Policies and Strategies to Enhance Competitiveness

CEPI Open Seminar: Competitiveness in a Circular Economy

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Overview

• Competitiveness
• By-streams / wastes
• Why change?
• Issues arising
What does it mean?

*Ultimately, competitiveness is about stepping up productivity, as this is the only way to achieve sustained growth in per capita income — which, in turn, raises living standards.*

(DG Enterprise)

‘Competitiveness’ is about getting more productive

How?
Competitiveness - productivity

• Productivity
  • Labour productivity
  • Total factor productivity / Multi-factor productivity

• Means increase output with respect to:
  • Labour
  • Others
    • Capital
    • Fibre input (and reducing costs thereof)
    • Energy input
    • Chemical inputs
    • Intangibles?
Competitiveness - productivity

- Volume / value-based measures
  - Output value relative to input values
    - Closer to accounting identities (gross profit, GVA)
- Increasing quality / value of outputs
  - Higher quality / value added
  - Valorising ‘wastes’, or by-streams
- Mills for recycled paper / board
- Industrial symbiosis
Wastes (excl. screen rejects)

Source: CEPI
By-streams (excl. screen rejects, ‘000 tonnes)

- Deinking sludge (kt dry), 3400
- Effluent sludge (kt dry), 3219
- Other sludge (kt dry), 507
- Coarse rejects (kt dry), 1096

Source: CEPI
Treatment of Sludges

Source: CEPI
Treatment of Sludges (‘000 tonnes dm)

- Incineration: 3281
- Reuse in Industrial Processes: 2053
- Used on Land: 1523
- Landfill: 305

Source: CEPI
Are we Circular Enough?

Source: Ellen Macarthur Foundation
The Bioeconomy

Feedstocks
- 1st generation: Food e.g. oilseeds
- 2nd and 3rd generation: Non-food
  - Dedicated crops e.g. lignocellulose, algae
  - Food processing co-products e.g. beet pulp

Co-products
- Municipal solid waste (domestic and commercial)
- Agricultural and forestry residues
- Industrial waste
- Organics in untreated water
- Industrial off gases (CO₂, CH₄)
- Landfill gas

Processes
- Thermochemical e.g. pyrolysis
- Chemical e.g. catalytic processes, esterification

Bioprocessing
- Aerobic Conversion e.g. Composting

Products
- Chemicals via platform chemicals or direct
  - Fine chemicals & Pharmaceuticals e.g. succinic acid
  - Speciality chemicals e.g. limonene (Fragrance)
  - Polymers e.g. Polylactic Acid (PLA)

Commodity chemicals e.g. esters
- Fibres
- Animal Feed
- Fuels (e.g. Biogas, Bioethanol)
- Heat & Power

Biorefineries

Source: Laboratory of Energy Systems, EPFL, Zurich
Why Change?

- Approach predicated on ‘reducing costs’
- Variation across EU Member States
  - Landfill – taxes and bans
    - variation from circa €20/tonne to €130/tonne, inclusive of tax (country averages)
  - Incineration – taxes
    - Countries with landfill bans tending to over capacity
    - Some countries with incineration taxes
    - Some countries offering support to ‘biomass’ energy
    - Some taxing heating fuels
    - Variation (for ‘mixed waste’) from circa €30/tonne to circa €140/tonne, inclusive of tax (country averages)
  - Landspreading
    - Potentially lower cost outlet
Why Change?

• Recent times
  • Landfill
    • Prices going up
  • Incineration
    • Prices going down in countries with overcapacity, maybe coming back up
    • In others, determined by local energy / tax policies
  • Landspreading
    • ???
Why Change?

• ‘Users’ may offer a better (value) deal for my wastes
  • More likely where current costs are high
    • Are there countries / locations where conditions for using by-streams are better / worse than others?

• Potential for being involved in adding value from waste streams
  • (Additional) GHG benefits
  • New business / diversified revenue streams
    • If involved as beneficiary
  • More headaches / markets?
Would-be Users…

• Will be looking to acquire material on favourable terms
• To pay as little as they can to attract the material to them…
  • Wastes, not primary (gate fee, not payment)
Cement Industry Example

- Charge gate fees for refuse derived fuel
  - But don’t have to
- Gate fees set at ‘background treatment cost’ minus preparation cost
- Probably *can* pay
- Germany:
  - As incineration costs fell, kilns dropped ‘gate fee’
- Lesson:
  - Waste gets more valuable when there’s more competition for it
Would-be Users...

- Will be looking to acquire material on favourable terms
- To pay as little as they can to attract the material to them...
  - Wastes, not primary (gate fee, not payment)
- ... but they want security of supply
  - (Like you)
  - New facilities requiring capital investment are likely to require this to give comfort to investors
  - Especially important for ‘waste-based’ enterprises
- Looking for partners with wastes ‘at scale’
- Low transport costs
Would-be Users...

• If high value added processes emerge...
• ... operations may be viable at positive / higher feedstock prices
• Potential for competition for secondary fibre
• Raises the issue of policy mix
  • Will Governments stimulate the bioeconomy through (further) price support / other mechanisms?
  • Will bioeconomy products attract premia high enough to justify competition for (e.g.) secondary fibre?
• And industry engagement
  • Collective interest in valorising wastes
By-streams

- Important to understand them well...
- ... not just the biogenic elements
  - Variability
  - Constraints on use
  - Quantities available
- Need to market the by-streams
  - Make end-users aware of the nature of these
  - Likely to call forward collaborative research and development
    - Suitability of by-streams / pre-treatments required
Possible Arrangements

• Contracts between industry and waste users
  • Risk / gain sharing?
  • Linked to commodity price indices
• Joint ventures
  • Risk sharing and potential for involvement in new business
• Some things are more risky than others
1. Scope for better management of by-streams in future
2. Maybe reasons not to change in short-term
3. Medium- to long-term, better to be in than out
4. Industry has collective interest in reducing costs / increasing value from by-streams
5. The ‘bioeconomy’ raises prospects for new competition for biogenic wastes
6. Major opportunity for involvement in development of new industry
7. An important transition period
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