of the raw materials and consumables necessary to carry out our activities,

3. Risks and impacts during the manufacture of products and provision of services, through processes over which we have direct control,

4. Risks and impacts during the phases of storage, delivery and use of the products, where the information provided to the user and its clarity are key, and

5. Risks and impacts that can be generated during its dismantling and recycling at the end of its useful life, with the possible solutions for recycling, eliminating or reusing the different materials that make up the product.

In the first four stages, the analysis is developed through our internal procedures and protocols, however, our direct control over risks and impacts ends once the product or service is delivered to our clients.

During these first four stages, the most critical risk aspects are due to the generation of waste and CO2 emissions from combustion sources, as well as the use of paint and solvents in the surface treatment processes that we carry out during the manufacture of the same.

On the other hand, our finished products, under normal operating conditions, do not generate risky environmental aspects such as emissions, waste or spills. These are pieces that are part of other larger final structures, which are assembled in the field, by the customer. Only aspects due to transport are generated. They also do not need instructions for assembly or treatment when they are delivered to the customer.

In the latter case, that is, the final dismantling and recycling, the formula goes through an informative and communication work on the risks and impacts that can be generated once the wind turbine reaches the end of its useful life.

Information about risk and impacts

The use of fossil fuels has dominated most of the electricity generation mix for years, however, the use of renewable energy has now become a real alternative for generating clean electricity.

Wind turbines generally do not produce direct CO2 emissions, however, there is absolutely no form of energy generation that has a zero environmental impact and, although to a lesser extent, renewable energies also have an impact on the environment. The fundamental difference with other sources of energy, such as conventional ones, is that most of the impacts are focused on two key moments: the manufacture of the wind turbine, and once it has reached its end of its useful life.

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Current Scenario

When a wind turbine stops operating it becomes a large amount of scrap, which must be reused or, failing that, recycled. This is why improvements must be made in the future to maximize the sustainability of wind energy.

The management of waste generated by a wind turbine is being a key issue in the renewable industry since companies promote sustainability and care for the environment, and this should be consistent later in the way of treating waste from the facilities that stop operating.

The design useful life of a wind turbine reaches between 20 to 25 years normally, although it can be extended up to 30 years, making some investments in maintenance and renovation of its components. The end-of-life stage of a wind turbine will become increasingly important due to:

1. The increase in facilities associated with onshore and offshore wind in the coming years, and

2. the increase in decommissioning as wind turbines reach the end of their operational useful life.

With this scenario, we are approaching in a few years, the moment where it will be necessary to dismantle and manage waste from wind turbines, which will be out of operation once the end of their useful life has arrived.

At this point, we must consider the currently existing procedures for waste management of each of the main materials that make up the wind turbine, as well as alternative practices in the handling and management of waste that represent improvements over current practices.

Key components

It is clear that we can achieve environmental benefits (including the reduction of waste in landfills, and savings in GHG emissions), through treatment processes such as reuse, re-manufacturing, recycling and the recovery of heat from the incineration of various components of a wind turbine.

But first, we must understand the parts of a wind turbine, from the point of view of these raw materials that make it up.

- **Foundation and Tower:** they are normally made entirely of steel.

- **Nacele:** It is made up of iron and steel, some copper and silica for electronic components, and glass and resin for the gondola cover.

- **Rotor:** made of cast iron for the hub of the blades.

- **Tip cone and blades:** they will be made of glass reinforced plastic (GRP) and resin, or carbon fiber (CFRP), depending on the models.

- **Others:** plastics used in electronics, cables and blades. The types and quantities will vary according to the design of the wind turbine.

Recycling

Considering all the components of the wind turbine, blades are currently the great recycling problem because the materials are especially difficult and expensive to separate for proper recycling. The rest of the raw materials from Towers, Nacel and Rotor have a more-less established recycling chain. In general terms, most of the components of a wind turbine are recyclable around 85-90%.

In the wind turbine manufacturing processes, basically raw materials are used that can be grouped as follows:

Steel, cast iron, copper and aluminum

Foundations and towers are made of steel, an iron alloy. Both steel and iron are ferrous metals that can be treated within the same recycling chain. They are materials that in general will be infinitely recyclable and easy to recover, since both are magnetic. However, this alloy typically includes other elements depending on the intended use of the steel, including impurities during the scrapping and recycling process. Therefore, the purity of steel generally decreases each time it is recycled. For this reason, there are studies that identify a 90% recycling capacity for steel and iron (with a loss of 10%).

For its part, copper is one of the most valuable and demanded metals for recycling. Copper can also be recycled and reused indefinitely without losing performance quality. Recycling requires up to 80% less energy than primary copper production. In a wind farm, copper can be used in transmission cables and is generally not recoverable as transmission cables are left buried. Only the copper from the turbine can be recovered. Studies point to a 95% recycling capacity, with a 5-10% loss at the landfill.

Like copper, aluminum is also infinitely recyclable. In addition, the aluminum recycling process is more energy efficient than copper, since recycled aluminum requires 90% less energy than primary production. 95% of aluminum could be recycled.

Concrete for foundations

It is assumed that 100% of the concrete waste from the dismantling of the turbines is deposited in landfills. However, there are factors to consider around its complete removal when it comes to marine foundations. In this case, when the wind turbine reaches the end of its useful life, important marine habitats have probably developed around the foundations. For this reason, their removal can largely depend on factors such as habitat formation, affected species, and ultimately the danger to navigation.

Fiberglass (and related composites)

The main components of composite materials are CFRP and GRP, whose recycling processes are much less established than those of the other previous materials. Fiber Reinforced Plastics (FRP) are difficult to recycle, as it is difficult to separate the reinforcing fibers from polymer resins.

Plastics

Plastic is not infinitely recyclable and will even depend on the type of plastic used. Its recycling is complicated by cross contamination of different types of plastics (eg: PET and PVC share properties and are very similar, so their classification can be difficult). Generally, it is only recyclable once or twice and usually ends up incorporated in non-recyclable products. However, its recycling has advantages such as fewer environmental problems and saving energy and material resources. Each type of plastic has its own recycling rate.

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Industry sustainability

In the sustainability of the wind energy industry - onshore and offshore - activities such as research and innovation with a clear focus on the life cycle will be essential.

On the one hand, future trends in terms of wind turbine design should be explored, and on the other hand, the impacts that these trends will have on the future of this industry should be evaluated. We must investigate and innovate in the determination of positive impacts, for the availability of both materials and the development of practices, which improve waste management at the end of the life phase.

From our position, we hope, encourage, and recommend to all our clients, collaborators and interested parties, that they understand the guidelines and recommendations that we have indicated to them through this document. From our company we offer to help proactively in this task and in the maintenance of an increasingly sustainable industry.

We are available to stakeholders, to inform and advise them on the final activities in the life cycle of the products. We also have our own recovery capacities for ferrous materials such as steel and aluminum.

For more information or contact: www.grupo-danielalonso.es