ORGALIME

Position Paper

Brussels, 18 April 2016

POSITION PAPER ACTION PLAN CIRCULAR ECONOMY: CLOSING THE LOOP

EXECUTIVE SUMMARY

Optimising the use of resources to ensure that growth is green and inclusive is a concept that makes sense and should lead to a major shift in the entire economy.

Together with the Energy Union, Digital Single Market and the Internal Market for Products and Services, the Circular Economy is one of the core pillars, which, if well designed and part of a joined up and coherent policy approach will contribute towards the core overall sustainable jobs and growth objective as well as European technology leadership.

Orgalime´s industry, with its output of 1800 billion euro in 2014 and 10.3 million employed in Europe, supports it and does attach significant importance to the development of a Circular Economy policy, which is integrated with all other policy areas currently under development.

We see particular potential in "*working with the ongoing digitalisation trend in European manufacturing*" as it is fit to simultaneously boost productivity, energy efficiency and resource efficiency in Europe. At the same time, European citizens will enjoy higher quality jobs at all levels. We attach a list of examples in the annex to demonstrate quickly achievable results.
The present Commission Action Plan unfortunately falls short in tapping into these promising policy synergies. We therefore call on regulators, European and national, to exploit such synergies as a matter of priority in the transition to a more Circular Economy.

Further promising actions for modernising Europe´s industry in the context of the Circular Economy and Resource Efficiency should, in our view, include the following – these have been partly tapped by the Commission proposal, partly improvements would still be necessary:

- *Starting action at the end of life stage where the so-called loop will (have to) be closed in practice* – we call for:
  - a landfill ban of recyclable wastes.
  - stopping illegal shipments of waste electrical and electronic equipment.
  - complementing producer responsibility with "shared responsibility obligations" for all actors in all steps of the waste management chain ("EPR").
- *Setting of minimum quality criteria for secondary raw materials based on ISO or EN standards to stimulate a long term market for recycled materials*: not only sufficient quantities and delivery reliability matter, but intelligent collection and modern sorting equipment to maintain clean streams to the extent possible would make secondary raw materials more attractive for use.
- *Improving legislative consistency*, notably between EU waste and chemicals policy in application of a risk based approach to preserve Europe's high level of human health and environmental protection.
- *Applying the Life Cycle Costing principle in public procurement.*

Orgalime, the European Engineering Industries Association, speaks for 42 trade federations representing the mechanical, electrical, electronic, metalworking & metal articles industries of 24 European countries. The industry employs some 10.3 million people in the EU and in 2014 accounted for more than €1,800 billion of annual output. The industry accounts for over a quarter of manufacturing output and a third of the manufactured exports of the European Union.

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- Better recognising *industrial symbiosis,* promoting *remanufacturing* and better using *the Industrial Emissions Directive and EU standards* for the deployment of existing sustainable technologies.
- Leaving sufficient flexibility for the industry to develop and implement the *necessary variety of business models* to reflect the different products, sectors and companies and their different challenges.

However, we do caution regulators on having high expectations in the short term through the Ecodesign Directive: in the absence of a common methodology and product specific standards, further resource efficiency implementation under this Directive remains unmeasurable, unenforceable and therefore premature today. Our industry remains committed to continuously improving the life cycle impacts of its products so that consumers, industry and the environment benefit alike.

Likewise, we remain committed to proactively contribute to the implementation of the present Action Plan under these system boundaries.

We comment hereafter in more detail on the potentials of the different measures proposed in the action plan to bring resource efficiency and economic growth together in a consistent manner, and we call on the European institutions to implement the Action Plan in a way that indeed boosts manufacturing competitiveness in Europe.

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1. THE FIRST PRIORITY: TAPPING POLICY SYNERGIES THROUGH INNOVATIVE TECHNOLOGIES MANUFACTURED IN EUROPE

Innovative technologies are offering many new opportunities: the uptake of these, especially the use of ICT in technologies manufactured in Europe, can boost productivity, energy, resource and cost efficiency at the same time. This is a reality and is developing fast. This is good for business, good for employees and good for the environment, as the following examples demonstrate.

We therefore recommend prioritising tapping into these policy synergies in the transition to a more Circular Economy.

(1) *More green energy and less waste through use of sensors and data analytics*:
A Danish producer of wind turbines increases the efficiency of 25000 wind turbines through predictive maintenance: each of the turbines is equipped with sensors. These 25000 turbines send their performance and diagnostic data, which allows the producer to precisely plan maintenance and inspection. These may then be carried out during times of lower demand and according to weather conditions. Wind turbines down-times are reduced considerably. The lifetime of parts is increased; the need for spare parts reduced; less waste is generated and staff benefits from improved planning.

(2) *Less fertiliser use due to increased use of ICT in agriculture equipment:*
Precision farming is increasingly used to ensure optimal growth and quality of crops. Instead of a uniform application of fertilisers, which does not reflect the natural variation of nutrients already in the soil, a more advanced method is used: A real-time nitrogen-sensor, installed at the front of the tractor, measures automatically the exact amount of nitrogen in the leaves, be it day or night. Its computer then tells the fertiliser spreader (or sprayer, for liquid fertiliser) at the back of the tractor to deliver the optimal quantity of fertiliser. Fertiliser savings of up to 14% and an average productivity increase of up to 6% result in a direct benefit to the farmer while preserving the environment.

(3) *Less water and energy use through sensors and data analytics*:
The Austrian skiing resort Mayrhofen has equipped its snow groomers with sensors. In combination with GPS and a detailed, electronic map, this system measures the exact height of the snow coverage when operational on the slopes during the night. This system is interconnected with the operation system of the snow generators.

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The precise data transmitted allows the ski resort to produce less additional snow, under ideal metrological conditions and precisely at the places where it is needed. Besides saving on capital through less equipment and a better maintenance schedule, the ski resort managed to save per season up to 25% of the water and electricity previously used for snow production. Cash savings in Year 1: seven million euro

(4) *Resource savings through the use of ICT in manufacturing:*
A Hungarian manufacturer did an internal analysis of its production facilities. He put sensors throughout the plant and found multiple savings, including in the heating and cooling systems: By connecting the compressor cooling system to the hot water production for showers of workers, which are simultaneously used, energy savings were realised that translated into some 100.000 Euro annual cost savings.

(5) *Resource savings through the use of ICT in manufacturing:*
A major automobile manufacturer analysed in detail for where they use energy (which represents a relatively minor part of costs). 4% is used for compressed air and vacuum production. The company managed to save 37% of these costs in one plant. Now it is going to apply the solution to the group to realise energy savings.

(6) *Resource savings through the use of ICT in manufacturing:*
Wheel manufacture: the air tightness of wheel rims are tested under helium, which used to be wasted. Now it is recovered by around 98% through vacuum pumps, thus generating resource savings.

(7) *Resource savings through the use of ICT in manufacturing:*
Through the use of digital technologies in (cloud based service lead for optimising logistics of trucks, personnel and fuel), a Finnish company reduced costs and burden on the environment for collection and transport of waste in cities by 50%.

2. PRODUCTION

We challenge the understanding of the Commission that manufacturers produce waste. Manufacturers produce products that have environmental impacts over the different life cycle phases, such as the design phase, the production phase, the use phase or the end of life stage of the product. Isolating waste phase related product aspects from a life cycle perspective would be a conceptual error risking environmental burden shifting from the waste phase to other life cycle phases of the product. Besides, manufacturers already strive for continuous improvement of the production processes, including the decrease of any residual material.

The action plan states that “A circular economy starts at the very beginning of a product´s life.” **While a product’s end of life impacts are also influenced at the design phase it is the end of life stage that will decide if the loop is indeed closed and the circular economy can develop.** Therefore, the prominent place given to **the Ecodesign Directive** and its application in the electrical and electronic equipment sector as *THE* solution for Circular Economy without effectively starting to close the loop end of pipe appears overoptimistic in terms of effectiveness and prompt delivery of sustainable environmental and economic results, and overall, more politically motivated than science-based.

In fact, considering its holistic approach, ecodesign implementation to date already has led to the setting of resource efficiency requirements, though to the extent that it makes overall environmental, social and economic sense.[1] This we support.

[1] Out of 29 finally adopted implementing measures, 21 measures include resource efficiency requirements:
- 7 measures include information requirements on disassembly and/or disposal at end of life[1];
- 3 measures include maintenance or disassembly instructions or information requirements;
- 3 measures include information requirements on hazardous substances (mercury/lead),
- 4 measures set noise requirements,
- 2 measures regulate also on emissions to air and NOx,
- 1 measure sets a durability requirement and
- 1measure includes requirements on water consumption

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The recent **study of the German Environmental Agency (UBA) on "planned obsolescence"**[2] could not find any evidence of manufacturers purposefully shortening product life, through so-called built-in obsolescence, while it has been found that consumers increasingly change appliances despite the fact that they still fully function.

- The average first use phase of large household appliances such as washing machines or ovens, has been identified as 13 years. In televisions, this phase lasts about six years. For many devices, a second use phase occurs so that the technical lifetime may exceed the first use phase significantly.
- Regarding consumer behaviour, the study confirms that in many cases, devices are not used for their full life span. In about one third of all replacement purchases, so the researchers found, the replaced device was still fully functional.
- The UBA proposal to introduce resource efficiency product measures, including a label of life expectancy and more repairable products is inconsistent with these findings and also can be criticised from a technical point of view: such measures would require that durability could be measured in an accurate, reliable and reproducible way. However, this is not possible today. A harmonised European measurement methodology for the durability of electrical equipment does not exist. In addition, due to the large variety of products, adequate market surveillance would not be possible. Orgalime rejects the introduction of regulation that cannot be followed up by effective control and enforcement by market surveillance authorities. Finally, the reasons for consumers to change earlier than necessary are often related to other factors, such as fashion or trend or the wish to have the latest technology. We have difficulties to see what labelling or repair measures on appliances that are still working would bring in practice.
- Waste prevention and resource preservation: here the overall goals of the study are strongly supported by the industry.

Finally, in the absence of a common methodology and product specific standards, further resource efficiency implementation under this Directive remains unmeasurable, unenforceable and therefore premature today. Our industry therefore remains committed to continuously improving the life cycle impacts of its products so that consumers, industry and the environment benefit alike.

Hence, from a wider resource efficiency perspective, there are still potentials in making production processes more resource efficient. The dissemination of innovative technologies, such as ICT enabled technologies, for example, would be fit to tap holistic system savings in production processes.

The following measures in our view bring resource efficiency and economic growth together in a consistent manner:

- Exploit the opportunities that the increased use of ICT in manufacturing ("Internet of Things"/"Industrie 4.0") will bring throughout the economy
- Establish an open, pan-European network of technological infrastructures to integrate advanced manufacturing technologies in their production processes
- Establish a landfill ban of recyclable wastes and especially those that are subject to specific EU waste management legislation
- Combat illegal leakage and waste shipments of waste electrical and electronic equipment (WEEE) and used EEE through strict implementation and enforcement of EU waste policy, including strengthened cooperation between Member States and minimum levels of inspection, a WEEE collection rate based on "WEEE generated" and the monitoring and reporting on municipal self-marketing of WEEE and recycling output
- Develop a common methodology for the evaluation of non-energy parameters of energy related products with the involvement of the Ecodesign Consultation Forum

[2] https://www.umweltbundesamt.de/en/press/pressinformation/lifetime-of-electrical-appliances-becoming-shorter

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- Supplement the Commission´s standardisation request on material efficiency with product specific standardisation requests, as implementation on consumer products progresses
- Apply the "repair as produced" principle horizontally to ensure availability of spare parts and the longest possible use phase of repairable products
- Finish the ongoing ecodesign implementation on remaining lots and pending reviews as a priority of the Ecodesign Working Plan
- Include sector specific guidance on the optimization of resource use into Best-Available techniques reference documents (BREFs) under the Industrial Emissions Directive

However, the following proposed measures should not be pursued:

- Using the existing Product Environmental Footprint Methodology to measure and communicate environmental information of products covered by the Ecodesign Directive, since this methodology leads to misleading results when used for comparing between them products of different manufacturers.
- Horizontal ecodesign measures, since insufficiently adapted to address product specific needs, consumer expectations and differences between Business-to-Business and Business-To-Consumer products.

3. CONSUMPTION

Consumers' expectations, behaviour, willingness to pay and affordability will indeed be critical factors in the practical implementation of the Circular Economy. It should be looked at as strongly as the design, production and waste phases.

To date, many barriers remain to be overcome, including the following:

- Initial product price leads to the consumers´ main buying decision
- A lack of maintenance, improper maintenance or use of products by consumers negatively impacting product performance, including product lifetime, and consumer use leads to degradation and loss of quality of materials
- Consumers do not separate waste well at the end of life stage despite labelling of waste EEE
- Consumers do not return waste appliances (but store them and dispose of them in household waste or other)
- Innovative business models (performance based contracting) are not very popular with the general public.

The following measures in our view bring resource efficiency and economic growth together in a consistent manner:

- Action on Green Public Procurement: introduce the Life Cycle Costing principle
- Better enforcement of the existing mandatory 2 year guarantee on products
- Apply the "repair as produced" principle horizontally to ensure availability of spare parts and the longest possible use phase of repairable products
- Gather information and motivation about how to improve use patterns and what impacts consumers can have, and enhance resource efficient consumer behaviour.

However, the following proposed measures should not be pursued:

- Using the existing Product Environmental Footprint Methodology to measure and communicate environmental information of products covered by the Ecodesign Directive, since this methodology leads to misleading results when used for comparing products of different manufacturers with each other.

4. WASTE MANAGEMENT

Instead of giving priority to product design, a true drive for long term, sustainable economic models would indeed come from **starting action at the end of a product's life cycle stage** where the so-called loop will (have to) be closed in practice.

As long as waste appliances are still landfilled or illegally shipped, the best ecodesign measure will not result in environmental gains. Therefore, a landfill ban of recyclable wastes, stopping illegal shipments and complementing producer responsibility with "shared responsibility obligations" for all actors in all steps of the waste management chain, would be essential first steps.

The following **facts and figures** underpin the above arguments for the case of the electrical and electronic equipment (EEE) sector:

- The EU FP7 study on "Countering Illegal Waste EEE Trade" coordinated by INTERPOL[3] found that **only 35% (3.3 million tons) of all the e-waste discarded in 2012, ended up in the officially reported amounts of collection and recycling systems.**
  The other 65% (6.15 million tons) was either *exported* (1.5 million tons), *recycled under non-compliant conditions in Europe* (3.15 million tons), *scavenged for valuable parts* (750,000 tons) or simply *thrown in waste bins* (750,000 tons). It reports that 1.3 million tons departed the EU in undocumented exports, likely to be classified as illegal and the main economic driver behind these shipments being reuse and repair and not the dumping of e-waste.
  In other words:
- **2/3 of waste EEE (WEEE) are handled by other economic operators than producers at the end of life stage due to its economic value.** These other actors do not fall under the EU's extended producer responsibility scheme and are, as a consequence, not obliged to act according to the WEEE Directive.
- As long as illegal waste streams and waste streams outside WEEE are not addressed, the effort being made by companies in better design for recycling of their products is undermined by the fact that it is also easier for these illegal streams to identify and cherry pick valuable parts.
- **A modulated fee** would not be an effective incentive for producers of EEE, since "better designed" products are more likely to leak to other actors than producers. Besides, the main cost for producers is not recycling, but **collection and logistics that add up to 90% of the costs**. Modifying the recycling part of the fee appears insignificant and ineffective as an incentive for producers.

- EUROSTAT statistics indicate room for improvement of e-waste recovery rates. **Recyclers report that 80% of WEEE treatment is mechanical treatment (=shredding)**, which, since this is rather basic a technology, remains far behind the potentials of existing alternative waste treatment technologies for the recovery of materials in terms of both volume and higher quality recycling outputs.

- While, no doubt, a valuable waste stream, **WEEE overall represents 1% of the EU's entire waste volume "only".** The McKinsey study confirms that true priority sectors for a Circular Economy to deliver results would be buildings, food and transport.

The following measures in our view bring resource efficiency and economic growth together in a consistent manner:

- Enact and enforce a strict landfill and waste shipment policy, realistically increased recycling and recovery targets and minimum quality criteria for secondary raw materials

[3] http://www.cwitproject.eu/

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- Complement producer responsibility with shared responsibility obligations for all actors in all steps of the waste management chain to allow closing of the loop in the EPR requirements of the proposal for amending the Waste Directive
- Improve the cooperation between Member States for a better implementation of EU waste legislation, and combatting illegal waste shipments of specifically regulated waste streams, notably end of life vehicles and electrical and electronic equipment
- (Instead of voluntary certification of waste treatment facilities), apply the comitology mandate of article 8.5 of the WEEE Directive and make the content of the existing WEEE treatment standard binding
- Regarding Waste Electrical and Electronic Equipment (WEEE): Monitor and develop detailed statistics, data and reporting of all WEEE flows and actors; move towards the new WEEE Collection Rate on "WEEE generated" to capture all flows; monitor and report on municipal self-marketing of WEEE; ensure that all WEEE flows are recycled following high level standards to prevent loss of valuable resources
- Bring innovation and technology advances to the market through boosting resource efficiency technologies in the implementation of the Industrial Emissions Directive, including also through a more concerted waste treatment and recycling technology BREF, and through European standards
- Come forward with an initiative on waste to energy in the framework of the Energy Union

However, the following proposed measures should not be pursued:

- Promotion of industry led voluntary certification of treatment facilities (Orgalime prefers applying the comitology mandate of article 8.5 of the WEEE Directive and make the content of the existing WEEE treatment standard binding)

5. FROM WASTE TO RESOURCES: BOOSTING A SECONDARY RAW MATERIALS MARKET

Market take up of secondary raw materials will happen where they answer our industry´s technological needs: Minimum quality criteria for secondary raw materials should be developed and secondary raw materials need to be REACH compliant.

In general, artificially created markets never work as well as those that develop from the market itself: Reinforcing the secondary raw materials market is a good idea, too; however, market forces should be the drivers of innovation in recycling technologies rather than product recyclability/recoverability/ durability standards. Research, development and innovation in the area of secondary raw materials and their applications should be promoted.

Enacting and enforcing a strict landfill and waste shipment policy, stopping illegal waste shipments and setting realistically increased recycling and recovery targets are prerogatives to ensure sufficient quantities of secondary raw materials. It is however important to be realistic and acknowledge that Europe will never be able to become self-sufficient at the level of resources. Next to quality, also the price of secondary raw materials matter for the competitiveness of the value chain.

Finally, bringing more innovative technologies quicker to the waste treatment sector, including through the Industrial Emissions Directive and waste treatment standards at EU and international level, should be pursued to improve the quality of recyclates.

The following measures in our view bring resource efficiency and economic growth together in a consistent manner:

- Set and enforce minimum quality criteria for secondary raw materials
- Ensure REACH compliance of secondary raw materials

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- Analysis and policy options to address the interface between chemicals, products and waste legislation to ensure high quality, competitive secondary raw materials, worker and consumer protection
- Provide incentives and promote research in market driven technology development to gain secondary raw materials as well as to support the substitution of primary raw materials where appropriate, through Horizon 2020 and increased SME participation
- To improve legislative consistency in the electrical and electronic equipment (EEE) sector, and RoHS, REACH and Ecodesign in particular, we suggest the following:
    - the implementation process of the Eco Design Directive can assess the use of hazardous substances during use, manufacturing and end-of-life treatment for a particular product group, as it has been done under the ongoing implementation.
    - In case the preparatory study demonstrates that the use of a specific substance in a given product category fulfils all criteria of the Eco Design Directive for setting requirements, the relevant substance restriction should be adopted under the REACH Regulation or, where relevant, under the Recast RoHS Directive in full coherence with the REACH Regulation, and under the following conditions:
        - one common substance evaluation for REACH and RoHS implementation is accepted based, inter alia, on risk, the availability of reliable substitutes and technical feasibility of substitution
        - sufficiently long compliance deadlines are determined case by case.

6. SECTORAL ACTION

a. Plastics
b. Food Waste
c. Critical raw materials
d. Construction and demolition
e. Biomass and bio-based materials

Orgalime believes that Circular Economy requires a systemic change in the entire economy.
It can in our view not be realised by few sectors or instruments, such as Ecodesign, but requires a horizontal and overall economic standpoint.

Economic activities of different sectors are interlinked and dependent on each other.

Material loops are, and have to be, open and interconnected across sectors, borders and applications if we want to achieve the highest degree of resource efficiency.

Therefore, cooperation must be fostered, not only along the supply chain but among different sectors, different borders and different applications to be most resource efficient.

Regarding “critical raw materials”, such as “rare earths” (some may challenge as indeed being rare), it is important to take into account if the recovery of rare earths out of a waste appliance is economically viable. The economic viability of recovery of rare earths is often limited due to low concentrations.
For example: the mass of Rare Earth Metals (REM) per smartphone is very limited (0.10-0.25 grams). It represents on average 0.2% of the total product weight. Based on 2009 figures the REM use in Mobile Phones corresponds to 0.25% of yearly REM production.

Very small quantities of raw materials (for example, technical metals) and complex structures of equipment further impact the meaningfulness of product requirements.

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Material recovery in a broader sense is more dependent on the productivity of the recycling activity as a whole rather than on parameters that producers of products can influence by design. Furthermore, the recycling technology to be in place when the product becomes waste is not known at moment of designing it.

As mentioned before, due to the fact that 2/3 of WEEE are handled by actors other than EEE producers, the effort being made by companies in better design for recycling of their products is undermined by the fact that it is also easier for these illegal streams to identify and cherry pick valuable parts.

The following measures in our view bring resource efficiency and economic growth together in a consistent manner:

- Improve and exchange information between manufacturers and recyclers on electronic products via European standardisation for consumer product groups and thereby implement article 15 WEEE
- Adopt pre-demolition assessment guidelines for the construction sector
- Drive the review of the Energy Performance of Buildings Directive towards "connected", "smart" buildings.

However, the following proposed measures should not be pursued:

- Too prescriptive, unmeasurable and unenforceable ecodesign requirement

7. INNOVATION AND INVESTMENTS

We agree that innovation and investment will play key parts in this systemic change, including the development of new business and financing models.
We support all listed actions of the Action Plan and have two further suggestions:

The following additional measures in our view bring resource efficiency and economic growth together in a consistent manner:

- Use existing financial mechanisms to support investments into the optimisation of resource use and the circular economy, including advanced manufacturing technologies in the waste treatment and other industrial sectors, or in research on non-hazardous substitutes
- Promote ICT use/digitalisation to improve productivity and therefore resource efficiency

8. MONITORING

Orgalime also agrees with the proposal to develop a monitoring framework for the circular economy to assess progress towards a more circular economy and the effectiveness of action at EU and national level.
Proper indicators matter in this respect (see Orgalime Position Paper on Resource Efficiency Indicators of May 2014).

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