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Taxation and the Circular Economy: What it means for business

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About this publication

The concept of the circular economy is becoming increasingly prevalent in discussions around supply chains, sustainability and geopolitical challenges. Many in business are asking, 'what is the circular economy?' and 'how might it impact our long-term business strategy?' How might our business reduce waste, and what reputational benefits might flow from this? More broadly, business tax leaders are asking how the circular economy might fit with potential taxation developments. What has occurred to date and what might we see 'around the corner'? What potential tax levers are out there? What impacts might they have on our business?

This paper seeks to address these issues by explaining what is generally meant by circular economy, considering what tax, tariffs, and incentive levers are being used or proposed to drive a more circular economy and at what stage might they be applied in the life cycle of certain goods — the production stage, the use stage, or the end-of-life stage? While this paper gives examples of various pieces of legislation, these are intended as examples and not as an exhaustive list of circular economy-related measures.

The paper also contains short case studies of how certain companies are taking action to act as examples of what businesses can do in relation to their own specific activities in embracing the circular economy.

As a subset of the concept of the circular economy, recent years have seen the rise of a new movement often referred to as 'the right to repair'. This concept is also explained as one of the various levers that businesses need to consider in dealing with the right to repair. This is an important development in Europe, and may well see global expansion.

Ultimately, businesses may need to deal with a future drive for a circular economy, including a right to repair. This may present opportunities for many businesses, but it can also be seen as a possible threat to certain production processes, which some industries will need to consider.

The purpose of this paper is to inform businesses of the concepts and the tax levers they may face so that they can both think through the potential issues for their long-term strategic planning, as well as consider what actions they may undertake in the short and medium term.

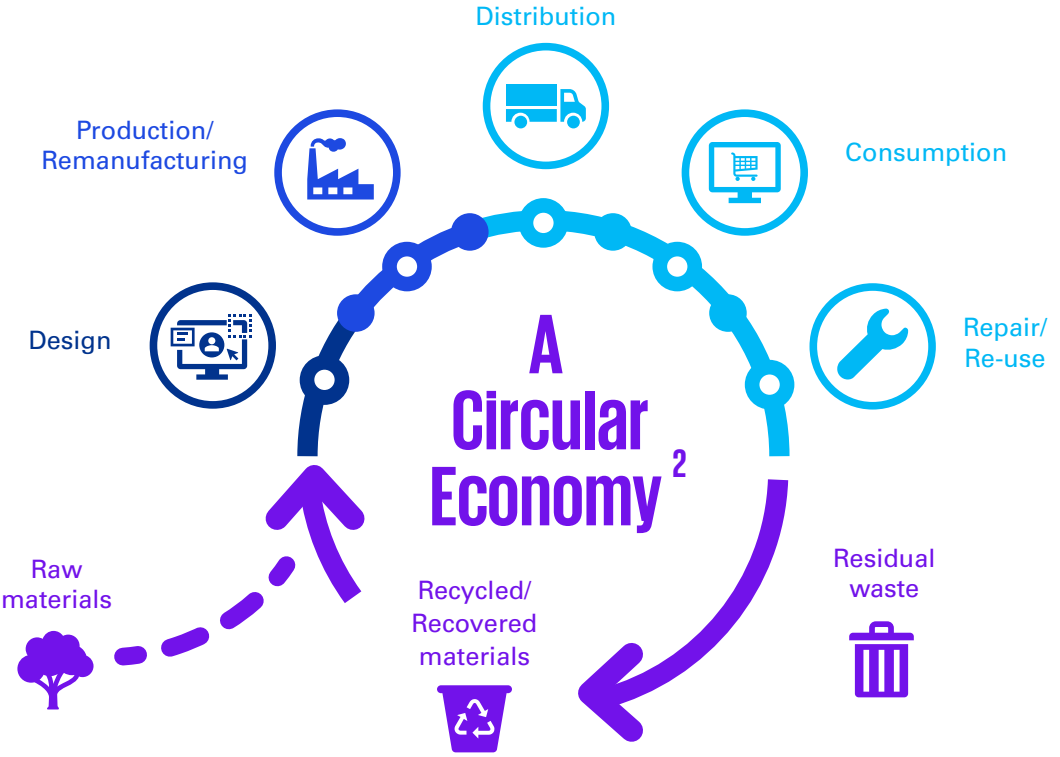
What is the circular economy?

Proponents of the circular economy argue that the traditional economic system of production is a linear economic model. This model operates under the principles of 'Take, Make and Waste' and does not have sufficient regard for the limitation of the globe's finite resources.

By way of contrast, the circular economy is proposed as a production and consumption model which is regenerative by design. The aim is to design, make, and use things within the natural boundaries of global resources. A globally recognized proponent of the circular economy, among others, is the Ellen MacArthur Foundation.[1] It defines the circular economy to be one based on the following three key principles:

1. Eliminate waste and pollution
2. Circulate products and materials (at their highest value)
3. Regenerate nature

The diagram[2] below provides an illustration of the circular economy approach.



For advocates, a circular economy has the following characteristics:

- Seeks to reuse, share, repair, refurbish, and remanufacture to extend the life cycle of products as well as recycling to create a closed-loop system
- Minimizes the use of resource inputs and the creation of waste, pollution, and emissions
- Aims to keep products, equipment, and infrastructure in use for longer, improving the productivity of resources

The principal environmental benefits are a reduced consumption of natural resources and a reduction in CO^2 emissions. For businesses, this can result in the reduction of costs over the long term. For some businesses, it can also assist in achieving carbon targets that have been announced to the market. This is particularly the case for Scope 3 emissions which are indirect emissions that occur in the value chain both upstream and downstream.

It is also argued that the adoption of a circular economy could have various business and social advantages.[3] These include higher levels of security, self-sufficiency, and sustainability, allowing businesses to fulfill customer and service obligations while maintaining costs and competitiveness. Some early-adopter businesses are incorporating circular economy principles into their business operations with a view to obtaining long term benefits.

Tax & the Circular Economy[4]

Businesses should be aware of the different levers that have been used by governments to support and speed up the transition to a circular economy. Of relevance here are taxes, tariffs and reliefs/subsidies.

For example, policies focused on waste increasingly consider "the entire lifecycle of products, [so as] to avoid simply displacing environmental burdens to different lifecycle stages or from one environmental medium to another".[5] Some academics have presented a taxation framework which considers the whole life cycle of products and the different types of taxes/subsidies that have been implemented across that product lifecycle — production, product use and end-of-life waste management.[6] This framework has been used to facilitate discussion of tax legislation and the circular economy by government policymakers. Businesses need to navigate this changing landscape.

[2] A circular economy: are you prepared for the step change in waste management? Manage mentors, 16/01/2020, https://www.managementors.co.uk/a-circular-economy-are-you-prepared-for-the-step-change-in-waste-management/

[3] For example, the Ellen MacArthur Foundation has estimated that using circular economy principles could increase annual disposable income of EU households by €3,000 and generate USD $700 million in annual cost savings for the Fast-Moving Consumer Goods (FMCG) industry.

[4] Towards a Circular Economy Taxation Framework: Expectations and Challenges of Implementation; Leonidas Milos, Published Jan 2021

[5] Towards a more resource-efficient and circular economy The role of the G20, OECD, 2021, https://www.oecd.org/env/waste/OECD-G20-Towards-a-more-Resource-Efficient-and-Circular-Economy.pdf

[6] Towards a Circular Economy Taxation Framework: Expectations and Challenges of Implementation, Leonidas Milios, 21, 01, 2021, https://link.springer.com/article/10.1007/s43615-020-00002-z

Tax at the design and production stage

Taxes at the production stage have taken the form of a raw material resource tax, which has been applied at the different stages of the production process.

Depending on the raw material and the business/industry landscape under consideration, different taxes have been levied:

- at the stage of extraction of raw materials
- at the input of materials at first industrial use
- at final consumption stage of products with embedded material

For example, to attempt to reduce instances of first use, the UK introduced a tax which charged a "£200 per tonne tax rate for packaging with less than 30 percent recycled plastic"[7]. This is intended to capture all virgin plastic used for packaging, challenging businesses to reduce packaging or find non-plastic packaging alternatives if they wish to avoid the cost.

Raw materials tax can raise costs for businesses. In doing so they also incentivize businesses to undertake research and development (R&D) and other forms of innovation to reduce such costs. They also tend to increase the demand for second-hand goods.

From an implementation perspective, tax at the design and production stage raises several issues for businesses:

- Increasing costs, particularly in the short-term as alternative raw materials sources/technology might not be available
- The impact of cross-material substitution effects
- Potential impact on trade and industries from a broader perspective

Where new legislation is introduced, understanding how it interacts with other regulation and supply chain contexts will often be critical for businesses as they implement strategies to minimize disruption to operations.

BioPak, a company dedicated to compostable food service packaging in Australia and New Zealand [8] have substituted plastics for renewable plant-based materials when producing takeaway food containers; a product which is not often recyclable due to food contamination. Although this solution does reduce plastic consumption, simply substituting it for compostable alternatives is not a 'circular' solution as the packaging may still be sent to landfill as waste.

To close the loop, BioPak collaborated with others to create a non-profit organization 'Compost Connect', which provides a service to the hospitality industry whereby organic and compostable waste are collected and composted back into soil, for reuse elsewhere.[9]

[7] Plastic Packaging Tax: steps to take, HMRC, 31/03/2023, https://www.gov.uk/guidance/check-if-you-need-to-register-for-plastic-packaging-tax

[8] Closing the loop on single-use food packaging: BioPak, Ellen MacArthur foundation, https://ellenmacarthurfoundation.org/circular-examples/closing-the-loop-on-single-use-food-packaging

[9] Compost Connect, BioPak, https://www.biopak.com/uk/disposal/compost

Tax and subsidies at the use stage

Increasingly, reliefs or subsidies have been made available during the 'use stage' of products for their reuse or repair.

One instance of this has been reduced Value Added Tax (VAT) on repair services.[10]

Consumers may incur extra costs in repairing products and/or making them fit to be reused. As a measure to alleviate the impact of such additional expenses/costs incurred by consumers for repairs and maintenance, deductions or allowances in personal taxes have been made available in some jurisdictions.

For example, Sweden, Austria, and the Netherlands apply a reduced VAT rate on repairs for products such as textiles, shoes, bicycles, and leather products. Along with this, Sweden also introduced a 50 percent deduction on labor costs for home repairs and maintenance. Individuals can claim 50 percent of the labor cost of appliance repair (up to EUR 2,500) as a deduction against their personal income.

An important question for business is the extent to which VAT reductions on repairs are passed on to the consumer. The evidence is mixed.[11] There is some evidence to suggest that the VAT reduction on the labor element of painting and plastering (housing repair services) in the Netherlands and that a reduced rate on virtually all renovation work resulted in increased commissions for work.[12]

Considerations for business when evaluating introducing/ increasing repair services:

- What product category is the good — expensive versus budget goods
- Difference in price between repairing existing products vs buying new products
- Perceived and actual product quality after repair
- Product design — is it easy or difficult to repair and could this be changed
- Availability of tax reliefs/rebates to reduce cost of any changes
- Availability of labor to undertake repairs considering skills and time required

Sojo is a business which seeks to increase the connectivity between businesses which provide repairs, and individuals which have goods — specifically clothing — that need repairing. Sojo is a mobile app which individuals can use to connect with seamsters and tailoring businesses to have their clothes collected, altered, and returned, with the aim of making clothing alterations and repairs mainstream.[13]

The Ellen MacArthur Foundation also notes how some big brands are collaborating to determine how 3D printing may revolutionize the spare parts and repair industry.[14] Being able to keep a digital design log of parts, which can be 3D printed at any time, with no physical storage requirements would, in theory, transform the spare parts industry. Their initial experiment had mixed results, with too much variation in part quality and accuracy, largely because the parts had not been designed to be 3D printed. However, later experiments were more promising, with participant company HP believing more strongly that 3D printing will change the way products are made and used.

[10] How can VAT stimulate the circular economy?, VAT update, 13/03/2023, https://www.vatupdate.com/2023/03/13/how-can-vat-stimulate-the-circular-economy/#:~:text=Reduced%20VAT%20on%20repair%20services,of%20products%20and%20reduces%20waste.

[11] VAT gap, reduced VAT rates and their impact on compliance costs for businesses and on consumers, European Implementation Assessment, Table 4, 2021, https://www.europarl.europa.eu/RegData/etudes/STUD/2021/694215/EPRS_STU(2021)694215_EN.pdf

[12] An estimate of the effects of a reduction in the rate of VAT on housing renovation and repair work: 2015 to 2020, Experian, 2020, https://www.ihbc.org.uk/resources/VAT-research-FINAL.pdf

[13] The app making clothing alterations and repairs mainstream: Sojo, Ellen MacArthur Foundation, https://ellenmacarthurfoundation.org/circular-examples/sojo

[14] Brands team up to see how 3D printing can revolutionise repair, Ellen MacArthur Foundation, https://ellenmacarthurfoundation.org/articles/brands-team-up-to-see-how-3d-printing-can-revolutionise-repair

Tax at the end-of-life stage

Tax on raw materials only impacts external costs from extraction or production processes but not from waste disposal. There may be both downstream and upstream impacts that need to be considered, and taxes have been introduced at the end-of-life stage of products to address this.

The "Circular Economy Taxation Framework" as discussed by Milios,[15] refers to the possibility of end-of-life stage taxes taking the form of a 'waste hierarchy'. This entails progressive taxes with the tax rates decreasing from landfilling (highest) to recycling (lowest) and be set to zero for waste prevention/reuse.

The hierarchy for such waste management operations (in order of increasing tax rates) is set out as:

1. Waste prevention
2. Reuse and preparation for reuse
3. Material and biological recycling
4. Energy recovery from waste
5. Disposal to controlled or uncontrolled landfills, land, or water

There are examples of jurisdictions or regions implementing some waste hierarchy taxation. An example is the EU Landfill Tax and Incineration Tax in Sweden. However, Milios states that although Sweden has multiple taxes throughout the waste hierarchy, there is no current literature which assess its efficacy.

Observations for businesses

- An end-of-life stage tax may be considered by policymakers where it is believed to have a meaningful effect on behavior. Businesses need to be prepared for the possibility of high end-of-life taxes which may change the economics of a transaction throughout the life of the product.

The Right to Repair[16]

Amongst other things the Right to Repair concept seeks to reduce such e-waste by expanding the lifespan of electronic products and making them easier to repair.

In the UK, the Right to Repair has passed into legislation. In the EU, Right to Repair is being proposed as a directive and Right to Repair bills are being introduced in various states in the US.

Here are some examples of countries which have introduced, or are considering introducing, Right to Repair rules.

[15] Towards a Circular Economy Taxation Framework: Expectations and Challenges of Implementation, Leonidas Milios, 21, 01, 2021, https://link.springer.com/article/10.1007/s43615-020-00002-z

[16] A recent report published by the World Health Organization (WHO) and UN Environment Program (UNEP) found that in 2019 the amount of electronic waste ('e-waste') generated reached a record of 53.6 million metric tonnes (Mt). It is estimated that this number will reach 74 million Mt by 2030. This makes e-waste one of the fastest growing waste categories in the world.

Current Regulatory landscape

EU	In March 2023, EU Commission proposed a directive on the 'Right to Repair' aimed at tackling the growing e-waste problem and achieve 2050 net-zero goals.
	
	The proposal includes several measures[17]:
	
	• A legal guarantee prioritizing repair of a product over replacement. Consumers are only able to request replacement if the repair is more expensive.
	• New rights and tools making repair easier and more accessible to consumers:
	  • A right for consumers to claim repair of products by producers.
	  • A producers' obligation to inform consumers about the products that consumers must repair themselves.
	  • An online national repair platform to connect consumers with repairers and sellers of refurbished goods in their area.
	  • A European Repair Information Form that consumers can request from any repairer, setting out standardized information on the conditions and price of repair services.
	  • A European quality standard for repair services.
	
	The EU Commission intends this initiative to complement other instruments that pursue sustainable consumption by means of repair. "On the supply side, the Ecodesign for Sustainable Products regulation promotes the reparability of products in the production phase. On the demand side, the proposal for a Directive on Empowering Consumers for the Green Transition enables consumers to make informed purchasing decisions at the point of sale. This proposal strengthens the demand side of the circular economy by promoting repair in the after-sales phase. The three initiatives together cover the entire lifecycle of a product, complementing and reinforcing each other."[18]

Individual country legislation within EU/EEA focused on/ related to Right to Repair	• France has introduced a Repairability Index regulation that came into force from 1 January 2021 — this regulation aims to achieve 60 percent repair rate of electrical and electronic products within 5 years. • Norway has 5-year warranty period for most consumer electronic products (which is beyond the minimum 2-year guarantee in the EU). • France, Belgium, Italy (and the UK, despite not being part of the EU) have all adopted Ecodesign legislation.[19]
UK[20]	The UK introduced a Right to Repair Law on 8 July 2021. This legislation mandates manufacturers to make spare parts for electrical appliances available within two years of the launch of a model, and then for between seven and 10 years after the model is discontinued, depending on the type of product. The rules currently will be applicable only to companies producing dishwashers, washing machines, washer-dryers, dryers, fridges, freezers, TVs, and other electronic display devices for home use. At this stage, laptops, tablets, and smartphones are excluded from this.

[17] New Global Initiatives Push for the "Right to Repair" Consumer Goods, Lexology, 20/04/2023, https://www.lexology.com/library/detail.aspx?g=b68e91c4-814f-4069-921d-c2153da8aaf2

[18] Right to repair: Commission introduces new consumer rights for easy and attractive repairs, European Commission, 22/03/2023, https://ec.europa.eu/commission/presscorner/detail/en/ip_23_1794

[19] Reduce, Reuse, Recycle, Repair? Current and Future Right-To-Repair Rules in The European Union and United Kingdom, The National Law Review, 18/08/2022, https://www.natlawreview.com/article/reduce-reuse-recycle-repair-current-and-future-right-to-repair-rules-european-union

[20] UK's 'right to repair' laws come into force, in bid to cut electrical waste, edie, 01/07/2021, https://www.edie.net/news/11/UK-s–right-to-repair–laws-come-into-force–in-bid-to-cut-electrical-waste/

US	In the last few years, consumer activism has grown in the US around Right to Repair legislation. This increase preceded the 2021 report by the US Federal Trade Commission (FTC) "Nixing the Fix: An FTC Report to Congress on Repair Restrictions,"[21] which concluded that '*while manufacturers have restricted repairs of their products … there is very little evidence to support their justifications for such repair restrictions*'. In July 2021, President Biden signed an executive order[22] directing the FTC to draft new regulations limiting manufacturers' ability to restrict independent repairs of their products. While no direct federal legislation has been released the FTC has been empowered to take more direct action and has even pursued three cases against manufactures introducing illegal restrictions around repairs within warranty contracts.[23] By early 2023, at least five states have passed their own right to repair legislation with approximately 20 having right to repair legislation in the proposal stage.[24]

What Right to Repair means for businesses

In some cases, the Right to Repair may contribute to circular business models helping form a competitive advantage. This is the case particularly when the producer can also perform repairs in a way that is cost-effective to the consumer, ensuring they do not go to a third party.

The following assists businesses to analyze the impacts:

Changes to business operations/supply chain	Right to Repair could create a fundamental change in the way companies' design and manufacture products impacting a lot of activities across the value chain of an organisation — right from product design/R&D, manufacturing to after-sales services. Supply chain activities and processes may need to be revisited to secure availability of repair/after-sales services.
Financing structure	Right to Repair schemes may also require businesses to maintain an additional inventory of spare parts and raw materials of their products. This may create the need for additional working capital, potentially impacting the firm's financing arrangements and capital structure.
Innovation	Businesses may need to rethink their product design and offerings. This could facilitate increased innovation within an organisation.
Employment creation	Right to Repair schemes are likely to create a need for upskilling existing labor force and/or training a new workforce to meet the repairs/services requirements — this in-turn could generate employment opportunities.

What role could businesses expect tax to play in facilitating Right to Repair?

Governments are starting to adopt a policy shift towards repair rather than disposal of old goods to acquire new ones. This will likely result in increased costs for manufacturers and potentially for consumers if it proves more expensive to repair an object rather than replace it. Some countries have already demonstrated that there are several ways in which tax policy has alleviated costs for both manufacturers and consumers.

[21] Nixing the Fix: An FTC Report to Congress on Repair, Federal Trade Commission, May 2021, Restrictions https://www.ftc.gov/system/files/documents/reports/nixing-fix-ftc-report-congress-repair-restrictions/nixing_the_fix_report_final_5521_630pm-508_002.pdf

[22] Joe Biden Wants You to Be Able to Fix Your Own Damn iPhones, WIRED, 09/07/2021, https://www.wired.com/story/biden-executive-order-right-to-repair/

[23] FTC announces three right-to-repair cases: Do your warranties comply with the law?, Federal Trade Commission, 07/07/2022, https://www.ftc.gov/business-guidance/blog/2022/07/ftc-announces-three-right-repair-cases-do-your-warranties-comply-law

[24] New Global Initiatives Push for the "Right to Repair" Consumer Goods, Lexology, 20/04/2023, https://www.lexology.com/library/detail.aspx?g=b68e91c4-814f-4069-921d-c2153da8aaf2

Business issues and associated taxes or tax reliefs

	Tax measure — general	Examples of tax legislation
Reduced labour taxes and 'National Insurance' contributions	Repair and maintenance services are job intensive. They require personal attention, time, and craftsmanship. It is likely that a business model centred around repairs will require more personnel than one based on replacing old goods with new. One complexity for manufacturers could be related to 'repairers' who have split responsibilities working on both the initial production and subsequent repair/reuse activities. Some governments have sought to therefore reduce the tax burden on labour to lower the cost, enhance profitability and therefore scalability of such activities.	Sweden has tax breaks for repair — individuals can claim 50 percent of the labor cost of appliance repair as a deduction against their taxable income.[25]
Use of R&D credits/Patent Box legislation	R&D credits/Innovation Box/Patent Box legislation have been introduced or expanded to facilitate innovation & design of more repairable/reusable products. In jurisdictions where such rules are already in place, some administrative processes have been introduced to speed-up review of Patent/R&D credit applications.	Currently, accelerated examination of qualifying patents for green technologies/IP already exists in the UK, the US, Australia, Japan, Canada, Israel, and Korea. The Netherlands operates an R&D tax credit scheme which gives both corporate tax relief for expenses and a payroll tax allowance for part of a business's wage cost which relates to R&D.[26]
Tax reliefs for individuals to support recycle/reuse/repair	Various tax reliefs like reduced VAT rates have also been considered for recycling/repair services. Like the reduced VAT rate, additional tax deductions/allowances have been introduced for individuals for costs and expenses incurred in repairs/reuse of products.	As outlined earlier Austria has already introduced such VAT reduction. Sweden has tax breaks for repair — individuals can claim 50 percent of the labor cost of appliance repair (up to EUR 2,500) as a deduction against their taxable income.

[25] Sweden is paying people to fix their belongings instead of throwing them away, World Economic Forum, 27/10/2016, https://www.weforum.org/agenda/2016/10/sweden-is-tackling-its-throwaway-culture-with-tax-breaks-on-repairs-will-it-work/

[26] R&D tax credit (WBSO), Business.gov.nl, accessed 29/06/2023, https://business.gov.nl/subsidy/wbso/?gclid=Cj0KCQjw18WKBhCUARIsAFiW7JzfTRQPHkfd98UzCN7cvInQWAUFiJe1zWLyr6zTwccfKKnmu79dE5UaAkXOEALw_wcB

Higher/Additional taxes to influence consumer/ manufacturer behaviour	Businesses may still be subject to a combination of various other increased/ additional taxes — in addition to the above tax incentives/reliefs — to encourage adoption of right to repair legislation/schemes. If governments seek to offset the cost of existing tax incentives, businesses will need to closely monitor other tax rates and the introduction of new taxes. For example, a higher rate of landfill tax could be introduced to incentivise manufacturers and consumers to promote repair/reuse/recycle or higher VAT rates may be introduced on non-essential new e-goods. Businesses will need monitor local regulations and take a decision on how to strategically respond to any such changes.	The UK's landfill tax, which has been in place since 1996. "Between 1998 and 2014 HM Treasury increased the standard rate of Landfill Tax by 700 percent in real terms, contributing to a 65 percent fall in total waste to landfill over the period".[27] However, it is not clear to what extent this reduction is due to waste dumping, misclassification of waste, recycling, or reuse of products.

As the circular economy agenda seeks to reduce waste and reduce raw materials inputs in all stages of the system, businesses will have to holistically manage all parts of their production and supply chain.

The tax function can be a critical part of the business in determining what tax reliefs or incentives are available for consumers and manufacturers to reduce costs. They can also can help influence strategic decisions about supply chain etc., by providing insights on whether the business will be subject to higher taxes on pollution, landfill and inputs or extraction of virgin materials from the earth or additional taxes like plastics tax, water tax, taxation of fossil fuels used as non-energy resource in the production of plastics and other materials, higher VAT for non-essential products / e-goods, etc., will also signal the intention of government to move towards a circular economy.

KPMG can assist in this process

There are four key areas where KPMG can assist businesses in embracing the circular economy.

These are:

- **ESG specialists** who can identify government initiatives that impact the circular economy including determination of the carbon footprint for an organization
- **Supply chain specialists** who can consider the role of supply chain both for specific businesses and as a broader component of supply chain
- **R&D and grant specialists** who have experience with grants and concessions globally
- **Tax specialists** who can assist when considering environmental taxes and tax aspects of the circular economy

[27] Environmental tax measures, National Audit Office, 12/02/2021, https://www.nao.org.uk/press-release/environmental-tax-measures

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