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Abstract

Currently wind energy is the fastest growing renewable energy source and in order to build turbines and wind farms, materials like steel, fibreglass, copper and iron, amongst others, are required. After the lifespan of 20 – 30 years a wind turbine has reached its end-of-service life and after that wind farms get re-powered or decommissioned. As a result, significant amounts of waste are generated. In addition to the waste generated during the production, we understand the an important environmental problem arises—waste handling.

Circular economy emphasizes the need for closing material loops which means that products and materials are kept in the circulation as long as possible instead of disposal. Through preventive maintenance and reparation, reusing, re-manufacturing and recycling the quantities of waste and virgin materials are reduced. It is important to take these aspects into consideration already in the design phase, since decisions made at that time affect the effectiveness of handling the waste at the end-of-life phase.

In addition to circular economy the concept of industrial symbiosis can be useful for better waste management and help close material loops. Traditional industrial symbiosis is considered as companies or industries exchanging their waste or by-products, but it can also be through sharing ideas and information. Again, the quantities of waste and the need for virgin materials are reduced when industries find collaboration ways and use waste from one as a resource for other. Communication and dialogue between companies is the key for better chances to discover the potential of industrial symbiosis.