

EXPERT COMMENTARY

*A circular economy is a key part of a successful energy transition.
Kaj Bakker, ESG director at Arcus, explains how these principles
can be applied in infrastructure operations*



Recycle for resilience

Infrastructure is essential to enable the transition to a low-carbon future. According to a publication by the Ellen MacArthur Foundation, the 1.5C Paris Agreement target can only be achieved by combining renewable energy and efficient usage with other approaches, including promoting a circular economy. Moving away from the linear consumable model of ‘take-make-use-dispose’ and transitioning to a regenerative model is essential to keep resource consumption within limits. To address this, governments and intergovernmental bodies have been developing think-tanks and action plans to create awareness and draft policy.

The European Green Deal was launched to set policy initiatives in line with the target of the Paris Agreement to reach carbon neutrality by 2050.

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One of the main building blocks of the European Green Deal is the EU’s Circular Economy Action Plan (CEAP), which was launched in March 2020.

The goal of CEAP is to scale up the circular economy in Europe with a few front-runners to the mainstream economic players that will make a decisive contribution, and decouple economic growth from resource use while ensuring the long-term competitiveness of the EU. A recent study by Cambridge Econometrics, Trinomics and the ICF estimates that applying circular economy principles across the EU economy has the potential to increase EU GDP by an additional 0.5 percent by 2030,

and could create around 700,000 new jobs.

In the CEAP, the EU provides direction on future policy across multiple sectors and stakeholder groups, including packaging and single-use material (eg, plastics and cardboard). The EU stated that in 2017, packaging waste per capita reached a record level of 173kg and has been growing continuously.

CEAP estimates that by 2030 the EU will review and reinforce the mandatory essential requirements for packaging in the EU market, steering the market to reduce (over) packaging and drive design for the reuse and recyclability of packaging. The EU is currently establishing rules for the reduction of single-use plastic for food containers, beverage cups and bottles. These

Circular infrastructure

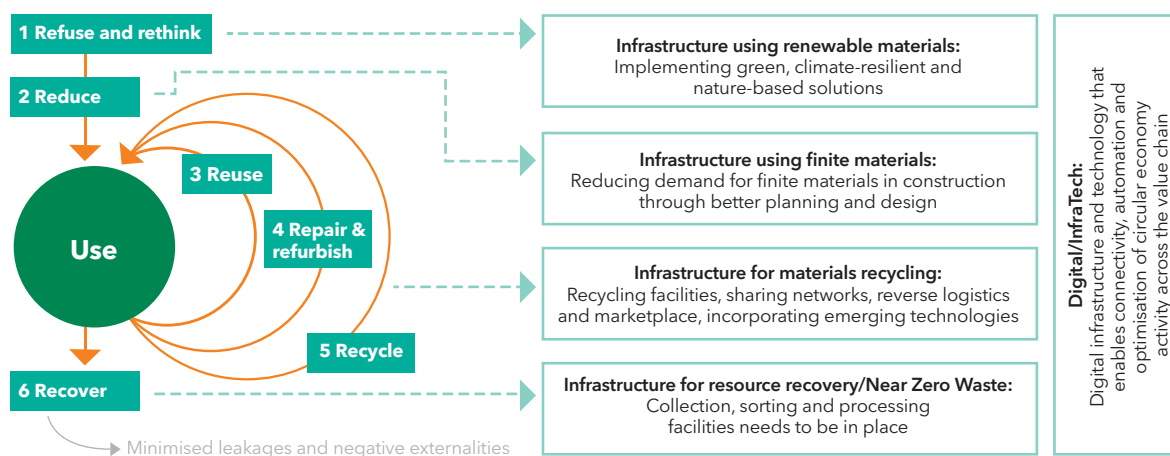
The Global Infrastructure Hub sets out the 6R principles for clarity

A circular economy is one in which materials constantly flow around a ‘closed-loop’ system, rather than being used once and then discarded. The value of materials is therefore not lost when they are thrown away and the cost of waste management and disposal is avoided.

The Global Infrastructure Hub is an initiative launched by the G20 to produce data, insights and programmes that inform both policy and infrastructure delivery. GI Hub reviewed the model for the transitioning to a circular economy and provided an

outlook on how the infrastructure sector could positively impact the transition.

Within the 6R model, there is a cross-section for what the GI Hub calls “circular infrastructure”, which would create great opportunity for investments in the transport, energy, social, communications, water and waste sectors. To control the “Use” phase of this model, there is a clear prospect for lease and sharing economy business models. This would create a controlled environment for phases 3 (Reuse), 4 (Repair and refurbish) and 5 (Recycle).



are only the first examples of legislation tackling packaging reduction.

A material agenda

Following a strategic review and opportunity-mapping exercise in 2020, Arcus identified HB Returnable Transport Solutions as a key infrastructure player in the circular economy. Following a bilateral approach and completion of due diligence, Arcus European Infrastructure Fund 2 (AEIF2) completed the acquisition of HB in December 2021. HB provides an integrated offering of Returnable Transport Items (RTIs), including rental, washing and logistics services, ensuring the safe and sustainable transport of consumable products from suppliers to consumers.

The main RTIs handled by HB are plastic crates, rolling container units

and pallets, which serve as essential load carriers for products being transported from production locations to a blue-chip customer base in a variety of European food and beverage supply chains. These reusable load carriers are critical assets within the circular economy, ensuring reliable and efficient transport, while minimising the use of single-use, one-way packaging in a variety of fast-moving supply chains. With an asset pool of 6.6 million RTIs and a network of strategically located washing and logistics facilities across its core markets of the Netherlands, Germany, Austria, Switzerland and Belgium, HB provides vital RTI logistics infrastructure and an integrated one-stop-shop solution for its customers.

HB is well positioned to benefit from these significant legislative and

regulatory requirements driving the shift from one-way cardboard packaging and single-use plastic to longer-life and reusable materials in line with the EU agenda. This is expected to provide strong support for baseline demand growth, new customer acquisitions and conversions (ie, from one-way packaging) and entrance into new RTI rental verticals.

Giving turbines a new life

Momentum Energy Group, another recent AEIF2 investment, plays a very different, but essential, role in circular economy infrastructure. Momentum, acquired in December 2021, is a Danish-based energy company that manages and optimises well-located, late-life, onshore wind turbines. Momentum has an integrated renewable energy



Critical assets: HB Returnable Transport Solutions' reusable load carriers minimise use of single-use packaging in supply chains

investment and services platform covering the full lifecycle and a significant part of the value chain for wind and solar projects. Momentum invests, services, manages technical and commercial operations and undertakes the development of greenfield, repowering and lifetime extension projects.

A key theme is the 'end of initial life' for the first wave of wind turbines across Western and Northern Europe. Upgrading and replenishing these maturing wind farms is just as critical as new development projects. However, this area is often overshadowed by the headlines of large new greenfield or prestigious offshore renewable projects.

While there is a direct environmental benefit provided through the provision of renewable electricity (such as avoiding emissions from fossil-fuel-sourced electricity), there are also potential ESG implications regarding residual decommissioning waste at the end of the assets' life. As Momentum decommissions its wind turbines, it first seeks to refurbish the turbines and use them for repowering projects. Major components can be used for re-installation elsewhere in the portfolio or they can be retained in storage as spare parts for future use, which extends the life of the asset, improves the asset's conditions, supports the circular economy and minimises waste and cost.

Wind turbine blades are made from composite materials, mainly fibreglass, which cannot be easily recycled. However, there are options for recycling, as a study by Polytechnique Montréal has concluded. It also has to be viewed in context, as approximately 98 percent of the materials in an entire wind project can be easily recycled.

When blades go to landfill in the US and other parts of the world, this is due to a combination of factors, but mainly economics and a lack of local expertise in managing older turbine models. This is very different across Europe, as EU countries like Austria, Finland, Germany and the Netherlands have banned blades being sent to landfill

and there is a strong local ecosystem to continue operating and repairing older turbine models.

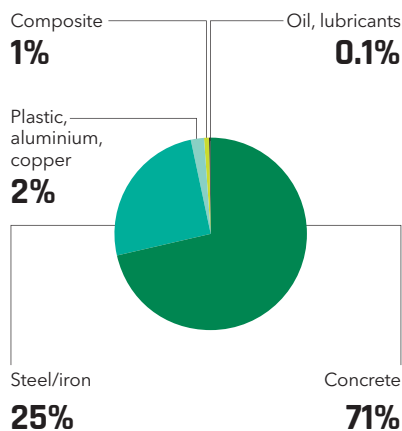
Fibreglass and composite materials are incredibly durable and can be repaired even when hit by lightning multiple times. Only when a blade is very severely damaged structurally would it need to be replaced, and blades (depending on the make and model) are exchangeable. In a wind farm of the same make and model, one turbine can be decommissioned and parts saved to be reused, repaired or refurbished, if required, and fitted to other turbines for lifetime extension. Through this approach, companies like Momentum contribute to an ecosystem where second-hand parts have value in a marketplace.

Essential for energy transition

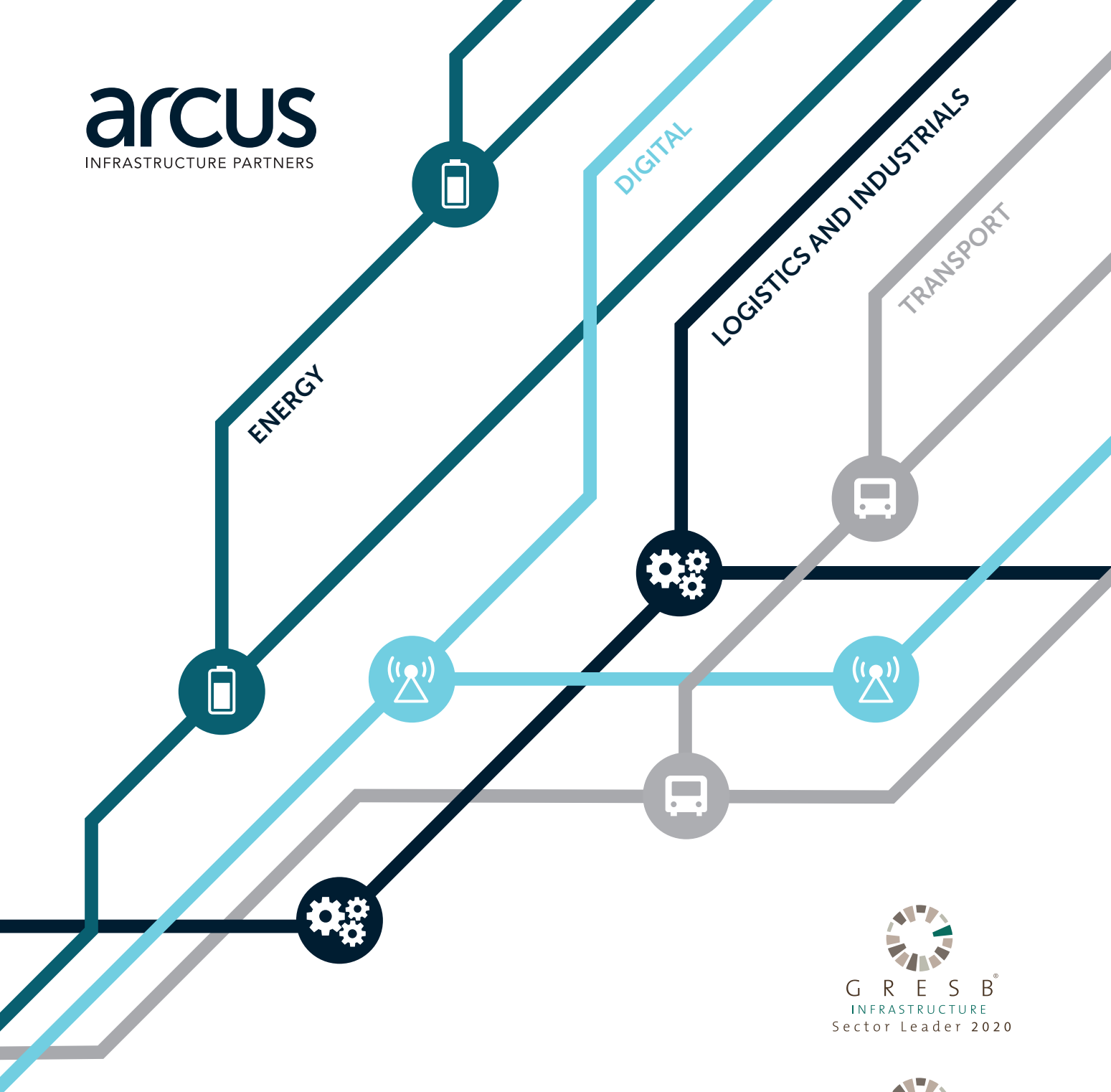
Arcus believes that investing in a maturing, 'end of initial life' renewable energy generation fleet is important to support the energy transition. Momentum is an early adopter in using refurbished turbines/components as a sustainable alternative for repowering/lifetime extension business cases. This approach has a strong alignment with phases three to six of the GI Hub's model for circularity (Reuse, Repair and refurbish, Recycle, and Recover) – a scalable model for circular infrastructure.

Arcus is supportive of the 2030 Agenda for Sustainable Development adopted by the United Nations Member States in 2015, and supports 11 of the SDGs through our allocation of capital and through our policies, values and asset management activity. The principles for circularity can also be found in SDG 9 (Industry, innovation and infrastructure) and SDG 12 (Responsible consumption and production). The contribution Arcus has to these SDGs is in part founded on our investment strategy which is focused on the infrastructure of the future. This is realised through investing in circular value-add opportunities like HB and Momentum. ■

An illustrative breakdown of wind farm materials in mass



Source: PlanEnergy



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