Chemical Sciences Scotland: Circular Economy Consultation.

Circular Economy Consultation.

This response to the Scottish Government Consultation on the Circular Economy (CE) is on behalf of Chemical Sciences Scotland Industry Leadership Group

We are pleased to have the opportunity to respond to this consultation and are keen to set out the relevant areas of our experience and interest in this domain. Following consideration and discussion, we take the view that the goal of the work covered by the consultation, i.e. a functioning and well-developed circular economy approach, is invaluable for the sector and the economy of Scotland generally. We think the consultation itself is very broad in scope and the question structure cuts across the main areas of our contribution. We are also assuming that aspects of the CE, for example the general change in culture, and public and customer attitudes required will be better addressed by others but we do believe that whilst great progress has been made in reducing waste volumes, greater streaming of wastes, and product refinement etc, there is a very long way yet to go.

For us in Chemical Sciences we also find that there is a significant lack of awareness of the role the chemical industries play and the nature of chemical sciences' beneficial impact in everyone's daily lives; a clear manifestation of this is the fact that the word "chemicals" most often seems to be used in a pejorative sense. and may present a barrier to future developments. We strongly believe that skills resident under the umbrella of Chemical Sciences can have a positive impact on every phase of the circular economy, such as efficient utilisation of raw materials, reducing energy requirements during production and use phases and value adding end of life transformations.

Therefore, rather than responding question by question to everything in the consultation, we have set out below a range of observations and suggestions that relate mostly, though not exclusively, to questions A, D, F, G and H but fall more naturally into a different structure. We hope nonetheless that this is of interest and value and we would be happy to engage further with this work were that to be seen as useful. In particular it is our firm view that a number of offerings and market opportunities lie within our sector and that chemical sciences is a key part of the solution to progress towards the CE.

Overall/Introductory Observations

The Chemical Sciences sector is part of a global industry that is well used to working within a very highly regulated, dynamic and competitive environment. It also faces a number of challenges from a Scottish base. High energy costs, scale of production and use, outside a few key segments, bulk versus niche products, transport costs, feedstock volumes and quality/purity and competitiveness and market conditions generally are all very challenging. Stronger and shorter-chain dialogue between government, academia and industry would help as would an easier to navigate support infrastructure. These are covered in a little more detail below.

[This opening summary pitch should be pithy but do we want to add sector value or other aspects to strengthen?]Could we mention e.g. export revenue, Business R&D intensity and then go on to talk about our growth aspirations. If we use this as context for setting out the challenges it may be a more positive slant?

Government

The role of Government is critical in shaping the market place via regulation, leadership of public opinion and public sector demand factors. - as well as provision of critical infrastructure. Disposal arrangements around waste, water supply, as well as specification of allowable process/materials etc. can be influenced by regulations, though we recognise that key elements of these issues are set at the EU rather than UK or Scotland level. Ensuring public bodies understand and have a broadly supportive approach to the sector enhances the long term nature of relationships and facilitates innovation and standard setting etc. This makes the case for industry dialogue and collaboration with government distinct from that already occuring via trade and lobby group mechanisms in place: CIA, CEFIC, FEAD, EEB etc.

Design

Process and material flow analyses focussed on material and product design, informed by life-cycle analyses would focus the ability of the manufacturing segment of the sector to influence component chemistry design in a way that eliminates tags specified constituents facilitating subsequent separation, recovery etc.

For spent, interim or recoverable materials, are currently seen as cheap fuels given the likely expense involved in recovery; we need to and drive value chains away from incineration as the only practical outlet. This applies to “difficult” plastics in particular but energy costs as well as prior, processing and final product value are issues here. Packaging value and packaging standards as well as transport costs that relate disproportionately to niche and fine materials in smaller mass or volume would benefit greatly from product, handling and transportation re-design.

Solvents

Spent and used solvents are a sector-wide issue. Recycling and disposal options are challenged by a number of factors:

- the lack in key areas of critical mass/volume
- the tendency to see solvents only as
    - alternative fuels, given their obvious and recoverable calorific value, using them e.g. in co-combustion in cement kilns etc., or
    - problem materials to be disposed of, largely outside Scotland with the costs and impacts associated, e.g. transport, rather than valuable stocks and lower cost substitution components of future product.

- Clearly purity as well as identification issues and REACH/other regulatory dimensions as well as commercial long-term contracts in place may militate against uptake and market development.

Remanufacture

Processing materials into new materials is standard in Chemical Sciences but recovering component chemistry is variably challenging. Monomer recovery research and development is a particular area where real capability would be very valuable and transformative globally. It is seen as beyond private sector shorter term market practicalities, not least in Scotland. There is broad agreement that joint effort, supported or led by government and SFC/RCs to encourage university research to achieve industry breakthrough and also support CE goals would be critically valuable. This includes the collaborative/competitive interface where shared developmental capability could well support the better stimulation of new product and improved processes.

[Again, examples?]

Energy

Quite simply, reliable energy availability at lower cost, locally supplied with infrastructure to support local processing would help promote better approaches and be wholeheartedly welcomed by the sector.

[Is there more to say?]

Business Support

Whilst perhaps a well rehearsed but still relevant general industry complaint, is that business support systems could be more coherent, streamlined and connected; including but not limited to SMAS/Lean Management/ business model development, training, energy efficiency/low-grade heat advice and initiatives, low carbon investments as well as more general advice and regulatory effort around environment, resource use, quality and health & safety initiatives. All of these aspects are undobtedly helpful but can appear complex and confusing, particularly to our SME members. Further interaction with the sector could help us to design better support fit for our purposes.

Final and Summary points

In summary, initiatives or mechanisms to do the following would be welcome and add capability to deliver CE progress:

- use and recovery of low-grade heat,
- transport co-ordination,

- joint training sessions and ensuring support staff have good knowledge of relevant initiatives,
- test and R&D capability,
- enhanced research on depolymerisation, stripping of “difficult” content etc
- improved general policy context around: energy use and costs; regulation and standards; coordinated and simpler public procurement; direct financial support for new technologies, services and facilities; support for green/more circular chemicals and products

Thank you for taking the time to read our submission and we look forward to seeing the final set of submissions, SG’s response and to being a part of delivering the Circular Economy.