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# AIB Manufacturing Outlook

November 2024



# The Circular Economy

## Sustainable production and eliminating waste

While Irish manufacturers continue to face ongoing challenges including inflation, supply chain uncertainty and global trade tensions, there are many reasons for optimism. The AIB Manufacturing PMI for October showed that manufacturing conditions in Ireland improved from previous months and sentiment among Irish manufacturers remains broadly positive.

“Notwithstanding the challenges facing the sector, domestic operators are maintaining strong deposit levels and relatively low gearing, while continued investment by multinationals is encouraging,” says Alan Waters, Head of the Manufacturing sector, AIB Business Banking.

However, for Ireland to retain its reputation as a reliable and responsible player globally, Irish manufacturers must continue to engage with and invest in sustainable initiatives within their businesses. Official data indicates that manufacturing in Ireland generates approximately 10% of the State’s Greenhouse Gas Emissions, so the sector has an important role to play in reducing the country’s carbon emissions.

A recent AIB survey of SMEs’ within the manufacturing sector in Ireland indicated that 66% of respondents believed that sustainability was either ‘important’ or ‘extremely important’ in their day-to-day operations. Some of this focus on sustainability appears to be driven by customers, with over half (54%) of manufacturing SMEs responding that the importance of sustainability had increased for their customers in the last 12 months.

When it comes to knowledge of regulations around sustainability however, a surprisingly low 24% of respondents indicated they were aware of the CSRD (Corporate Sustainability Reporting Directive) which will affect SMEs across the EU in the next 12 months. This new legislation requires, elevates, and standardises the scope of reporting to incorporate the full value chain including suppliers. Under CSRD, companies will have to disclose not only the risks they face from a changing climate and other ESG matters (financial materiality), but also the impacts they themselves may have on climate and society (impact materiality). An additional directive of note from the EU for manufacturers to be particularly cognisant of is Directive 94/62/EC from the EU, which sets out the EU’s rules on managing packaging and packaging waste.

Looking to the future, our survey shows manufacturers would like to make more changes to become sustainable, with the purchase of more sustainable equipment a particular focus (43% SMEs would like to do so in the next two years). However, cost is a big impediment, as cited by 37% of respondents. Nonetheless, in the next 1-2 years, approximately half of all SME manufacturers expect to invest in renewable energy, energy efficiency, waste, and packaging.

As our above survey results indicate, it has become more and more evident that decarbonisation is now a competitive priority for all manufacturers in Ireland with many multinational and large organisations increasingly now requiring their supply chains to meet relevant sustainability

1. Based on the July 2024 survey of SME customers by AIB in association with Amárach research

parameters. Similarly in becoming a more sustainable operation, businesses are prepared to meet demand from consumers for more sustainable products and services. How business leaders engage in this process will be critical in both economic and environmental terms.

Manufacturers are encouraged to engage with State agencies for supports and grants for the installation of technologies that directly contribute to decarbonising heat, to funding for research, as well as development and innovation support to facilitate the planning and development of new products, services, or processes in the areas of sustainability and decarbonisation.

Supports are also available for external expertise and consultancy services such as Circuléire, with whom AIB is a partner. Circuléire offers bespoke guidance to companies in the areas of waste reduction and the Circular Economy, both of which can have substantial benefits for companies' bottom line as well as their carbon footprint.

As is evident from our case studies, reaching out for advice and putting appropriate and realistic sustainable practices

in place can drastically reduce waste in both resources and materials within a company.

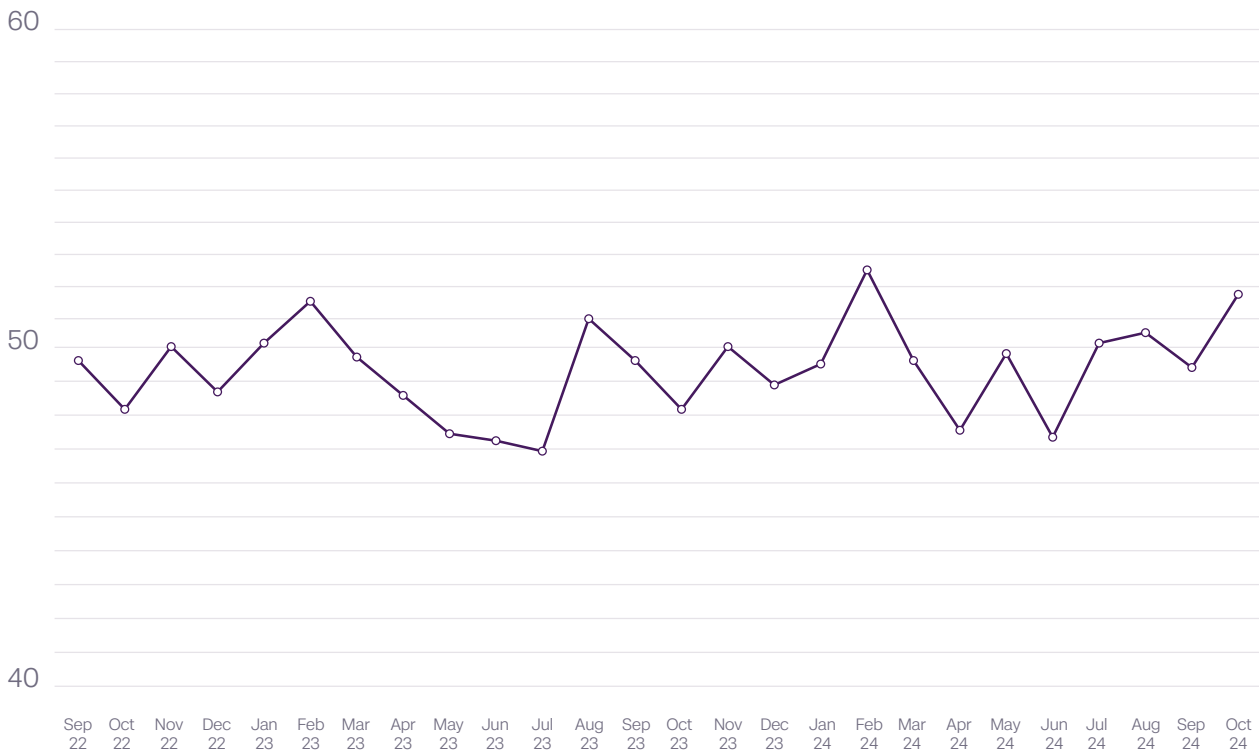
Alan Waters adds: "AIB continues to work to build a more sustainable Ireland – focusing our efforts on both our own operations and also where we direct our capital. We have established a €30 billion Climate Action Fund, and the bank has made a commitment that at least 70% of our new lending will be Green by 2030.

"AIB remains committed to supporting the manufacturing sector, and we recognise that our customers across all sub-sectors are increasingly aware of the impact that sustainability will have on their business. AIB will continue to support our customers as they progress along their sustainability journey."



**Alan Waters**  
Head of Manufacturing Sector,  
AIB Business Banking

### AIB Ireland manufacturing PMI





# Circuléire



## Regulatory drivers and demands will make it much harder to remain competitive if you don't embrace circular economy principles

Ireland has one of the lowest circular materials use rates in the European Union, and the government has committed to ensuring that the share of material resources coming from recycled and recovered materials will increase in the coming years.

The circular economy is alternative to the 'linear' production and consumption model based on produce, use and dispose, which is carbon and resource intensive. The policy backdrop is reducing greenhouse gas emissions through maximising the efficiency of material use.

A more sustainable production and consumption model involves changing how materials and resources are consumed, how products are designed for household and business use, and how the productive life of all goods and products is extended.

Most definitions of the circular economy centre on designing waste and pollution out of the economy.

According to the OECD, this involves:

- An economic system that replaces the end-of-life concept, with recycling and recovering materials in production/distribution and consumption processes.
- Making effective use of natural resources through high resource efficiency and waste prevention, especially in the manufacturing sector.
- The circular economy is restorative and regenerative by design, and the value of products, materials and resources is maintained in the economy for as long as possible by returning them into the product cycle at the end of their use.

Ireland has been making policy progress in advancing sustainability production and consumption objectives with publication of the Whole-of-Government Circular Economy Strategy 2022-2023, and enactment of the Circular Economy and Miscellaneous Provisions Act 2022.

In April 2024, the government approved the Green Public Procurement Strategy and Action Plan 2024-2027. Public bodies spend an estimated €18.5 billion a year on goods, services and works, and circular economy sustainability criteria will play an increasing role in public procurement tenders.

Already, a minimum of 10% of food purchased via public procurement must be certified organic, and all paper for printing and photocopying must be recycled paper. By the end of 2027, a minimum proportion of annual procurement by public sector bodies shall include used or repaired goods or materials.

CIRCULÉIRE was established in 2020 to demystify, de-risk and deliver circular business model innovation for Irish industry. The public-private partnership is a unit of Irish Manufacturing Research (IMR), and partners with the Department of the Environment, Climate and Communications, the Environmental Protection Agency, and EIT ClimateKIC.

CIRCULÉIRE aims to assess, finance and scale circular manufacturing solutions to deliver reductions in both CO2 emissions and waste across its fifty members.

"Our members are looking at what the circular economy means for their business in terms of the decarbonisation strategy," says Dr. Geraldine Brennan, Head of Circular Economy at IMR and Circular Lead.

“The manufacturer of a food product might be looking at their production residues to understand whether those could be used as an input or to displace virgin raw materials for another product, or they may be looking at how to design their packaging materials so that they can be reusable or refillable.”

“It’s much more sophisticated than just thinking about waste. Waste is often a starting point, but the circular economy is fundamentally about rethinking how we design, make, and use products. It’s much more strategic and connected to value propositions and business models.”

“You can address 55% of emissions by looking at energy use. The other 45% of the emissions are connected to products and materials and packaging. We need renewable energy, but you also must look at the embedded emissions associated with materials, components and products in order to deliver on climate action.”

An OECD analysis of Ireland’s circular economy in 2022 concluded that the view of the circular economy is based mainly on waste. As such, Ireland’s current approach tends to focus on recycling and recovery rather than preventing, repairing, and reusing.

Capacity gaps among SMEs are hampering the adoption of circular practices, the OECD commented, and there is limited awareness and understanding of the costs and benefits of a circular economy among Irish businesses.

Dr. Brennan thinks that the push from government and the EU towards a circular economy is undeniable. “The Green Public Procurement strategy will set targets for the public sector to become a market builder,” she says. “In the private sector, the Corporate Sustainability Reporting Directive (CSRD) is prompting business and finance providers to grapple with what the circular economy means for their operations. The regulatory environment at a European and national level will result in new models, new ventures, and a new type of risk.”

Dr. Brennan adds that Green Public Procurement will play “a fundamental market building role”. She cites the example of the Office of Government Procurement (OGP) committing in June 2024 to spend up to €30m on purchasing remanufactured laptops in the coming years.

“That is an example where the action plan and strategy was designed last year and in June 2024 the OGP introduced a procurement framework to create that opportunity for that market building in the context of ICT (Information and communication technology) and remanufacturing,” says Dr. Brennan.

The OGP estimates that over the lifetime of the contract c.60,000 remanufactured laptops could be bought over new laptops. This equates to a reduction of 19 million kilos of CO<sub>2</sub>, 72 million kilos of mined resource preservation, and 11 billion litres of water not used.

The Eco-design for Sustainable Products Regulation (ESPR), implemented in July 2024, is the cornerstone of the European Commission’s approach to more environmentally sustainable and circular products.

The Eco-design regulation, to be phased in from 2025, will be applicable to most categories of products. It establishes a harmonised framework for setting requirements for specific product groups to make them both energy and resource efficient as well as durable, dependable, reusable, upgradable, repairable, recyclable, and easier to maintain.

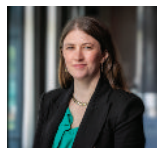
“Our key message is that the future of business is circular,” says Dr. Brennan. “If you are thinking about future proofing your business, by 2030 you will be required to demonstrate what circular principles are embedded in your product design in order to place them on the market in Europe.”

“These multiple regulatory drivers and demands will make it much harder to remain competitive if you don’t embrace circular economy principles.”

“With these EU regulatory requirements, and the whole of government strategy, the circular economy is not going away. There are competitive advantage opportunities, as there are low-hanging fruit of early adopters. Fundamentally this is about whether your business is going to be able to compete in Ireland and in Europe in the next decade.”

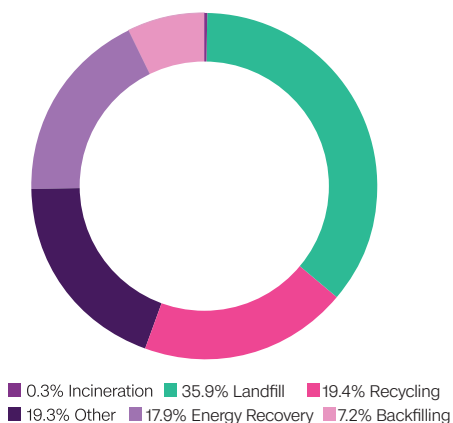
Government is maintaining momentum behind the circular economy in H2 2024 with the publication of the first Circularity Gap Report for Ireland. The Whole-of-Government Circular Economy Strategy is also due to be updated following public consultation.

“I think it’s helpful for industry to see these clear signals, so companies know that if they are pivoting in this direction there are going to be benefits, and this is something strategic to do,” Dr Brennan adds.



**Dr Geraldine Brennan**  
Head of Circular Economy  
at IMR

### Ireland's Total Waste by Treatment Type

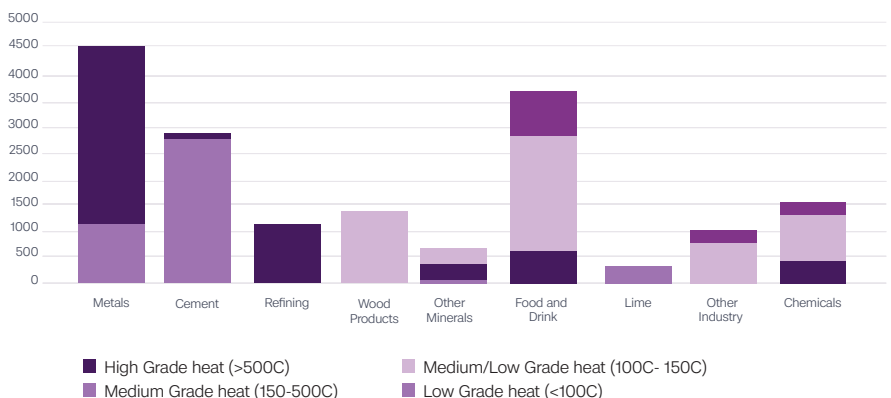


CGR © - Circularity Gap Report Ireland, 2024

### Study of Heat demand in industry by sector and temperature grade

#### Heating Demand (GWh)

Source: SEAI National Heat StudyHeat





## Case Studies



# Adman Steel Sheds

## We teach people to identify waste and non-value-added activities and to fix these issues themselves

Adman Steel Sheds in Gorey is a fast growth company that has adopted the Lean business principles to minimise waste. The company makes thousands of steel garden rooms, garden sheds and garages every year, and for founder Paul Nolan the waste issue isn't so much about metal shavings as avoiding tasks that don't add value.

"I was probably the best micro-manager you could ever meet," Paul recalls. "I would turn up for work every day and control everything. That changed when the business doubled in size in a couple of years. It got to the point where we were very disorganised, and Adman was a horrible place to work."

From reading up on Lean principles and visiting SMEs that have successfully adopted the practice, Paul concluded that the core Lean principle is identifying value-added activity.

"Value-added activity is something that your customer is willing to pay for," he explains. "If you measure any task throughout your business or your daily work, probably a maximum of 10% is value-added. Any form of waiting is a non-value-added activity, whether that is waiting for a customer to confirm an order or waiting for a colleague to finish using a tool so you can start using it."

"We will only make what the customer has ordered - we don't make standard or stock items. When you start approaching things from this Lean point of view, you start to reuse and recycle. For example, we receive panels from Kingspan wrapped in polystyrene blocks that used to fill a skip every week. Now we place those blocks in a cage and deliver them back to Kingspan so the polystyrene can be used again."

Adman Steel Sheds operates a 2 bin Kanban system, a system for replenishing stock and consumables, with two bins and a card in the middle. With ink cartridges for example, there's a cartridge in each bin. "When I use the one in the front, the bin is empty and I'll pull the one from

the back," Paul explains. "That triggers the card for a new order. We still have one in stock, and it basically means that we never run out."

"The business now runs by and large with these account cards, and they eliminate stop-start moments. Instead of working fast after you stopped because we ran out of something, the system allows everyone to move at a measured pace. With easier tasks, HR issues are reduced, and we use fewer resources than some of our competitors."

Paul cautions that Lean tools revolve around staff buy-in. At Adman Steels Sheds, there is a daily morning meeting attended by everyone in the business.

"When you are openly discussing day-to-day issues, that builds trust. We want to know what the problems are, and whenever there is an issue, the process is blamed, not the person. We also have a WhatsApp defects group. Whenever someone sees a defect or a problem, they alert it to the group. Once you know what your problems are, you have some chance of fixing them."

"We spend our time teaching people to see waste and non-value-added activities, and we then give them the autonomy to go ahead and fix these issues themselves. This is what we found was the key to creating and sustaining a Lean culture of continuous improvement."



**Paul Nolan**  
Managing Director,  
Adman Steel Sheds



## Case Studies

# Arcology System

ARCOLOGY  
DESIGN

## In the built environment, you need flexible spaces and assets that are adaptable and have residual value

The High Performance Building Alliance (HPBA) champions sustainable buildings, both new and retrofit. In developing its new Green Hub sustainability and innovation enterprise centre at Enniscorthy Technology Park, a priority was a circular economy approach to the fit-out of the building.

In the circular economy, useful design is based on using materials that are recyclable. Sustainable design extends to the lifecycle of the object and works to reduce consumption of non-renewable resources, minimise waste, allow re-use, improve recycling, and increase the overall quality of a product.

HPBA found the required solution with Arcology System, a Dublin company led by architect Colette Van Jaarsveld. Arcology is an interior construction system that offers modularity and adaptability, using recycled aluminium profiles to create a 'smart grid' that can integrate various interior components such as doors, walls, ceilings, and lighting.

The system reduces waste because when a new interior layout is called for, there is no knocking down of partition walls and dumping the waste. Instead, like a Meccano set, the various interior fixtures can be unslotted and moved around or sold to another user.

"This innovative system integrates the existing supply chain around connection hardware and enables materials to be kept in use at their highest value possible without waste," Colette explains.

"The Arcology system enables an office space to be taken apart and put back together without waste," Colette adds. "The aluminium smart grid goes in at ceiling level and the fit-out is designed according to the grid. The system has twenty-five components, and you can create any space that you want."

"Part of circularity is where the materials come from and their lifespan. In the built environment, you need flexible spaces and assets that are adaptable.

Components should be relocatable, and there needs to be residual value."

Arcology sources its aluminium from German supplier Hydro, one of the world's leading manufacturers of recycled aluminium. The metal is corrosion resistant and can be recycled repeatedly. For mixed-material combinations, mechanical fasteners such as bolts, screws, snap-fit and interlock joints make it easy to disassemble and recycle the product when it is no longer in use.

For the Green Hub project, which is scheduled to be completed later this year, fixtures such as sliding doors, glass panels and room dividers fit into aluminium slots that connect into the roof track. In this way, it is a simple job to move the location of these design components if required.

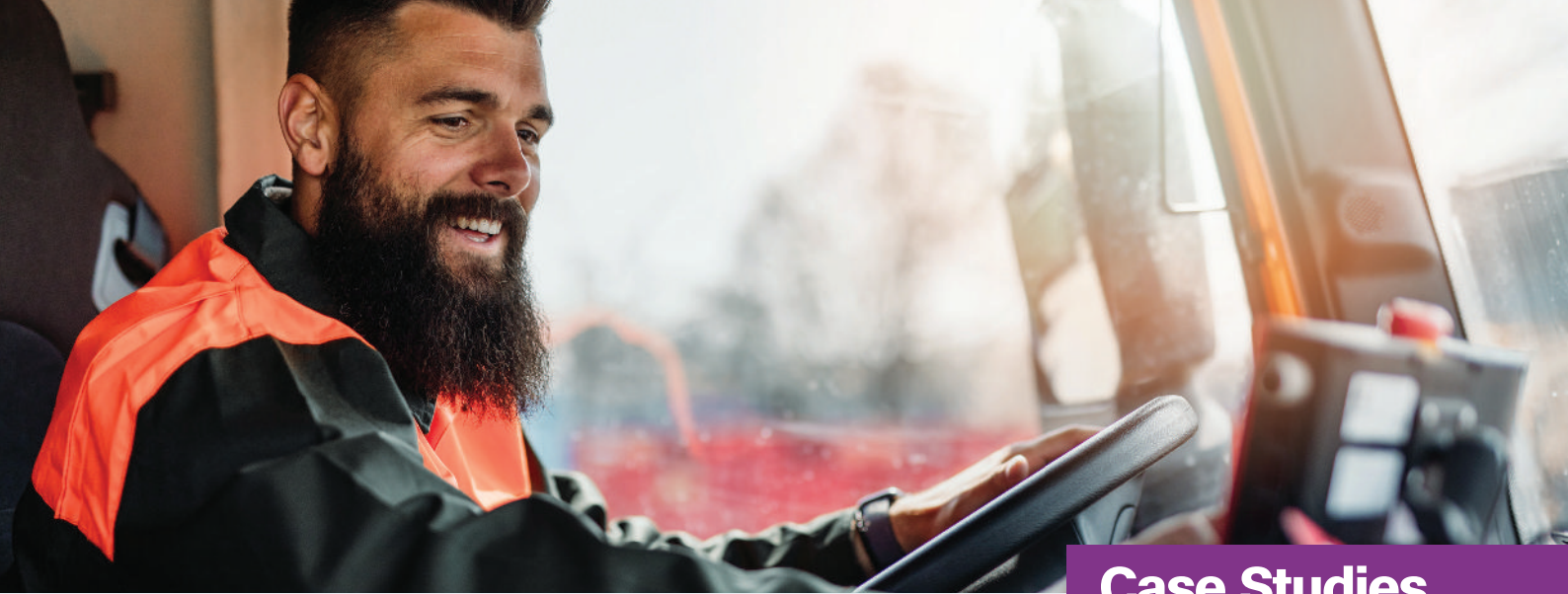
"With the grid design, you can move everything around and there is no damage as it is dry construction. There is inherent value in the components and the Arcology system extends the fit-out lifespan by at least three times. You are reusing all the time, and if a component becomes surplus you can trade it on."

Colette expects that processes that evaluate the full life cycle impacts of products will become increasingly important in the construction sector in the years ahead.

The European Union's circular economy action plan aims to reward products based on their different sustainability performance, including by linking high performance levels to incentives. This means there is a need to measure and benchmark the sustainability of products throughout their life cycle.



**Colette Van Jaarsveld**  
Arcology System, interview



## Case Studies

# KeyGreen



## Effective recycling by business is driven by awareness and training

The collection and processing of commercial waste has been transformed in the two decades since KeyGreen started in business by providing skip bags. Where waste used to be diverted to landfill, now the emphasis is very much on sustainable waste solutions, which means recycling as much of the collected waste as possible.

KeyGreen, which operates from west Dublin, employs over 250 people, and has a fleet of c.100 trucks on the road. Customers span multiple industry sectors such as manufacturing and industrial, facility and property management, leisure, food and retail, construction, government, education, and healthcare.

“KeyGreen is a very different business to when we started in 2005,” says Mark Butler, director, and co-founder. “Customers used to just want a collection service when sustainability was not an essential element of their business. Now clients view us as an advisor when it comes to how their waste and recycling is managed.”

Over the years, KeyGreen has invested in the infrastructure to recycle the waste that the company collects. “The component elements of a green bin – plastic, paper and cardboard, and aluminum cans – are processed and recycled back into the loop,” says Mark. “That infrastructure is really important to allow us to recover these waste streams in so that they can be recycled.”

Technology is a crucial element of the KeyGreen service too. Weighing systems in the vehicles provide customers with data that identify waste trends.

“Clients want to monitor on an ongoing basis how that trend is changing. If the trend is not going the right way, they can act. Ultimately, it’s the customers who have to change behaviour at their sites, and they ask us to provide support and advice on how they would do that. How we present that data is evolving too, which is important for our clients,” Mark adds.

In Mark’s view, effective recycling by business is driven by awareness and training. “One area we encourage clients to focus on is proper segregation of waste. It is much easier to recycle waste when it is properly segregated before it goes into the back of a truck,” he explains.

“The simple part is putting the right waste stream into the right bin, and that is about awareness. We provide this awareness collateral to our clients which they use to educate their staff on how to manage their waste streams at the source in a much more efficient way.”

“Waste awareness is crucial. It is all about making people aware of how they are responsible individually for ensuring they have a sustainable recycling programme in place and there has been more awareness of waste and recycling and how we do it better together.”

Mark notes that many KeyGreen customers now must demonstrate that they are dealing with their waste stream in a more sustainable way.

“That might have been a smaller tick box several years ago, but now it is much more important. To remain competitive, they must demonstrate to their stakeholders how they are doing this, and it is also a cost benefit.”

KeyGreen, which banks with AIB, has seen turnover advance by two-thirds in the past four years. Mark Butler credits this fast growth to customer engagement.

“It is the advice and support that we provide our customers on how they can be more sustainable in how they manage their waste. We invest very heavily in our waste processing infrastructure to ensure that we are providing the best in class of how we manage our customers’ waste and recycling.”

“That’s how we remain competitive ourselves and in turn ensure that our customers are managing their waste streams to best effect.”



**Mark Butler**  
Owner KeyGreen





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