EPA Submission to

Consultation on National Policy Statement on the Bioeconomy

September 2017

The EPA welcomes the elucidation of a strategy for developing Ireland's bioeconomy. Careful planning and implementation of activities in this area will be critical to ensuring that economic growth is sustainable into the future and does not have a negative impact on local communities or Ireland's most precious natural resource: its high quality environment.

The Agency pleased to provide comment on the questions posed in this consultation. Responses have been collected from various sections within the organisation to provide a broad-based view on the strategy. These are presented in the following pages.

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1: Does the broad definition outlined above adequately encompass the opportunities presented by the bioeconomy?

Comment from EPA Resource Efficiency Unit:

It is challenging to find a "one size fits all" definition to the bio-economy, just as it is difficult to define "sustainability", as it means different things to different people. One approach to make it clearer might be to multiple simplified examples of existing projects to illustrate the various elements i.e. energy, fuel, biomaterials, etc. The FungusChain case study could be slimmed down to briefly discuss what it is and what it produces from what. Other examples can be found from Ireland – *see examples from EPA in Appendix 1*. It is critical to give a firm understanding of what the bio-economy is to the reader by examples that are relatively well known to the reader. Ireland has a strong food/drink production and pharmachem industry so examples cascading from them are likely to be immediately relevant. Also examples of simple bio-economy activities are also likely to be important as organisations and individuals might be participating in the bio-economy without realising it. A good example might be the use of brewers grains as animal feed.

Whilst alluded to in the diagram, addressing food wastage should rank alongside ensuring food security, and again, linked to the hierarchy in terms of food production being higher in the cascade than fuel crops for example. Thought might also be given to the bioeconomy and Brexit as Irish farmers export markets might be significantly affected, the bio-economy might offer opportunities for diversification. Similarly, the impacts, both in the medium and long term, of climate change might also require identification, but perhaps framed as offering as many opportunities as challenges.

Comment from EPA Research Team:

The definition of bioecomomy is continually evolving and varies according to all actors involved and is underpinned by an emphasis on economic output and a broad cross-sectoral process. The definition would benefit by being flexible to incorporate change over time. The exploratory phase and mapping exercise could provide greater insight re the factors driving change that are continually evolving. With this in mind the Bioeconomy landscape needs to be fluid to adapt and maintain viability over time.

The bioecomony provides opportunities to achieve synergy across Europe, through collaboration and knowledge transfer highlighting opportunities to address fragmentation. Allied to this is the opportunity via more social inclusion to promote a more resource conscious mind-set/value system to the broad and diverse stakeholder groups.

Customer acceptance is indicated as important in the bioeconomy.

- Would the definition be enhanced by some emphasis on the societal element with a mention to social inclusion? (following on from acceptance will be long-term buy in/commitment and this will be key going forward).

Comment from Strategic Environmental Assessment Team:

Definition of Bioeconomy : There would be merits in considering expanding the definition to include the following:

- Soils / soil biodiversity.
- Eco-–Tourism, Eco- Education and Ecosystem services Forestry should also be considered for inclusion.
- Food Tourism , Agri- Tourism
- The link of the bioeconomy to good water quality
- Ecosystem services
- Mariculture with reference to the seaweed harvesting industry.
- Bio - Refining
- The Bio Research

2: How can a high-level policy statement on the bioeconony assist in progressing the development of the priority value chains identified?

a) Comment from EPA Resource Efficiency Unit

The Department of The Taoiseach is well placed to run with this, as the stakeholders range across multiple government departments and an over-arching co-ordinated approach is vital. When an issue is driven by a single operational Department without a cross cutting mandate, it presents significant challenges. Green Public Procurement is an example where this has been the case.

However, there is a danger that making the strategy too top down that it would lack relevance to the parties that would need to engage to ensure a successful transition. A high-level policy should seek to set out a clear framework where the roles of key actors are identified and efforts made to engage and educate them of their role within the strategy. This is particularly true in the case of the key value chains where “low hanging fruit” should be targeted.

Finally, one important high level policy intervention can be in identifying and co-ordination of research in the bio-economy that reduces duplication and enhances value, tailored to priority value streams.

b) Comment from EPA Research Unit

Identify and address the key drivers/issues driving change;

There may be undiscovered value chains that will become more apparent with the passage of time/technological advancement that could provide further opportunities to explore.

Map Ireland’s USP and focus on low hanging fruit, get some early wins to build confidence, competence and importantly customer acceptance and buy-in.

Re page 7: is there scope for synergy to link up more with other EU EIPs? (see link below)

http://ec.europa.eu/research/innovation-union/index_en.cfm?pg=eip

RE page 8 sentence: The proposed actions seek to contribute to "closing the loop" of product lifecycles through greater recycling and re-use, and bring benefits for both the environment and the economy.

Consider revising to: The proposed actions seek to contribute to "closing the loop" of product lifecycles through greater recycling and re-use, and bring benefits for environment, economy and society.

This revision could help in advancing the consumer acceptance element.

Comment from Strategic Environmental Assessment Team:

Will give recognition to the various bio economy related initiatives. It will also promote consideration of the bioeconomy as a significant component of our national economy,

Referencing the concept of "bioeconomy" in relevant national plans /programmes will assist in embedding our bioeconomy at a national level.

Highlighting links with the Green and Blue Economy would also be of benefit.

A **high level** policy will promote the adoption of an integrated cross sector approach to implementation, prioritisation, implementation and related funding and reporting.

Also linkages with relevant LIFE Projects.

It also has potential to promote collaboration with our colleagues in Northern Ireland. The potential for linkages with the likes of for instance the Loughs Agency on the role of Lough Foyle and Carlingford catchments in the context of their existing value to the respective bioeconomies and their potential future value.

3: What lessons can Ireland take from the European approach, including to the Circular Economy?

Comment from EPA Resource Efficiency Unit:

The European model has traditionally treated the Bio-economy and the Circular Economy as 2 separate, distinct entities, until relatively recently, where an over-arching set of common principles have been identified that allies these 2 strands into a similar space. The analogy being a Venn diagram with 2 inter-locking circles. The Bio-economy and Circular economy certainly encounter similar challenges in many respects and in the eyes of the "lay observer", may appear inter-changeable and all falling under the umbrella of "sustainability". With this in mind, framing both the CE and BE in the context of the UN Sustainable Development Goals might also be a useful mechanism for presenting both approaches to the wider audience.

Comment from EPA Research Team:

Lessons have been learned to date across the EU and globally that could prevent Ireland exploring a path that has previously been explored, notwithstanding each Member State's unique characteristics; (link with unintended consequences page 9).

- What measures of success could be replicated in an Irish context?
- How was fragmentation been addressed and consensus achieved elsewhere?
- In the context of risk are there examples of how risks are being dealt with effectively?

Comment from Strategic Environmental Assessment Team:

- There would be merit in undertakings a review of national bioeconomy strategies already in place by a range of member states. An inventory of Case Studies.
- The review could explore aspects such as governance, implementation, funding, collaboration, research and reporting.

4: Given the cross-sector nature of the bioeconomy, how can a national policy statement best support development?

Comment from EPA Resource Efficiency Unit:

The response to Q2 covers much of this ground. The policy document should clearly define the issue and the overall national and international context, not just in a legislative framework, but in an economic development framework. The policy statement should then identify the key value chains, the key actors and the key actions that should be taken to move forward. Perhaps the most critical phase is the identification of potential barriers and conflicts between Departmental area's of responsibility, and seek to propose mechanisms for resolution of these challenges. One example identified in the Discussion document for example is legislation relating to waste management. The policy mechanism should suggest ways to overcome these issues and propose a mechanism to engage the appropriate actors to this end. Finally, the policy should develop appropriate metrics to enable meaningful quantification of success criteria and reporting in an Europe-wide context. The EU Policy identifies 5 key sectors and 4 key areas with relation to the bioeconomy, these being;

Sectors – Plastics, food waste, critical raw materials, C&D and Biomass

Areas – Waste to Resources, Production, Consumption and Waste Management.

Comment from EPA Research Team:

From page 8 of the Bioeconomy discussion document:

The development of such a statement should forge consensus on the direction of the Irish bioeconomy. It should complement existing sectoral strategies and be a statement of the Government's intent to pursue a coordinated strategic approach that fully exploits the opportunities available and monitors and avoids unintended consequences. It should examine and establish guiding principles tailored to an Irish context and bring forward proposed structures for strategic coordination and implementation. **THIS IS KEY.**

- **How will this be achieved?**
- **Will the mapping exercise as outlined on page 9 address this and if so who will conduct the mapping exercise and how will the mapping exercise be co-ordinated? (i.e. build on the findings from the BioEire example as mentioned on page 9).**

Comment from Strategic Environmental Assessment Team:

- Have the Bio economy acknowledged in the proposed National Planning Framework and the Regional Spatial Economic Strategies. As appropriate include commitments in the Capital/ National Investment Plan.
- Include in the proposed statement a schematic showing the linkages between the bioeconomy and other key sector Plans/ Programmes, including for instance – FoodWise 2025, National Rural Development Programme, Seafood Operational Programme, Draft Bio

Energy Plan, National Strategic Aquaculture Plan, Forestry Programme, National Peatlands Strategy, National Planning Framework, All Island Pollinator Plan, National Biodiversity Action Plan, National Landscape Strategy.

- Consideration should be given to the preparation of national guidance to promote the environmentally sustainable use of biological resources based on the proposed Commission based guidance
- A commitment to the convening of a national high level cross department/ sector bioeconomy implementation working group.
- A commitment the development of an integrated implementation strategy for the bioeconomy could be included.
- The approach to implementation adopted by Foodwise 2025 (DAFM) and the Offshore Renewable Energy Development Plan (DCCAE) provide proactive approaches which could be adopted.

5. Can we identify a common set of principles, including in particular the application of the cascading principle, which will assist in the development of both the bioeconomy and circular economy?

Comment from EPA Resource Efficiency Unit:

Probably. The waste hierarchy provides possibly the fundamental principle that waste management is built on. However, this might be accused as being a rather "blunt instrument" as it has remained fundamentally unchanged for many years and probably hasn't evolved at the pace that the Re-Use economy in particular, has developed in recent years.

There is a danger, however, that the Bio-economy given its diverse range of constituent elements might not lend itself as readily for a "one size fits all" hierarchy. For example, a useful cascading structure for the food sector would be "**Reduction of Demand >> Reduction in Production >> Food Rescue & Distribution >> Home Composting >> Centralised Composting >> Anaerobic Digestion >> Mechanical Biological Treatment >> Incineration >> Landfill**".

This proposed hierarchy is an excellent framing structure for food waste but is less relevant for other sectors. Given that strategy may concentrate on key value chains, it may well be a useful exercise to develop specific hierarchies for each value chain. "First2run" is an example of an initiative in Sardinia where this cascading principle of high value use to low value use is utilised.

The Ellen MacArthur Foundation represent their thinking on the Bio-Economy and Circular Economy in terms of Biological Cycles and Technical Cycles, with "leakage" from the Technical Cycle to the Biological cycle, marine litter being an example.

Comment from EPA Research Team:

Cascading is a complex concept, but put simply, it means that natural resources should be used and recycled for as long as possible, and allocated to the most valuable purposes possible at each stage. Translating this principle into policy and practice has proven difficult, however, not least because it is hard to define what constitutes a "valuable purpose".

It is important to emphasise that the cascading use principle should not be limited to mean only the recycling of raw materials. In line with the idea of the circular economy, maintenance and reuse of products needs to be encouraged also in the case of bio-based products.

http://www.birdlife.org/sites/default/files/attachments/cascading_use_memo_final.pdf

Comment from Strategic Environmental Assessment Team:

- A set of common principles could be agreed by the suggested national high level cross department/ sector bioeconomy implementation working group.
- This could then be reflected in a Terms of Reference and Work Programme for the Working Group. This could be developed and informed by a series of stakeholder workshops.

6. How can a national policy statement support local and regional cooperation around the use of renewable biological resources?

Comment from EPA Resource Efficiency Unit:

The experience of our European partners is emphatic that the bio-economy is a local, OR AT MOST a regional phenomenon, and this must be reflected in a national policy. Policies, such as those establishing transition towns are designed to be national in scope but local in delivery. Other examples included SEAI Better Energy Communities and the National Spatial Strategy. The policy should enable and identify mechanisms to enable local action. This might be by identifying bio-economy hubs based on geographical or key value streams, such as pharmachem or brewing. The policy should also assist in identifying other enablers, such as access to funding or the role of Local Enterprise Offices in the bio-economy. There might also be value in identifying a role for communities in relation to the bio-economy and social enterprises. This model was used in Slovakia by identifying "Lagging Districts", that had low economic growth and social problems and develop bio-economy driven responses to meet these issues.

A national statement can also reflect the assessment of natural capital on a regional basis to ensure that bio-economy goals do not come into conflict with issues such as biodiversity. Although the EU bioeconomy is different in that, for example, practices such as cultivation of energy crops are much more widespread, the same issues need to be considered e.g. protection of soil quality, bio-diversity loss, deforestation, water quality etc.

Comment from EPA Research Team:

- Ensure best governance practices, lead by example in a transparent and accountable fashion; (top-down-bottom up approach);
- Identify and pre-empt risks and un-intended consequences;
- Ensure resources to deliver on supporting infrastructure are available to ensure implementation and credibility of the process; (the private business and philanthropic sector may be key)
- Involve relevant stakeholders in the design at the earliest stage in the process
- Tailor and target messages to ensure the message is communicated and disseminated via the most apt media channels thus improving facilitating customer acceptance and long-term commitment.

Comment from Strategic Environmental Assessment Team:

Through informing commitments in relevant national and regional plans/ programmes/ strategies.

7. How can waste policy, including an examination of the definition of waste, best support developments in the bio and wider circular economy?

Comment from EPA Resource Efficiency Unit:

The EPA has a key role and understanding in this regard, both in its regulatory activities, but also through the projects it funds and supports like the SMILE Resource Exchange and Community Reuse Network. Clients of these projects report that more timely and flexible interpretation of bi-product declarations and end of waste criteria through Articles 27 and 28 of the Waste Management Act, is a critical element in facilitating re-use activities. The Agency must perform a careful balancing act however, between the Precautionary Principle and facilitating genuine re-use activity. Any planned Policy Statement would benefit from some guiding principles centring initially on key value streams, which would identify straightforward examples of legitimate circular/bio-economy activities that could guide both potential applicants and regulatory bodies.

Comment from EPA Research Team:

This will be key again in the customer acceptance element, link with Persona: Consumer: challenge 5 page 11 of Bioeconomy discussion document.

8. How can we stimulate market demand for bioeconomy products? What is in it for the consumer?

Comment from EPA Resource Efficiency Unit:

When considering behaviour change in consumers, the first principle should be where the desired behaviour becomes the default behaviour because it is easier to do the "right" thing than the "wrong" thing. In the first instance, it is important to recognise the low hanging fruit. Area's where bio-economy activities/products can easily enter the value chain with a similar cost/quality of existing products make it an easy choice for the consumer, indeed they may not even notice the transition. The EPA are currently working with Community ReUse network on a "Quality Mark", based on Scotland's "Revolve" Standard. This is aimed at retailers of re-used items and is aimed to educate both retailers in best practice and educating consumers/build demand by assuring them that re-used goods can be a good choice and will meet an assured standard. It may be that a similar approach can be used to educate consumers on the advantages of bio-economy products.

The development of new business models might also be applicable to the Bio-Economy.

Comment from EPA Research Team:

- Where possible ensure structures are in place to enable Bioeconomy products operate on a level playing field, e.g. to highlight this is the subsidisation of the fossil fuel industry in contrast to renewable energy sector, whereby renewable energy appears more expensive.
- Adopt full life cycle analysis approach to Bioeconomy products to sell the benefits in the long-term. (this may be a hard sell in the context of the current short-term approach).

9. What is the most appropriate mechanism to coordinate development and monitor progress?

Comment from EPA Resource Efficiency Unit:

As previously commented on, the policy should be driven by an over-arching Department through a stakeholders committee. The policy should develop a roadmap with clearly defined roles and responsibilities and success criteria. The national group should establish and maintain clear links with the appropriate EU structures and the policy should be aligned with similar EU timeframes, so if the EU context shifts, the Irish policy will not be locked in to an out of date frame of reference.

Comment from EPA Research Team:

Success of the Bioeconomy will be dependent upon adopting multi-disciplinary hard and soft science approach across all stakeholder groups. There will be a need for an integrated/holistic approach. Fundamental to the success will be availability of sufficient resources needed to:

- Put relevant infrastructure in place;
- De-risk where possible;
- Educate and train to deliver relevant skills;
- Conduct on-going research;
- Facilitate knowledge transfer;
- Empower citizens through engagement via transparent communication methods as a means to build relationships built upon trust and integrity and thus achieve consumer acceptance and commitment over the long-term;
- Be flexible and adaptable.

There is no need to re-invent the wheel in the context of monitoring and evaluating progress with an abundance of indicators to piggy back. Inclusion of more broad indicator frameworks in addition to the traditional GDP approach may be useful, e.g. Social Progress Index and Global Competitiveness Index).

Comment from Strategic Environmental Assessment Team:

- A commitment to the convening of a national high level cross department/ sector bioeconomy implementation working group.
- A commitment the development of an integrated implementation strategy for the bioeconomy could be included.
- The approach to implementation adopted by Foodwise 2025 (DAFM) and the Offshore Renewable Energy Development Plan (DCCAE) provide proactive approaches which could be adopted.

10. Are there any other issues to be addressed through a national policy statement?

Comment from EPA Resource Efficiency Unit:

Possibly an acknowledgement where the planned Policy complements other national policies with a clear understanding of where potential areas of conflict may occur. The policy landscape is extremely crowded and conflicting or contradictory, as well as unintentional duplication results in confusion in the end-user.

It may be that consideration of legislation regarding the power generation sector is looked at to allow much greater use of Anaerobic Digestion in Ireland. There seems to be a groundswell of opinion that we are significantly under-utilising our resources in this regard, with regard to animal slurries in particular.

Comment from EPA Research Team:

There is a need to clearly identify and understand the risks associated with the Bioeconomy, particularly with regard to:

- over-exploitation of natural resources
- damage to important ecosystems; and
- food security.

Research has an important role of in gaining more understanding and knowledge in this space and in exploring new opportunities, technologies and value chains.

General Remarks:

1. Links to SEA Assessments: There are probably two main aspects – one is the use of primary biological resources and the other is getting better value from waste. Both have different environmental risks and challenges, as well as opportunities - provided they can be done in a sustainable manner, protect the environment, health and wellbeing. The 'bioeconomy' appears to be an overall strategy for a range of existing plans and programmes that mainly cover the food, marine, forestry, biofuels and waste area (as covered in the Annex). It seems to have close links to strategies such as Food Wise. The environmental aspects of many of the individual plans and programmes have been commented on in detail through the SEA process. Many of these SEA observations probably still apply to this new 'bioeconomy policy statement'.

   It is recommended that consideration by given to the requirements of the SEA Directive and the Habitats Directive in preparing a National Statement on the Bioeconomy.

2. **'Ireland's Environment – An Assessment 2017'[1]:** the EPA's State of the Environment Report outlines the challenges and pressures that exist in relation to protecting Ireland's environment. GHG emissions, water quality and biodiversity are highlighted as in need of co-ordinated actions and measures to drive improvements. Several directives and targets are not being met at present. There is the risk that environmental pressures could be increased with intensification of the bioeconomy sector, in the absence of a detailed accompanying environmental strategy, mitigation measures and safeguards to prevent this happening.

3. **EPA Research on Waste:** The EPA research programme already plays a key role in researching novel waste treatment methods and alternatives for the use of waste from parts of the 'bioeconomy sector'. There appears to be clear links here with the policy.

4. **Waste Water Infrastructure:** This could be a limiting factor in some instances. Investment could be required for provision of treatment and upgrades, as necessary to protect water quality and public health.

5. **Environmental Licensing:** The food and waste industries have been the source of many odour complaints to the EPA. Environmental licensing and approvals could apply to some of the feed and waste activities. This regulatory approval will require detailed assessments to ensure that the activities can be carried out without causing environmental pollution.

6. **Nature and wild places**: Another task is to identify risks - and mitigation measures - that intensification of the bioeconomy sector presents for other (non-bioeconomy sectors) that also depend on Ireland's natural resources such as tourism, heritage, water resources and ecosystem services. NPWS should be involved here as well given the challenges and interactions of the bioeconomy sector with nature, biodiversity and protected areas.

[1] http://www.epa.ie/irelandsenvironment/stateoftheenvironmentreport/

7. **Environmental Strategy for the Bioeconomy Sector:** A separate section in the policy that provides an overall integrated environmental strategy section for the 'bioeconomy sector' is merited given the challenges already outlined in 'Ireland's Environment – An Assessment 2016'. Also targets and indicators specific to the 'bioeconomy sector' could be developed to track the sectors sustainability and environmental performance. These indicators could be linked to the SDG goals.

Appendix 1: Additional EPA-supported activities relating to the Bioeconomy

Programme	Project	Description
Greenbusiness Initiative	Greenbusiness.ie	Working with food and beverage producers to identify ways of reducing food waste from manufacturing
Greenbusiness Initiative	SMILE Resource Exchange	Assisting companies to divert resources from landfill to alternative uses/raw materials in processes.
Greenbusiness Initiative	Smart Farming	Assisting farmers to reduce environmental impacts and increase on farm efficiency by training and peer to peer learning networks.
Stop Food Waste/Green Enterprise	Food Cloud	Preventing both manufacturers and retailers from sending usable food for disposal.
Green Enterprise	Carty Transport	Taking waste oil and grease from grease traps and converting it into bio-diesel.
Green Enterprise	Green Seafood	Working with BIM seafood processers to increase efficiency in production, reduce food waste and find alternative uses for waste fish products
Green Enterprise	Vegetable Waste, a Valuable Resource	Working with Cyber-colloids in Cork to develop new food additives utilising fibres from vegetable process waste.
Green Enterprise	Greening the Supply Chain	Carty Meats – working with the meat processor to reduce production waste and increase efficiency