

The Bio Economy

- **What the UK needs to make it take off**

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Bio-based & Biodegradable Industries Association

ADBA, Birmingham

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Who are we and what we do

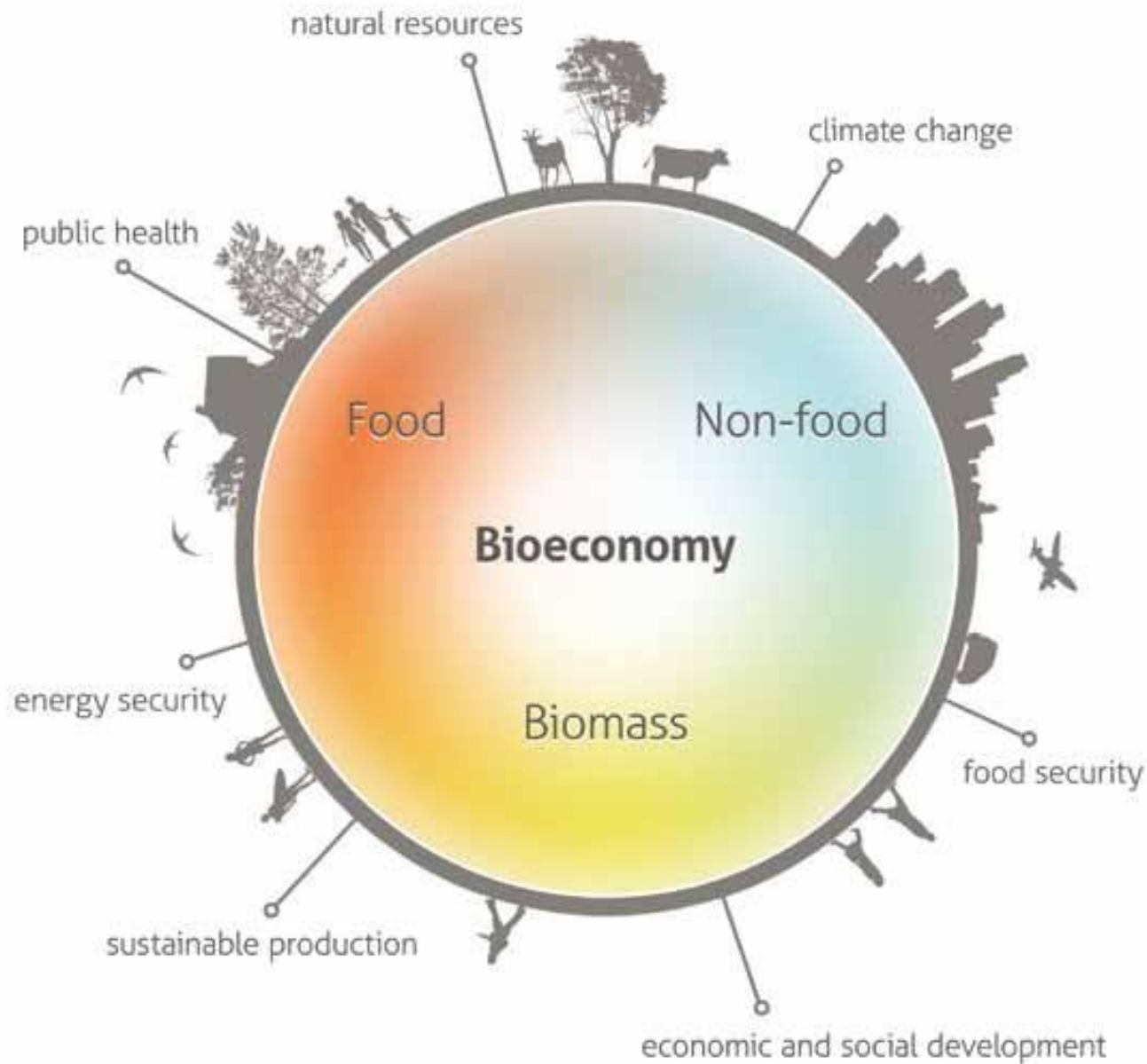
BBIA has been founded in 2015 to promote the circular bioeconomy model in the UK.

It represents companies making bio-based and biodegradable polymers (BASF, BIOTEC, NOVAMONT)

Converters into products like packaging, lubricants, insecticides, tableware (INNOVIA FILMS, EUROPACKAGING, BIOBAG, FUCHS, VEGWARE, ECOSPRAY)

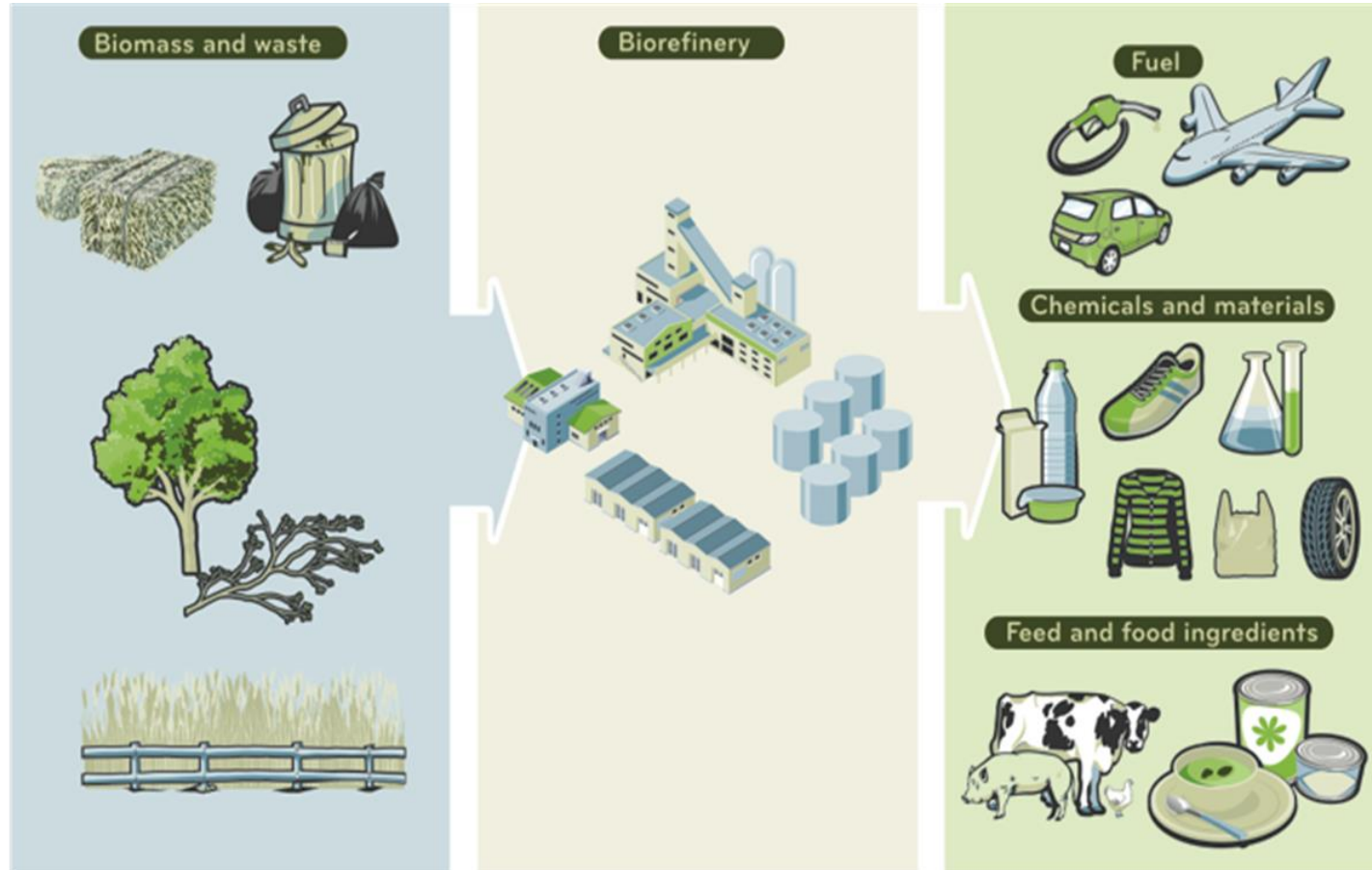
And others like REA, SINVESTEC (an investment company)

Our aim is to make the UK a world- leading production base for bio-chemicals and their products and to develop markets for these.



Soil health in a circular Soil to Soil loop is a key factor, carbon sequestration another

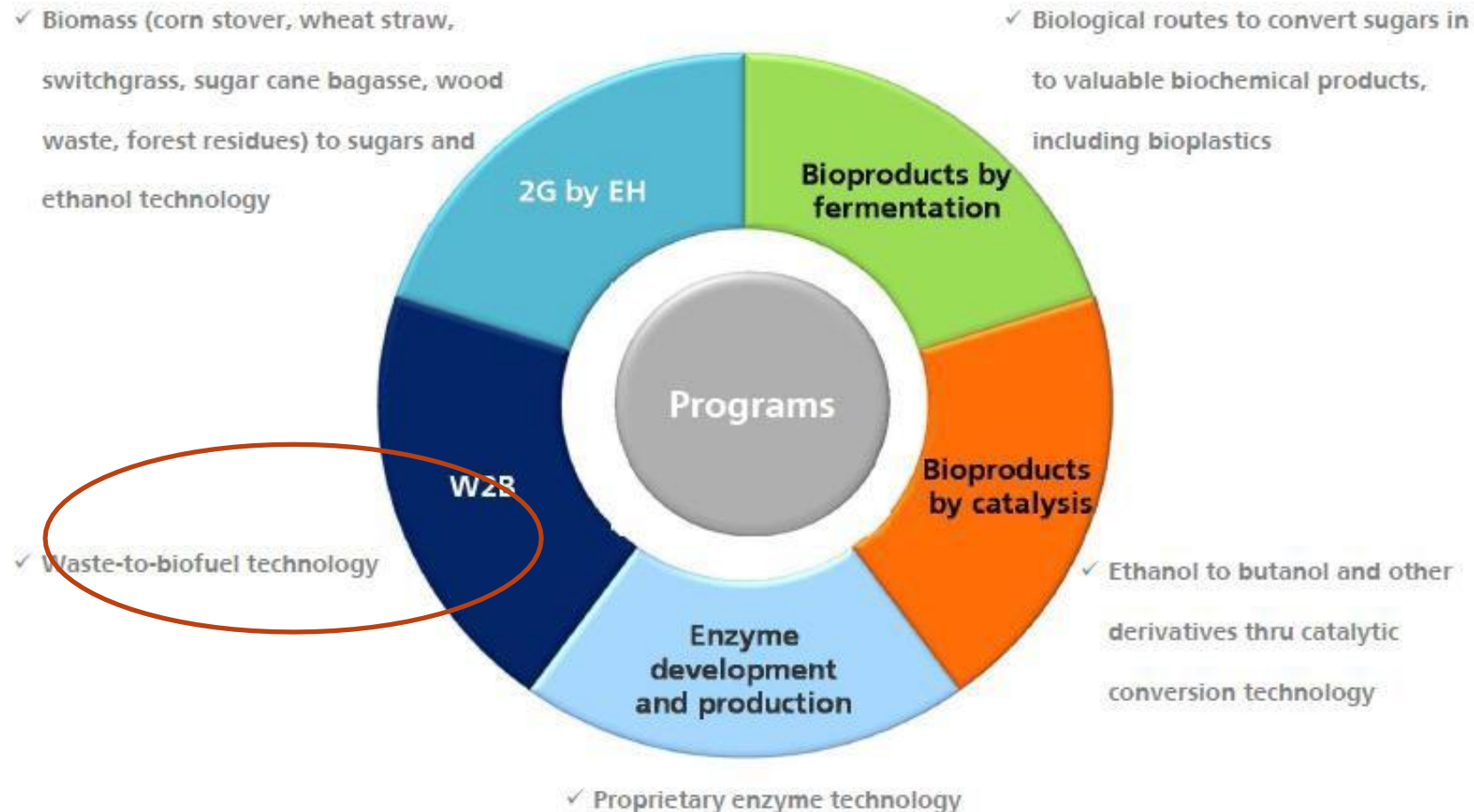
The bio-based economy concept



Excluding energy, potential to substitute many petrol based materials and products

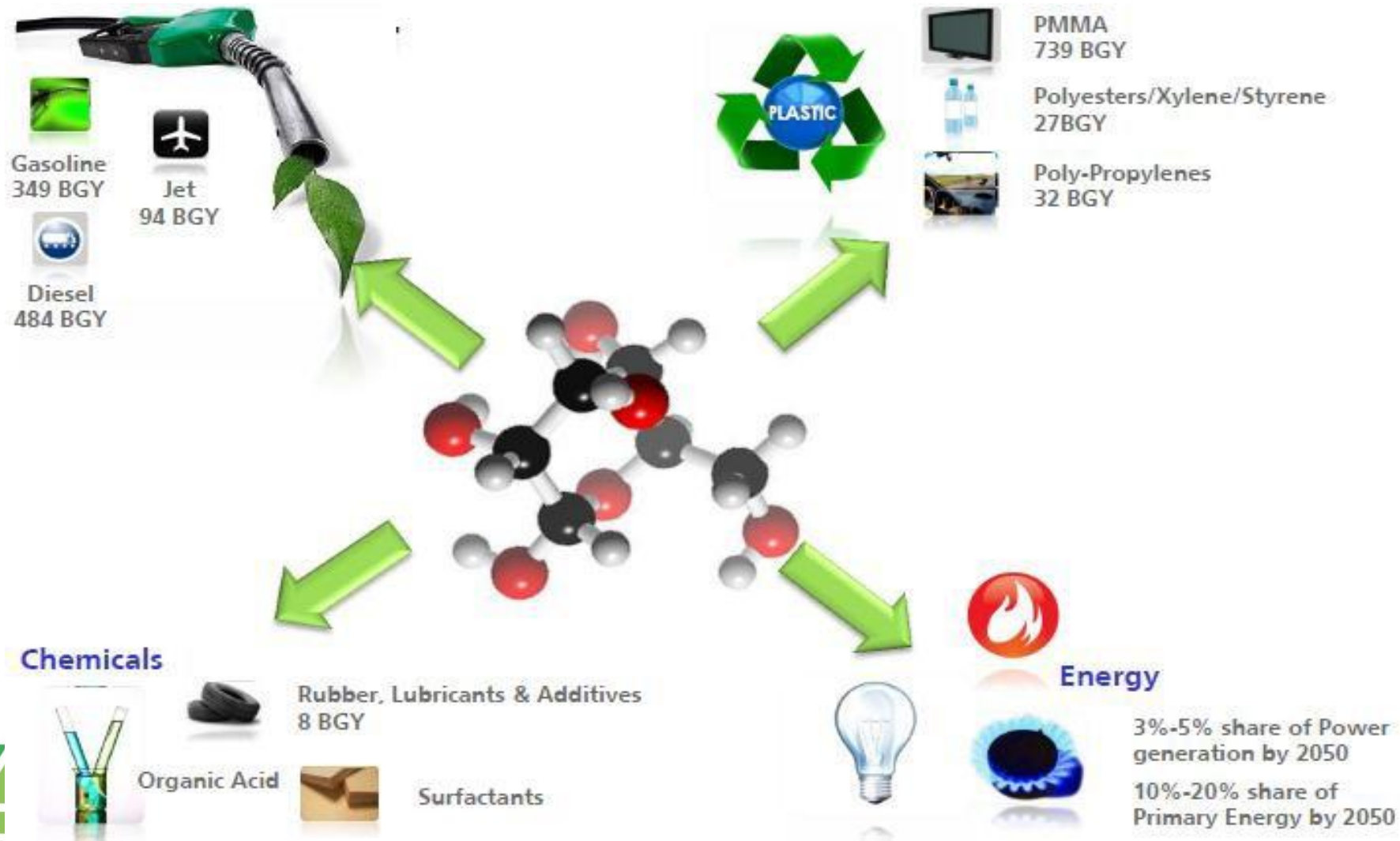
Bioenergy technology programmes- from Abengoa, Spain

From 2G sugars to other bio-products and ethanol

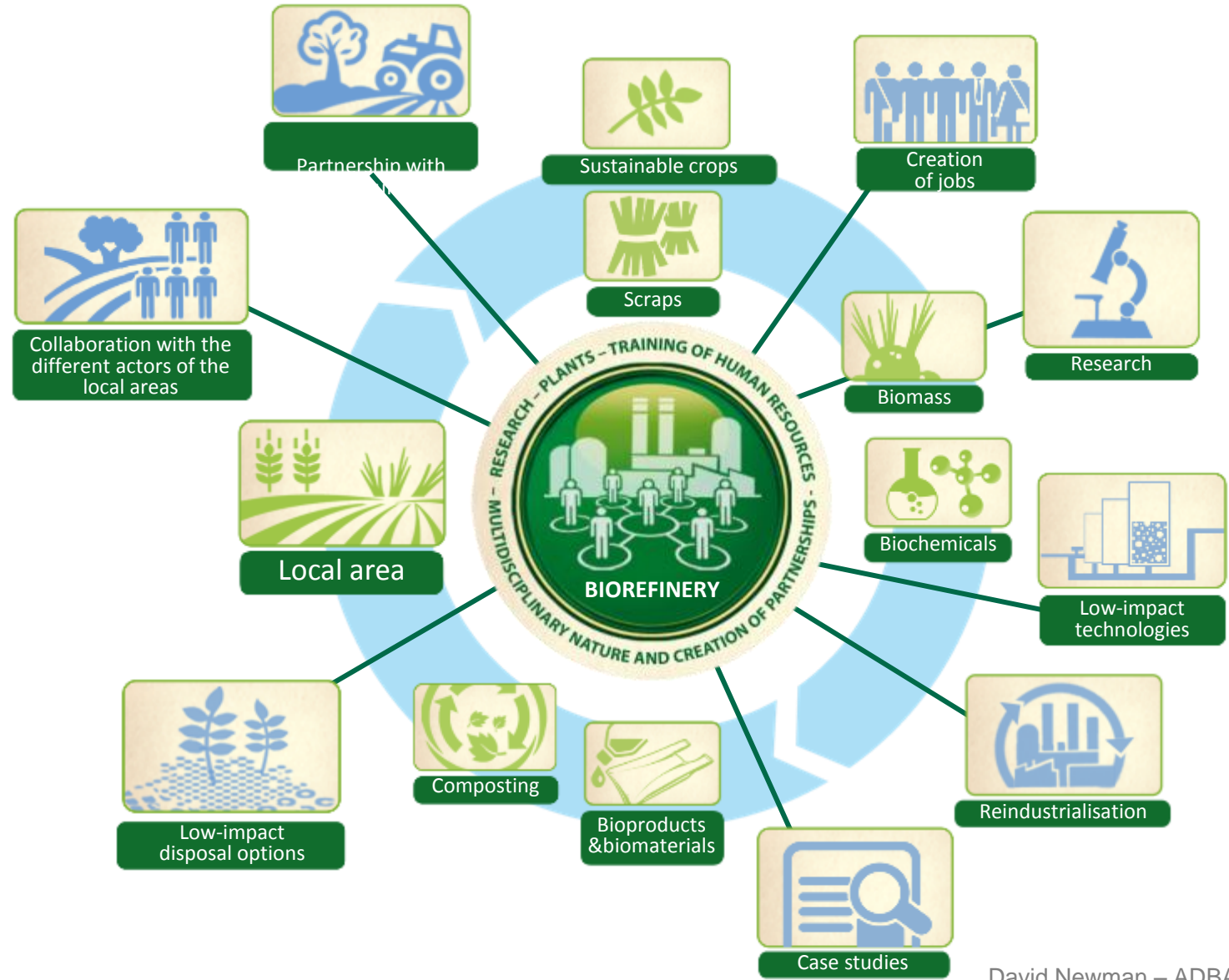


Track record in bioenergy sugars- from Abengoa Spain

Sugar- The molecule of the future



Third-generation biorefineries



The plus side of bio-based materials

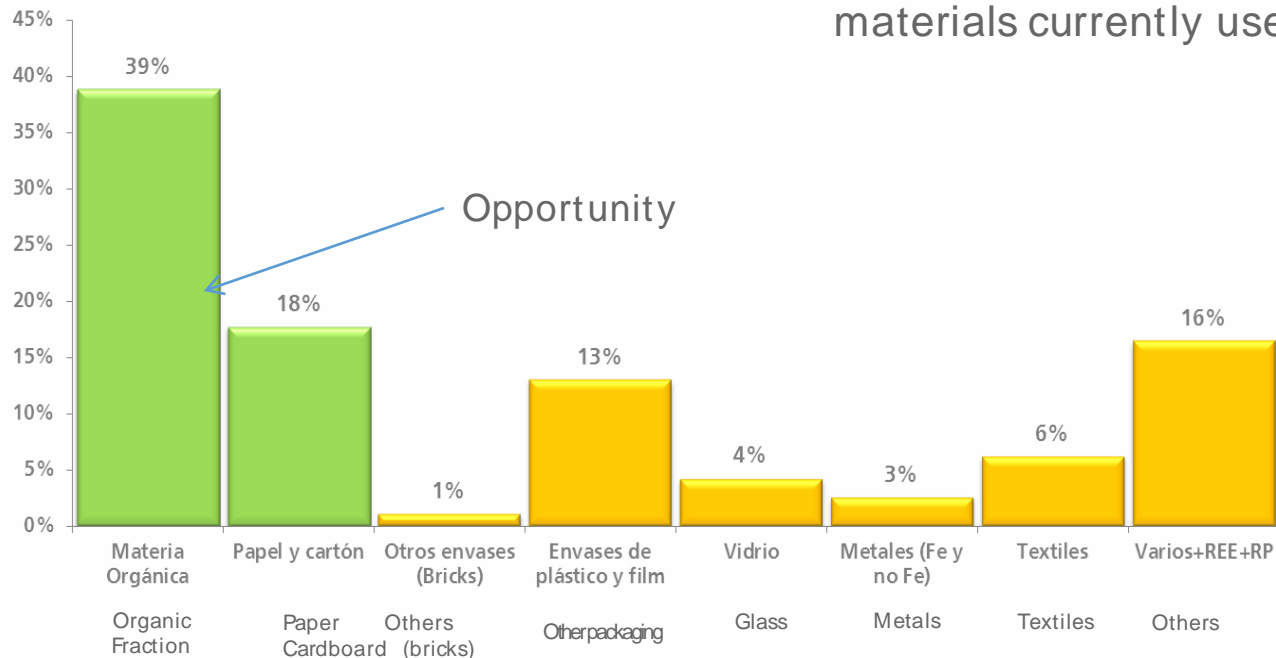
- Less CO2 emissions
- Less waste to traditional streams, more resource capture
- Less plastic waste as compostable plastics grow
- Improved handling and recovery of organics
- Soil to soil circular loop
- New growth in green chemistry

- And who has priviledged access to waste biomass ?

From Abengoa again.....

Waste is a major carbon source of high potential for chemical or biochemical transformation in high-value products

- Almost 60 % of MSW material is **biodegradable**
- Almost 15 % is material from plastics
- MSW has a **negative cost** vs. biomass cost and other raw materials currently used



* Characterization of a type of MSW selectively collected in Spain

Benefits for the UK and Europe



Create value by using resources more efficiently by maximising the potential of **waste**, agriculture and forestry **residues**

Diversify and grow **farmers' incomes**: up to 40% additional margins with existing residues

Bring existing value chains to new levels and build new value chains, thus **revitalising industry in rural environment**

Realise a new generation of bio-based materials and composites produced in **biorefineries**

Create a competitive bio-based infrastructure in Europe, boosting **job creation**, 80% of which will be in rural and underdeveloped areas

Replace at least **30% of oil-based chemicals** and materials with bio-based and biodegradable ones (2030 target)

Excluding energy, the UK is currently not a player

Potential value of biochemicals to the UK estimated by House of Lords, February 2015

“The Chemistry Growth Partnership’s ‘Strategy for delivering chemistry - fuelled growth of the UK economy’ identified scope to grow the gross value added of the chemical and chemistry-using sector from **£195 billion to £300 billion by 2030** ,with the acceleration of innovation a key platform for achieving that growth. It highlights that utilising biomass or waste as a material could bring potential long term benefits of £8 billion over the period to 2030 and is an essential focus for increasing the opportunity for innovation. Alongside these new materials the adoption of smart industrial biotechnology manufacturing processes is highlighted as playing a strong role in achieving the projected growth ambitions, with estimated economic potential of **£4 billion to £12 billion per year**”.

+ jobs

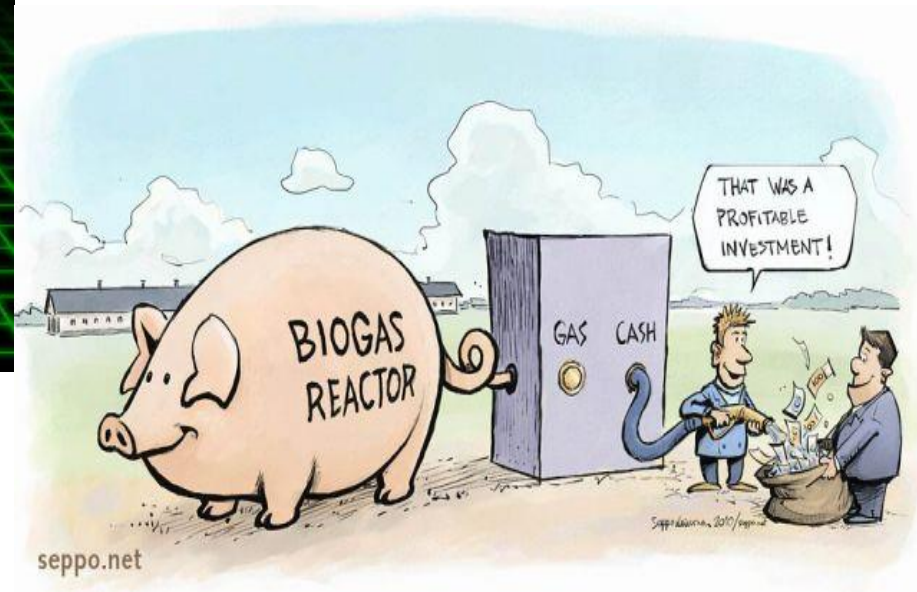
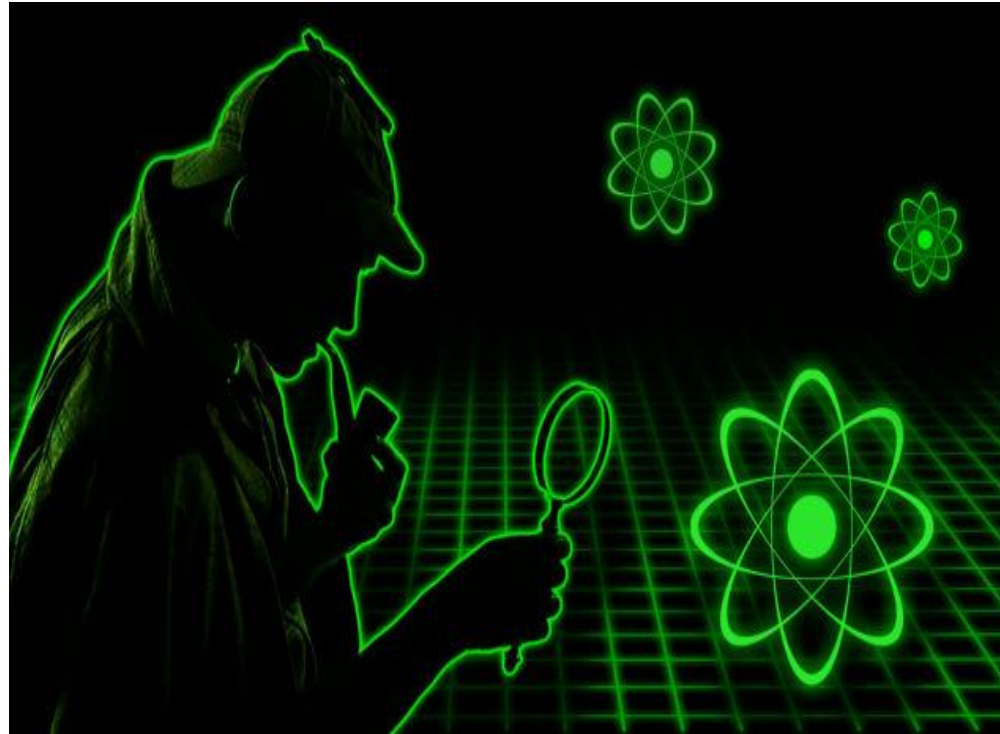
+ exports

- imports



And the UK has so much going for it

Excellent research and investment climate



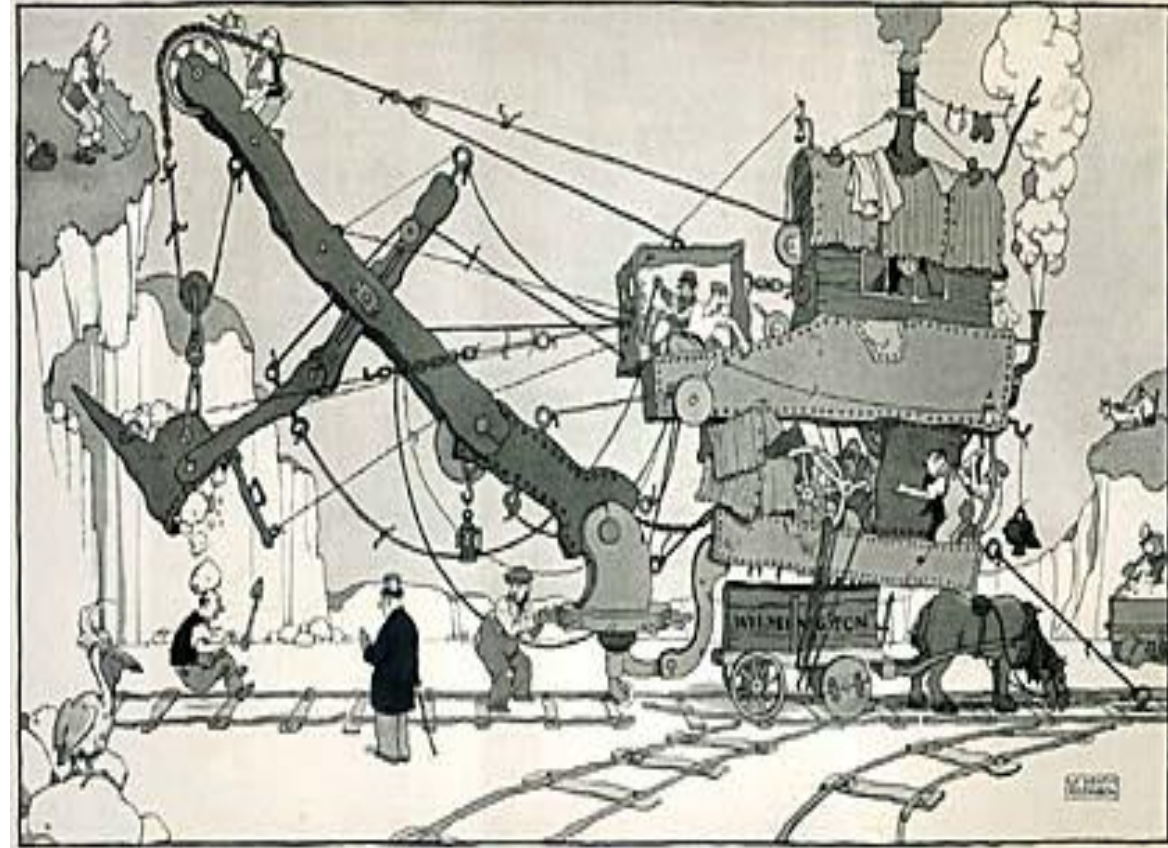
seppo.net

Cartoon by Sepp Leinonen

A functioning legal system and a history of taking risks



A reasonable infrastructure and a lot of industrial expertise



Investments being made elsewhere

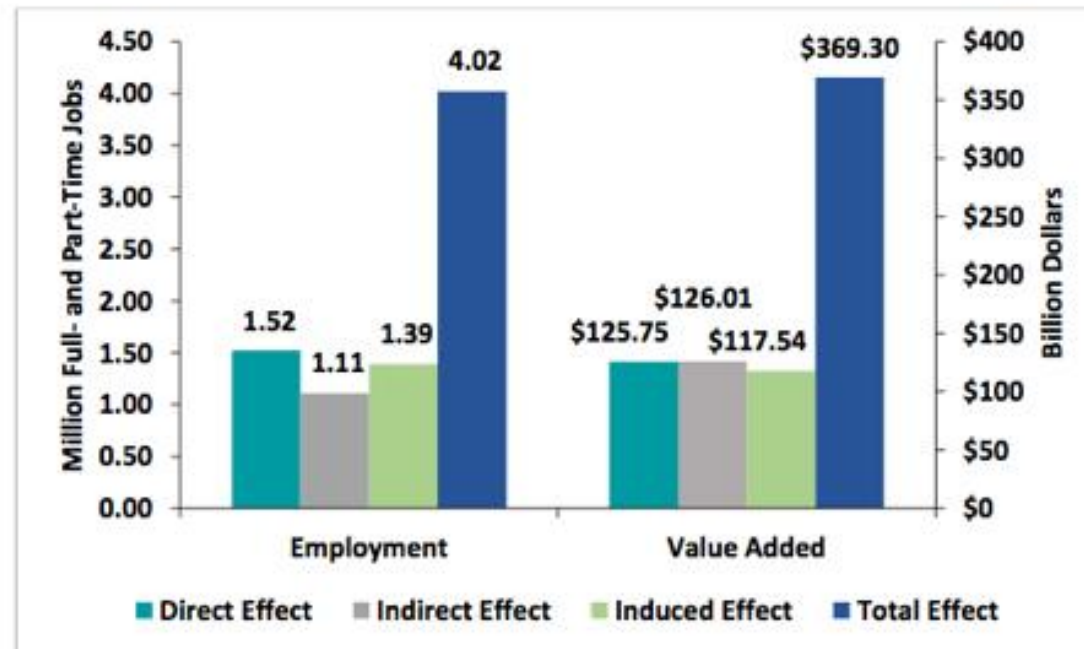
		Value
Germany	BASF , BIOTEC, FKuR	€ 400 million
France	SPHERE Group	€ 150 million
Spain	Abengoa	€ 250 million
Sweden	Perstrop	€ 50 million
Italy	Mossi & Ghisolfi, Novamont	€ 500 million + invested
USA	Natureworks	€ 200 million
UK ?		

With bio-preferred programme in USA since 2002 bio-based production has boomed (and this excludes energy) – around 20,000 products are listed

June 18, 2015

Biobased Products Contribute \$369bn to US Economy

Figure 2: Total Employment and Value Added to the U.S. Economy from the Biobased Products Industry in 2013



So, why are many countries players but the UK isn't ?

Why is the only maker of bio-based polymers in the UK a small Swedish company ?

Answers:

Lack of connectivity between industry, government, finance

Lack of favourable legislative framework

1. Waste and soil quality are related

What's the point of making bio-based and compostable products and materials if we don't collect them and close the soil- to- soil circular loop ?

So we need extensive coverage of household and business organic waste separate collection and a ban on landfilling organics

Not optimal to use compostable bags for organics collection when AD plants landfill them .

So we need to improve AD performance and improve digestate management post -AD, as elsewhere in Europe, improve carbon sequestration

How will we recover all the new biodegradable products coming on stream if we don't have an organics landfill ban and organics separate collection programmes ? (packaging, tableware, are already on the market)

And we want those clean- so compostable biobags for collection should be obligatory

These are not just theories, they actually work in practice

Oldham UK to Milan Italy have shown how organics collection improves dramatically with household separate collection using compostable bags – 100 councils in UK, 1,3 million Milanese inhabitants, 30 million Italians, 5 mn Catalonians, S. Francisco, Berlin

See www.greencarrierscheme.org see www.youtube.com/watch?v=zSjBbp-Q3IU

So for a bio-based boom we need waste legislation :

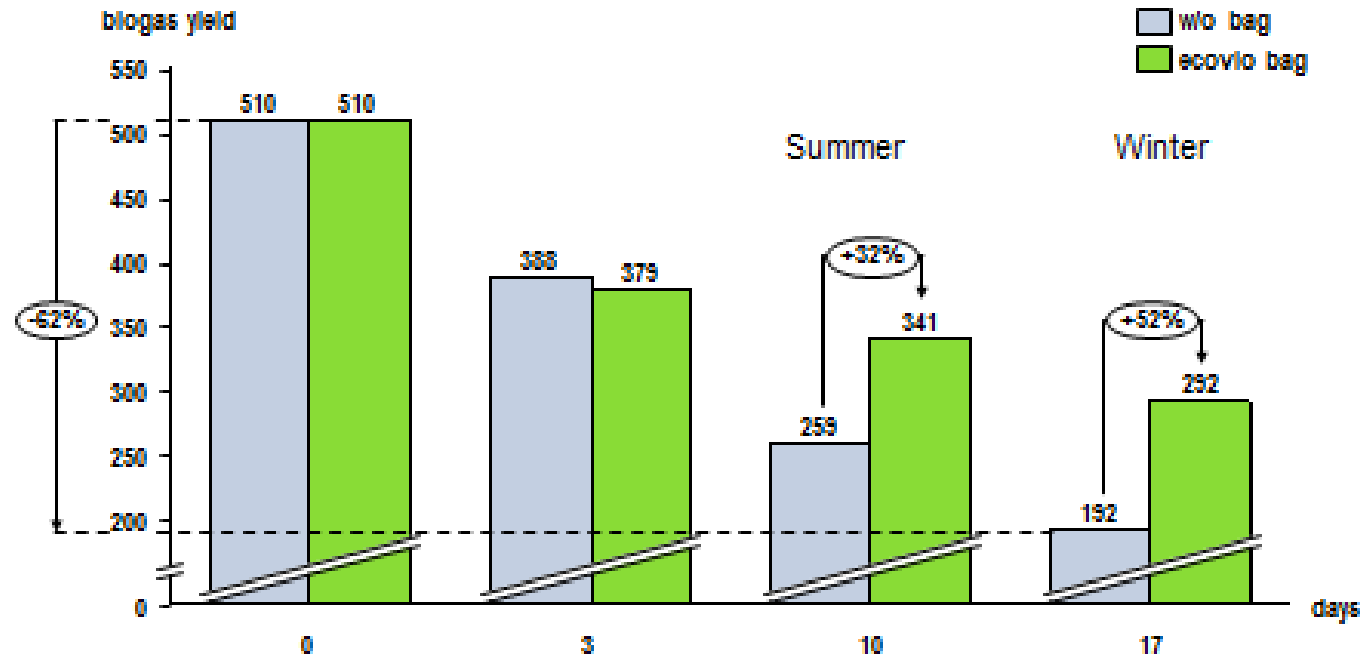
1. Landfill ban on organics
2. Extensive separate organics collection with mandatory use of compostable bags
3. AD digestate management to be improved for better soil to soil circular loop

We should also debunk the myth that compostable bags damage AD

150 years

ecovio® bags create value for biogas generation

BASF
We create chemistry



Graph: BBI Institute, Untersuchung der Destillationsrate von Bioabfällen bei der Bioabfall-Vergärung und -Kompostierung, Ausgabe 2015 (14)

Collection in ecovio® bags lead to:

In summer (a weekly collection scheme) to an 32% increase of biogas potential.

In winter (a 2-weekly collection scheme) to an 52% increase of biogas potential.

2. Green Public Procurement

Look at and copy the USA model of preferential purchasing for bio-based products in Government sourcing

Look at and copy Italian model of preferential purchasing of bio-based products such as in school canteens (throw away table ware used in London Olympics, Milan EXPO '15)

Think of using bio-based lubricants in engines in government sites, rather than petrol-based ; bio-based insecticides in government land areas

Creating preferential treatment of bio-based materials and products in sensitive areas like Parks, protected areas

All these come at virtually no cost to the taxpayer

3. Behavioural change, bans and taxes

Recognising the environmental value of biodegradable products, favour them by :

1. Phasing out fossil fuel alternatives (think of unrecyclable polystyrene pellets for packaging or polysterene beverage containers, banned now in NY State), allowing compostable alternatives.
2. Implementing use of bio-based and biodegradable lubricants for outboard motors on boats
3. Phasing out plastic mono-use carrier bags and tableware, allowing compostable alternatives
4. Reducing VAT for bio-based and biodegradable products



And let us not get side-tracked by the false problem of plastic recycling streams being at risk from compostables (see WRAP analysis on supermarket collection points, 2014)

Conclusions

If the UK PLC wants to get serious about bio-economy, it can take several, easy and cost effective measures immediately :

1. Changing the scenario on waste management, improving recovery of organics and linking this to improved soil management
2. Creating incentives and obligations through legislation
3. Preferential Government Procurement

More jobs, more investment, more exports, less imports, less CO₂, less waste.

Will we make it happen ?

www.bbia.org.uk

Thank you