

# The Circular Economy Revolution: The future of waste processing for Europe

[Originally published May 2015](#)

Jenny Waites<sup>1</sup>

## The EC and UK reports

In July 2014, the European Commission published its legislative proposals to review recycling and other waste-related targets. Around the same time, the UK government published its report, *Growing a Circular Economy: Ending the Throwaway Society*.

Both reports recognised that the way we consume resources in the UK and throughout Europe is not sustainable. All resources need to be managed more efficiently throughout their life cycle and the current 'linear' approach (where materials are extracted, made into a product and used only for one purpose before the product is discarded) wastes valuable resources and damages the environment.

The EU circular economy package came under threat with the change of European Environment Commissioner in 2014 and was quietly dismissed by the College of Commissioners on 25 February 2015 despite protests from the European Parliament and EU environment ministers. The package will be formally withdrawn and resubmitted later this year.

In its place the European Environment State and Outlook 2015 Report (**SOER-2015**) written by the European Environment Agency will inform the next five years of EU policymaking. The report states that despite recent progress in waste prevention and management, EU waste generation remains substantial, and performance relative to policy targets is mixed. 'Waste management will need to change radically in order to phase out completely the landfilling of recyclable or recoverable waste,' the report says.

## A zero waste programme for Europe

The first step towards legislative change was found in the European Commission's 2014 communication, *Towards a Circular Economy: A Zero Waste Programme for Europe*. The communication was issued as one of the final acts of the outgoing Environment Commissioner, Janez Potočnik, and it sparked much commentary from the waste industry and interested parliamentarians.

However, the EU Commission First Vice-President Frans Timmermans was given a mandate from new Commission President Jean-Claude Juncker to cut red tape and deliver 'better regulation'. The circular economy package came under immediate scrutiny.

The abandoned package of proposals included:

- setting a resource efficiency improvement target of 30 per cent by 2030
- raising the municipal waste reuse and recycling target from 50 per cent to 70 per cent by 2030, and raising the recycling targets in the Packaging Directive to 80 per cent by 2030
- cutting food waste by 30 per cent by 2030

---

<sup>1</sup> Associate, Norton Rose Fulbright, London. To contact Jenny, click [here](#).

- banning the landfill of recyclable waste by 2025, and by 2030 extending the ban to all recoverable (including energy recovery) municipal waste
- limiting energy recovery to non-reusable and non-recyclable waste.

It is not yet clear what will replace these proposals but Vice President Timmermans promised MEPs in December 2014 that the new legislation would be tabled in 2015 and would be ‘more ambitious’. He later added that the new bill would include laws to prevent waste being created in the first place and would involve legislating to encourage the use of materials that create less waste and which are easy to recycle. This, he said, can be achieved by ‘completing the circle’.

Whatever the EU comes up with Member States have, by agreeing the 2013 Seventh Environment Action Plan (**EAP**), committed to a process of more efficient implementation of legislation in an effort to move towards a circular economy.

“In contrast to the current ‘linear’ approach, a ‘circular’ economy encompasses a range of processes, or ‘cycles’, in which resources are used repeatedly, thus maximising sustainable use and eliminating waste.”

### **A circular economy**

In contrast to the current ‘linear’ approach, a ‘circular’ economy encompasses a range of processes, or ‘cycles’, in which resources are used repeatedly, thus maximising sustainable use and eliminating waste. A circular approach is also beneficial, economically-speaking, as the value of the resource is more likely to be maintained at each stage.

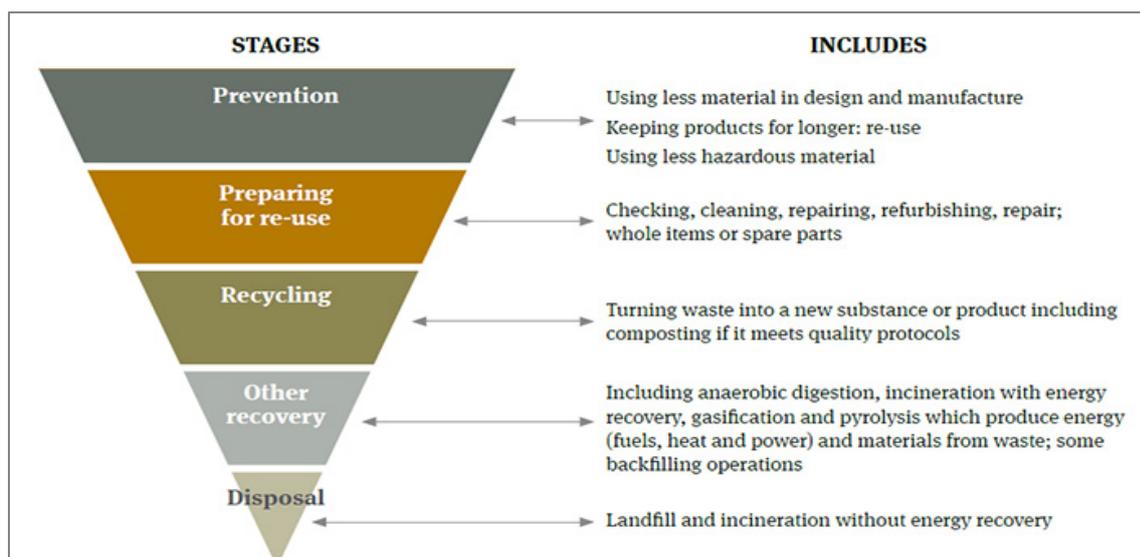
With global consumption levels on the rise, an international response to relieve pressure on resources is required. Scaling up a circular economy to an international level will require government support within EU Member States and many would welcome a coordinated approach by world leaders to introduce positive legislative drivers. As indicated by the EU, these are likely to include waste prevention targets and incentives to promote eco products that are easier to reuse, remanufacture and disassemble.

### **Measuring the circularity of the economy**

There are several ways to measure the economy’s ‘circularity’. One headline figure is the household recycling rate, which reached 43 per cent in England in 2012–13, up from 12 per cent in 2000–01. However, waste collected by local authorities forms only 13 per cent of total waste produced in the UK. The main components are construction and demolition waste (49 per cent) and commercial and industrial waste (24 per cent).

In England, waste policy and regulation is informed by the ‘waste hierarchy’, as required by the EU Waste Framework Directive, and transposed into law by the Waste (England and Wales) Regulations 2011. The hierarchy, which is consistent with the circular economy approach is shown in Figure 1.

**Figure 1: The Waste Hierarchy** (<http://www.ukwsl.co.uk/environment/compliance/waste-hierarchy>)



### Impact of the Commission’s plan

Implementing new EU legislation, in whatever form that takes, will undoubtedly impact upon the European waste management industries as Member States incorporate the higher municipal waste recycling rates into their national environmental plans.

As well as the need for more infrastructure to accommodate greater circularity, any measures that drive towards greater reuse and recycling will have an impact on existing waste treatment facilities, especially waste-to-energy plants. The drive to limit energy recovery from recyclable material could have the most significant impact on existing waste processing facilities.

The output of any incineration plant depends on the calorific value (**CV**), or energy content, of the fuel being brought into it. Recyclable materials are used to keep the CV at an optimal point. If the quantity of paper, plastics and other recyclable materials in the Energy from Waste (**E-f-W**) process is reduced, this affects the CV of the fuel and hence the process’ efficiency.

### Sourcing alternative technologies

To maintain the output of electric power, throughput has to increase, which in turn stresses the modelled predictions regarding the plant’s life cycle and maintenance. Waste processors would inevitably need to source a new fuel with a higher CV, such as refuse derived fuel (**RDF**), which can range from 7 to 30MJ/kg (compared to non-recycled plastic, which has an average CV of 35.7MJ/kg) If high-CV items are removed entirely, operators would have to source even greater volumes of waste to match the originally modelled power output.

The increased pressures on existing E-f-W plants are also likely to inform a change in strategy for EU countries that are currently dependent upon and planning more incineration-based E-f-W facilities. Capacity is very uneven across the EU, with some Member States struggling with over-capacity while others have little or no capacity to meet existing EU targets, let alone the more extensive targets that have been suggested.

## **Investing in new infrastructure**

The 2014 report produced jointly by the UK Green Investment Bank (**GIB**) and specialist waste consultancy Tolvik concluded that an additional £5 billion of investment was required in the UK alone to close the gap between waste produced (post recycling) and the infrastructure available to process it.

A move to a more circular economy will need investment in new infrastructure, not least to increase capacity for recovery of reusable materials. For many of the existing major waste facilities financed through public–private partnerships (**PPP**) or private finance initiatives (**PFI**), there may be comfort under ‘change in law’ provisions in the long-term concession agreements.

However, for ‘merchant’ or privately contracted commercial waste facilities that depend on selling waste processing capacity on a more bespoke basis, there will be a greater challenge. They will need to finance new materials separation facilities or demonstrate that their existing economic model is still viable after a wholesale removal of high-CV recyclates from the waste stream. Promoting viable alternative options is likely to need greater government backing than is currently available.

## **Finance for new technologies**

Without incentives and a progressive approach by central governments, alternative options will continue to struggle. Projects that include unproven technology will find it particularly hard to attract lenders and investors. Whilst the EU waste market is, on the whole, well established and there is already significant intellectual capital among bankers and investors, it is anticipated that those who have acquired know-how in developing and financing large scale PFI/PPP projects are likely to look to expand into a new space in the circular economy.

As a result of the increased risk associated with alternative technologies, developers can expect to see more stringent lender requirements and a shift away from the cautious yet moderate terms found on more established PFI/PPP schemes. To temper this, developers will need to present more innovative financing and delivery structures.

“Without incentives and a progressive approach by central governments, alternative options will continue to struggle.”

## **A future for incineration?**

In the UK, the government is keen to promote the ability of the GIB to invest in ‘pioneering projects’, such as specialist fuel supply and anaerobic digestion. GIB has already provided debt, equity and mezzanine finance to UK waste projects. However, the government’s report stated that it would like to see GIB move away from investments in incineration infrastructure (which represents over 90 per cent of its total waste sector investment since its creation in 2013), including projects related to E-f-W plants, because these potentially divert materials away from recycling and limit circular economy activity.

Although this view of incineration infrastructure is not necessarily shared by the industry, it has been recognised that GIB’s funding of anaerobic digestion plants (a method far removed from incineration) is an incredibly powerful signal to other potential investors that this is a technology, a process and a part of the market in which it has confidence, and is willing to invest.

## **Circular economy – a political dialogue?**

The circular economy is high on the political agenda. On a global scale, much of the 2015 World Economic Forum in Davos focused on circularity of resources.

At a European level, those pro-circular economy await the new, and 'better', legislative proposals of the European Parliament. Industrialists have also joined the debate, with the CEO of Heineken leading talks with the European Commission on the concept.

Domestically, waste and recycling, as an overarching theme, are not normally central to party manifestos in a general election. The Liberal Democrats' manifesto submitted ahead of the 2015 UK general election, however, has fully embraced this hot topic, referring to a circular economy, and placing action plans and binding targets in relation to reducing waste levels and ending landfills at the forefront of their green policies. Achieving a circular economy, therefore, seems set to continue in the dialogue of global, European and UK politics and infrastructure over the coming years.

### **The circular economy revolution?**

There is an uncertainty about what the next wave of waste management legislation is going to look like. Both the EU Commissioner and Commission Vice-President have publicly announced that they aim to strengthen the legislative packages: that illustrates the vital importance of the circular economy and resource efficiency for wellbeing and competitiveness.

Whatever the regulatory background, a circular economy requires businesses to rethink more than just their resource footprints and energy efficiency. It demands a more radical restructuring of business models.

Janez Potočnik, now co-chair of UNEP's International Resource Panel, spoke recently after collecting his 2015 Circular Trophy for leadership. 'We have to fundamentally rethink the economic model,' he said. 'The message is that it is possible to create opportunities.'