

## Circular Economy approach

### Background and alignment with ReNew's Vision

As ReNew continues to move ahead, in its mission to transform the energy landscape of India through sustainable energy solutions, it aims to further embed sustainability into the core of its operations. Aligned to the Company's vision "To Build The Best Renewable Energy Company In The World", ReNew is working towards integrating the principles of circular economy as a part its operations through approaches such as procurement of greener materials, extending useful life of equipment and materials, reverse logistics and repurposing.

Globally, the concept of circular economy is replacing conventional take-make-dispose concept of linear economy. This model is no longer sustainable from an environment or social stand point. Multiple stakeholders, now see value in this approach with circular economy gaining traction from the canopy level to grass-root levels of society (ref. to Business & People) at large, which talks about combining market competitiveness and reduced dependency on environmental sources to procure a sustainable solution.

At ReNew, incorporating elements of circular economy into our day-to-day operations is a strategic step forward- as the Company aims to move away from the linear model, while the Company develops, builds, owns, and operates utility-scale energy and manufacturing units. The Company aims to combine innovation, competitiveness, and sustainability in its circular economy approach.

Additionally, ReNew not only aims to incorporate principles of circular economy design, *especially in its management systems for material issues in the business*, but also- formulate plans to increase life of assets, through reuse and recycle a service or a commodity as they approach their end-of-life cycle.

### ReNew's Circular Economy Governance

Given the breadth of impact, a circular economy concept can have on operations, its actions and approach need to be governed effectively for maximum value generation. In this regard, it is integral that a broad integrated approach towards circular economy governance is applied when identifying new models, products, services, and processes which aligns with circular economy pathway. The integrated approach will be critical, which supports ReNew's commitment towards finding innovative and competitive solutions to transform the entire ecosystem of operations, including its suppliers.

In such regards, the circular economy governance at ReNew will be led by the Sustainability Steering Committee, under the leadership of the Chief Sustainability Officer, who will be supported by a cross-functional team including Innovation, Asset (Wind, Solar and Hydro as required) and QHSE teams. The respective business units will be responsible for identifying and executing initiatives. The circular economy approach adopted by the Company will aim to not only address activities within the boundary of its operations but will also cover the value chain.

ReNew's governance on circular economy will be covering the Company's advocacy efforts towards external stakeholders, with which ReNew will partner for research and innovation (e.g. Academia), and with other companies, NGOs, and relevant institutions to increase knowledge and understanding of the circular economy, to support the transition of the system.

### ReNew's Circular Economy Approach

- **Design Approach:** In alignment with the Company's vision, ReNew's approach towards circular economy does not begin at the reuse and recycling of assets, but at the design stage of the asset itself, as the effort is to transform the entire value chain with the circular economy approach. Towards

this end, the entire design, supply, and production of ReNew Power will be governed by a circular design approach, especially as the Company gets into manufacturing.

- For the existing assets which the Company does not manufacture, the Company will aim to work closely with suppliers and vendors to ensure that the circular economy design approach is integrated in their production of assets, through which the Company may decide the preference of suppliers and vendors (based on existing practices). These practices may include aspects of buy-back arrangements / recycling etc.
- For suppliers and vendors who are not conforming to circular economy design principles, the Company will work closely with them to help adopt the approach during manufacturing/production. A circular procurement strategy will also be adopted by ReNew going forward, to ensure circular economy design principles are incorporated by our suppliers and vendors.
- For the Company's manufacturing processes, the manufacturing and innovation team will be closely involved to ensure that a circular economy design approach is adopted during production, which will enable the reuse and recycle of assets related to the solar and wind verticals. As the Company gets into upstream activities of its value chain, circularity will drive processes in manufacturing and production, which will enhance the reusability and recyclability of assets as they approach their end-of-life cycle. The circular economy approach beyond design will also be applicable for circular use and efficiency, as well as circular recovery.
- **Finance:** ReNew will aim to understand the financial implications of circular economy, create a level-playing field with respect to the linear model, assess long-term impacts and related benefits of a circular model and create avenues for financing of circular economy efforts.
- **Innovation:** ReNew will aim to leverage technology and innovation to play the fundamental role of a circularity accelerator, during manufacturing and operating. ReNew's efforts towards circular economy design, use and recovery will capitalize on deep research and innovation, including industry-academia partnerships, in the pursuit of the company for becoming sustainable.
- **Ecosystem:** ReNew will work with external stakeholders including policymakers, academia, NGOs, other companies to propagate the adoption of circular economy on a systemic level, driving change through dialogue, advocacy, and research partnerships.

### Focus Areas under Circular Economy at ReNew

ReNew's circular economy approach is based on the following pillars, which define the areas and methods of application:

- **Circular inputs:** Production and usage models-based inputs from previous life cycles (reuse and recycling). This will also include identification of avenues of green procurement such as green / responsible steel along with other aspects.
- **Extension of useful life:** Approach to the design and management of an asset or product aimed at extending its useful life, for example through modular design, repair, refurbishing and predictive maintenance.
- **New life cycles:** Any solution aimed at preserving the value of an asset at the end of its life cycle through, in synergy with the other pillars, reuse, regeneration, upcycling or recycling.
- **Co-innovation:** Launching co-innovation projects together with suppliers to review production processes and/or modify purchasing methods according to circular economy models.
- **Reverse logistics:** Work with suppliers to ensure reverse movement of goods through the supply chain to its supplier or manufactures. Thereby ensuring that the end consumer (supplier/ manufacturer) is responsible for the end-of-life management of the product, including recycling, refurbishing or resale, amongst others.

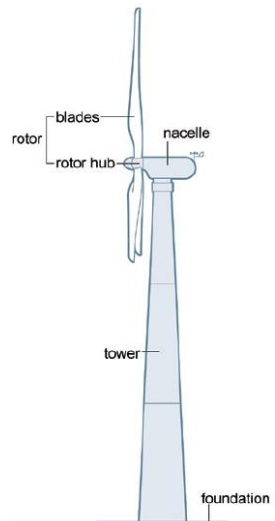
- **Regenerate natural:** Work across the value chain and business teams to develop models to ensure that the products at the time of disposal are nearest possible to their natural state when being disposed. This will also involve looking at options other than landfill for disposal of products when they near their end of life without any further option available.

### Way forward

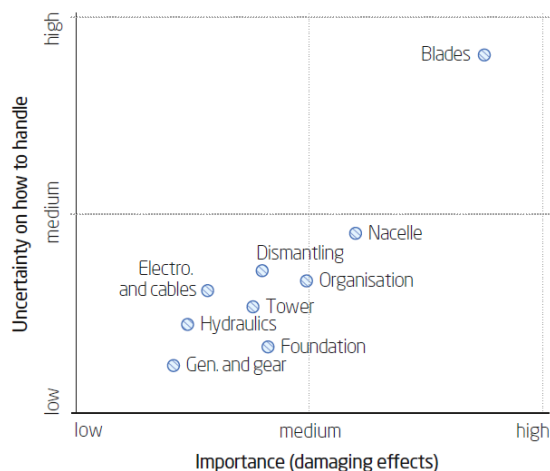
In line with the principles of circular economy, ReNew is exploring options to turn its operations even greener.

### Wind asset management:

From a wind asset management perspective, the key components include the foundation, tower, nacelle and rotor. These components predominantly include:



	Components	Percentage weight (excluding foundation)	Disposal options
<b>Foundation</b>	Concrete, iron and steel		<ul style="list-style-type: none"> <li>• Safe Landfill</li> <li>• Recycled as aggregate</li> </ul>
<b>Tower</b>	Entirely steel	66%	Highly recyclable
<b>Nacelle</b>	<ul style="list-style-type: none"> <li>• Predominantly iron and steel</li> <li>• Some copper and silica for electronic components</li> <li>• Fibre glass and resin for the nacelle cover</li> </ul>	<ul style="list-style-type: none"> <li>• Iron: 16%</li> <li>• Aluminum: 2%</li> <li>• Copper: 1%</li> <li>• Electronics: &lt;1%</li> </ul>	
<b>Rotor</b>	<ul style="list-style-type: none"> <li>• Cast iron for the rotor hub</li> <li>• Blades of Glassfibre Reinforced Plastic (GRP) and resin</li> </ul>	<ul style="list-style-type: none"> <li>• GRP: 14%</li> <li>• Others: 1%</li> </ul>	<ul style="list-style-type: none"> <li>• Safe Landfills.</li> <li>• Co-incineration</li> </ul>



Basis the uncertainty of waste handling and impact of the waste, blades become the most critical component. Although first decommissioning of ReNew's unit is expected in 2037, however, considering the impact of the blades, ReNew is focused on exploring alternatives for this and would be deploying them in the near future to pilot and estimate possible options towards repurposing the blades for possible reuse / repurposing / recycling / recovery / disposal.

Currently, ReNew is working on the following circularity approach principles for the blades:

1. **Prevention:** Reduce the usage of blades and blade material by designing more efficient turbines and farms, and blades with lesser material
2. **Reuse:** Decommissioned blades with remaining structural integrity can be used to repower older, smaller turbines

3. **Repurpose:** Decommissioned blades can be used to make other structures. However, glass dust from blades is highly toxic. Mitigation efforts are not currently available to effectively eliminate this risk.
4. **Recycling and recovery:** By exploring Mechanical, Thermal or Chemical process
5. **Disposal:** Avoid to the maximum extent possible

### Solar asset management

	Components	Disposal options
<b>Solar PV Modules</b>	Glass, Metal, Plastic, Silicon Wafer	Recycling is possible
<b>Inverters</b>	Metal, Busbar, Cables, Electronic cards, Breakers	Recycling for e-waste and other recyclable scrap (such as steel cables etc.)
<b>Structures</b>	Module Mounting structure and other equipment mounting structure	Recyclable
<b>Foundation</b>	Concrete, iron and steel	<ul style="list-style-type: none"> <li>• Landfill</li> <li>• Recycled as aggregate</li> </ul>
<b>Cables</b>	Copper/ Aluminum, Plastic	Scrap recycling
<b>Transformer</b>	Copper, Oil, Metal	Recyclable and methods are defined for the oil disposal
<b>Breaker</b>	Metal, busbar, cables, plastic, breaker	Recycling for e-waste and other recyclable scrap (such as steel cables etc.)

Basis the uncertainty of waste handling and impact of the waste, solar PV modules become one of the most critical components. While solar PV modules present high recyclability according to experts, however currently, India has limited capacity of for recycling modules. ReNew would continue to identify alternatives for the module recycling and explore deploying these in the near future to pilot and estimate possible options towards the possible reuse / repurposing / recycling / recovery / disposal of modules.

From a circular land use perspective, it is currently working with its partners on a pilot where farming and solar PV module deployment can be developed on the same land simultaneously. While this project is currently at a pilot stage with a deployment of 1 MW, the project would be adopted basis the results that emerge from it.

### Aligning the approach to Sustainable Development Goals (SDG's)

The concept of circular economy is a key part of global efforts to meet the goals of the Paris Agreement with the aim to reduce overconsumption, design-out waste and restore and regenerate ecosystems and natural capital.

ReNew's circular economy approach through its focus pillar is closely aligned to SDG 8 (Decent Work and Economic Growth),