



RDF/SRF pricing and its influence on the waste management competitive arena

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Topics of Presentation

- Introduction Alternate Resource Partners
- What are the pricing factors for AFR ?
- “Cost” factors using AFR in cement manufacturing
- Cost & pricing factors waste management
- Waste market development
- Observations & Conclusions
- Take home messages

Introduction Alternate Resource Partners (ARP) I

- Company started in 2009
- Network of Consultants, engineers, trainers, coaches & field operators for resource/waste management and cement manufacturing
- Worldwide experience in both mature and emerging countries replacing all fossil fuels by “waste - to – AFR” as well as POP’s handling
- ARP & its partners have > 200 years experience in all aspects of resource & waste management and cement manufacturing when it comes to AFR



Introduction Alternate Resource Partners (ARP) II

Main activities ARP:

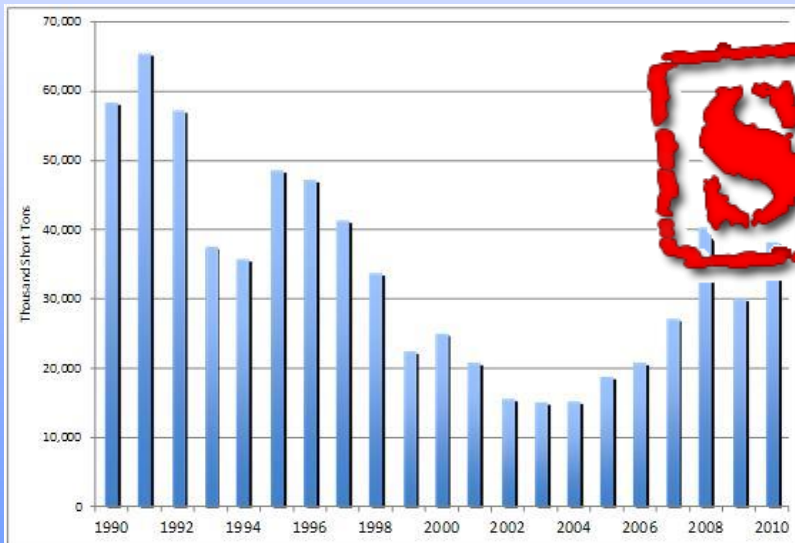
- ✓ Resource management business development in cement, lime & electric power industry,
- ✓ Waste-to-AFR market research, feasibility studies, etc.,
- ✓ Marketing & Sales training & coaching,
- ✓ Technical & Commercial support pre processing activities
- ✓ Consulting, reviews & audits on health, safety & environmental behaviour,
- ✓ HAZOP Studies on waste/AFR Installations
- ✓ Support POP's handling & pre-/co-processing
- ✓ Development specialized recycling machines for waste-to-AFR activities,
example: oil - filter recycling machine for emerging countries



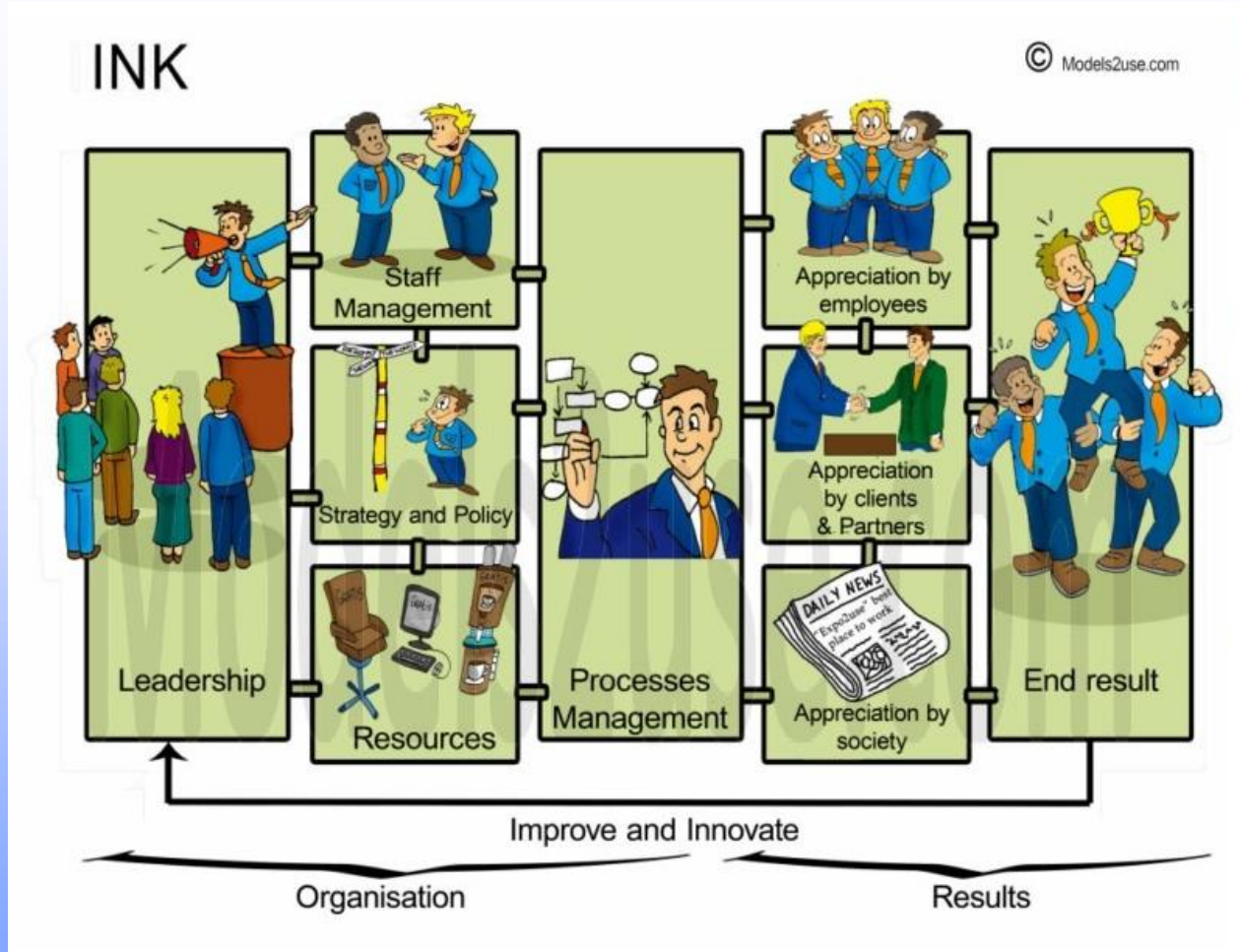
What are pricing factors for AFR

For some cement manufacturers
(Plant Managers & Purchasers)
the answer to this question is simple;

“IS IT CHEAPER THAN COAL?”



What are pricing factors for AFR



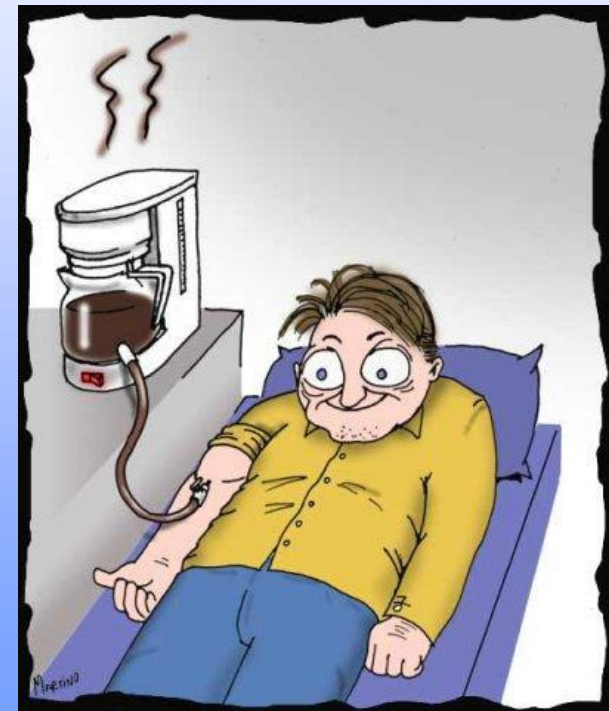
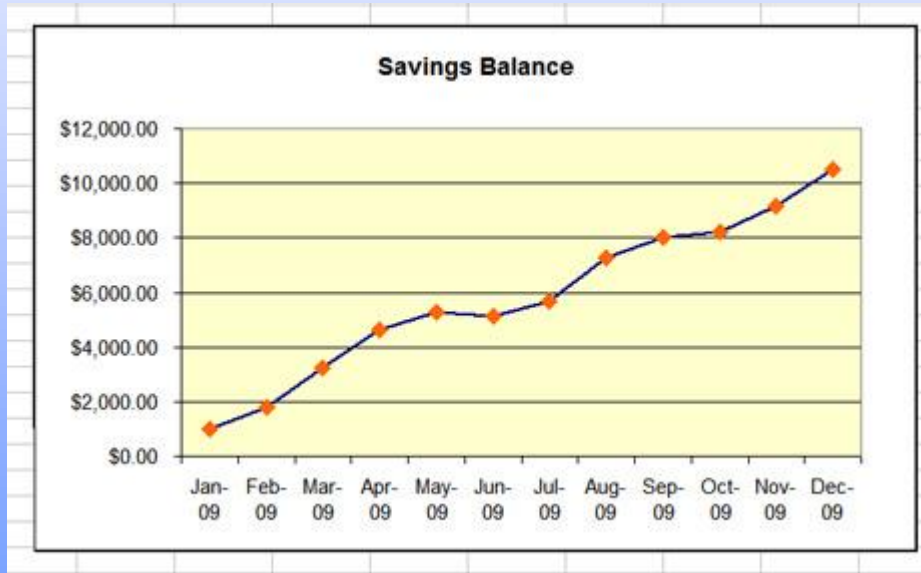
For some it's complicated business

“Cost” factors using AFR in cement manufacturing

- ✓ Energy +/- 30 – 40 % of manufacturing cost
- ✓ Fossil fuel cost reference towards potential savings
- ✓ CO₂ has become part of environmental performance and licence to operate
- ✓ Investment in storing & feeding systems AFR
- ✓ Quality control waste – to – AFR pre-processing
- ✓ Loss of production due to AFR properties and variability in feed/quality
- ✓ Continuous Emissions Monitoring Systems (CEMS);
- ✓ Sampling and testing materials including extra QC of clinker and cement products

“Cost” factors using AFR in cement manufacturing

Once cost savings of AFR become part of budget
cement plant gets “addicted” to these savings



Cost & pricing factors waste management services

- ✓ Cost are basically supply-chain costs, collection, transportation, pre-processing, documentation, receiving, handling, treatment, co-processing, monitoring and reporting - hazard level plays a role
- ✓ Waste services mainly sold on added value concept & environmental performance (waste hierarchy)
- ✓ Lack of resources put attention to our waste and its potential value – this resource thinking versus throw - away attitude is changing the waste markets first in mature markets later on in emerging markets
- ✓ New opportunities - new legislation, lack of or over-capacity

Comparing RDF situation in UK & Germany/NL

- Volumes & price in Germany/Netherlands downward trend
- Volumes & price in UK upward trend

Why ??

- Germany/Netherlands implemented the EU landfill directive several years ago long before UK
- Germany/Netherlands build MSW incinerator capacity resulting in overcapacity

Results:

- ✓ Incinerator cost sometimes below preparation cost RDF
- ✓ UK exports RDF over long distances into Europe
- ✓ NL incinerators have asked for R1 status

RDF versus SRF



- ✓ Cement kilns; high calorific material
- ✓ WfE plants; low calorific material, why even pretreat?

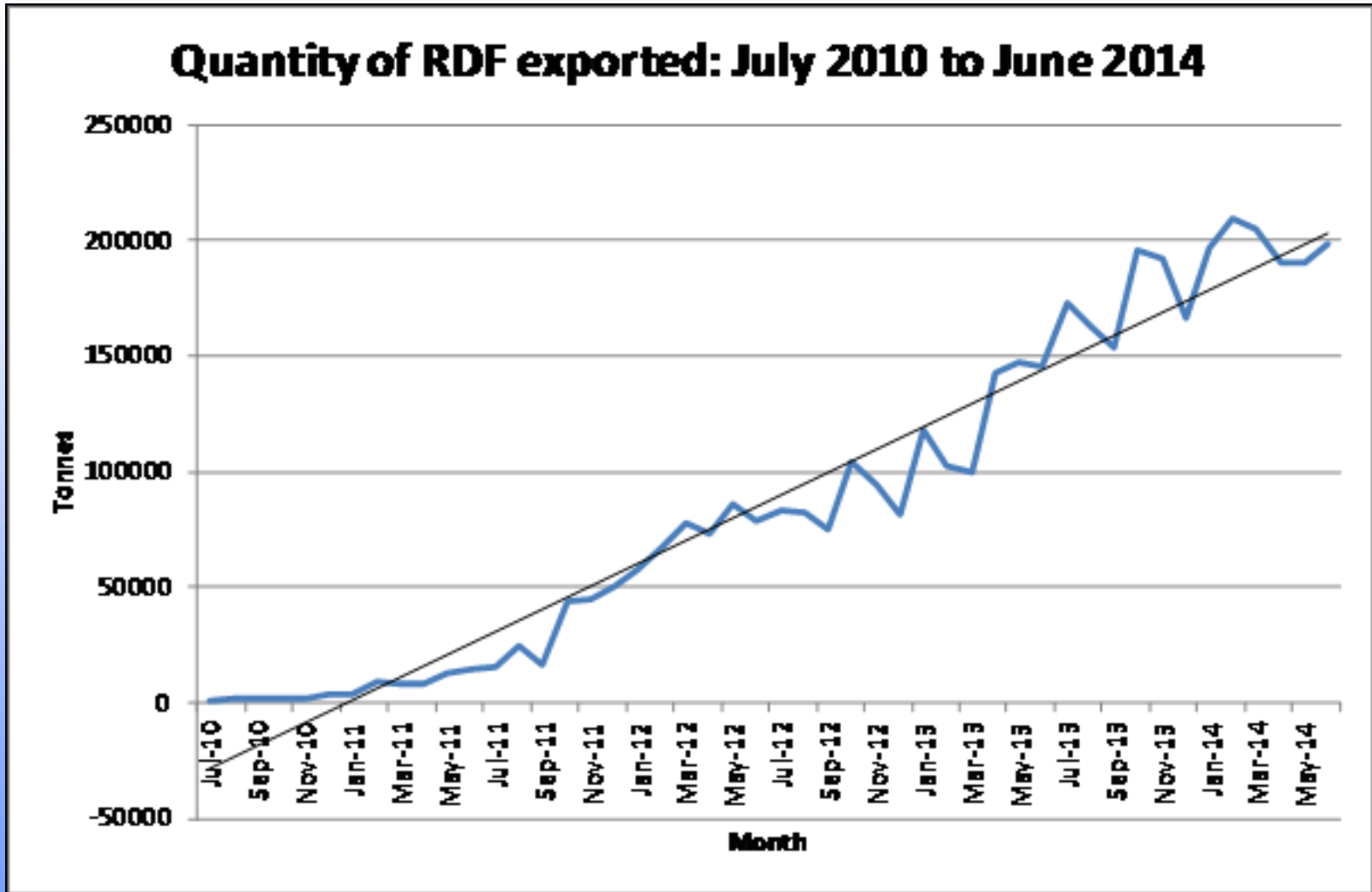
(Why) UK current export market

- ✓ UK markets are currently limited to small number of EfW facilities and in cement kilns
- ✓ In 2013, the UK exported over 1.5 million tonnes of RDF for combustion in European EfW
- ✓ This is often cheaper than landfilling waste in the UK, and therefore the waste market is responding...

- ✓ But from UK perspective this is wasting a UK resource!
 - Need investment in UK re-manufacturing and power generation to capture this



Volumes UK RDF export

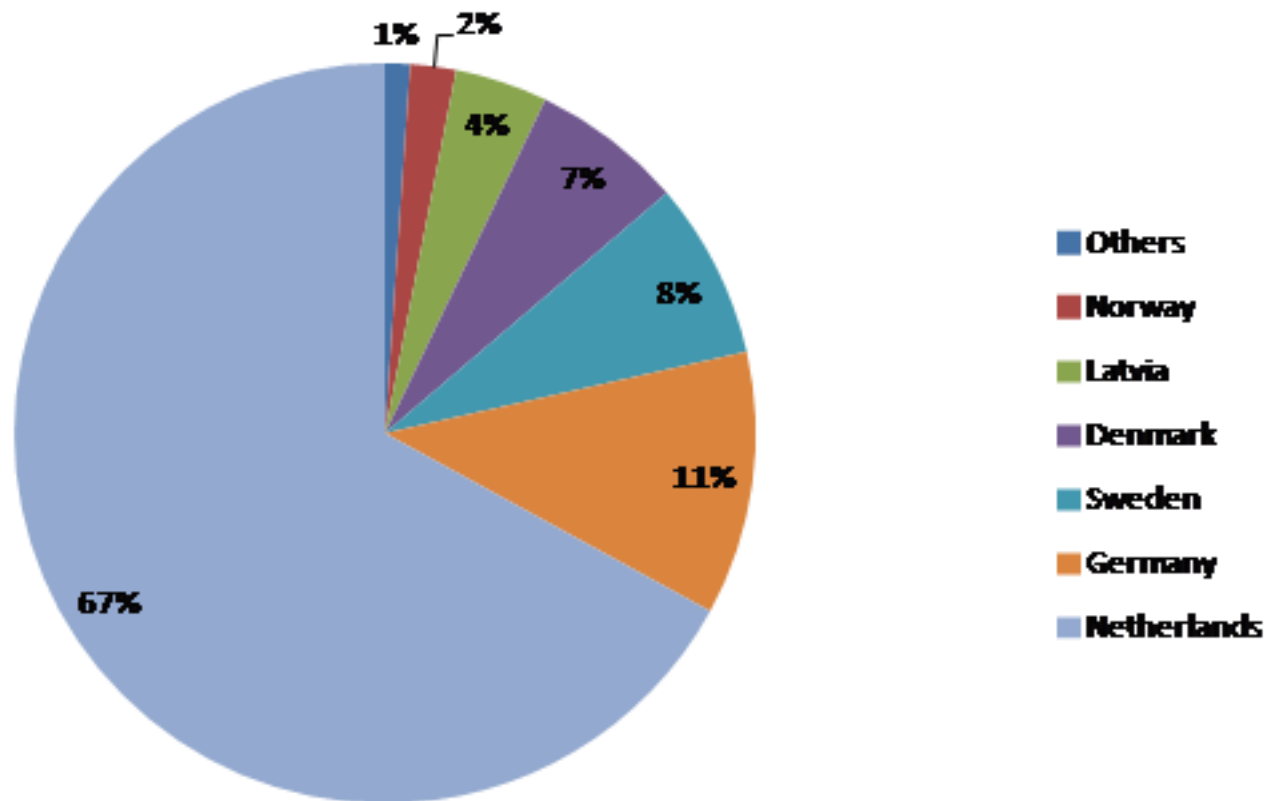


Source
EA UK

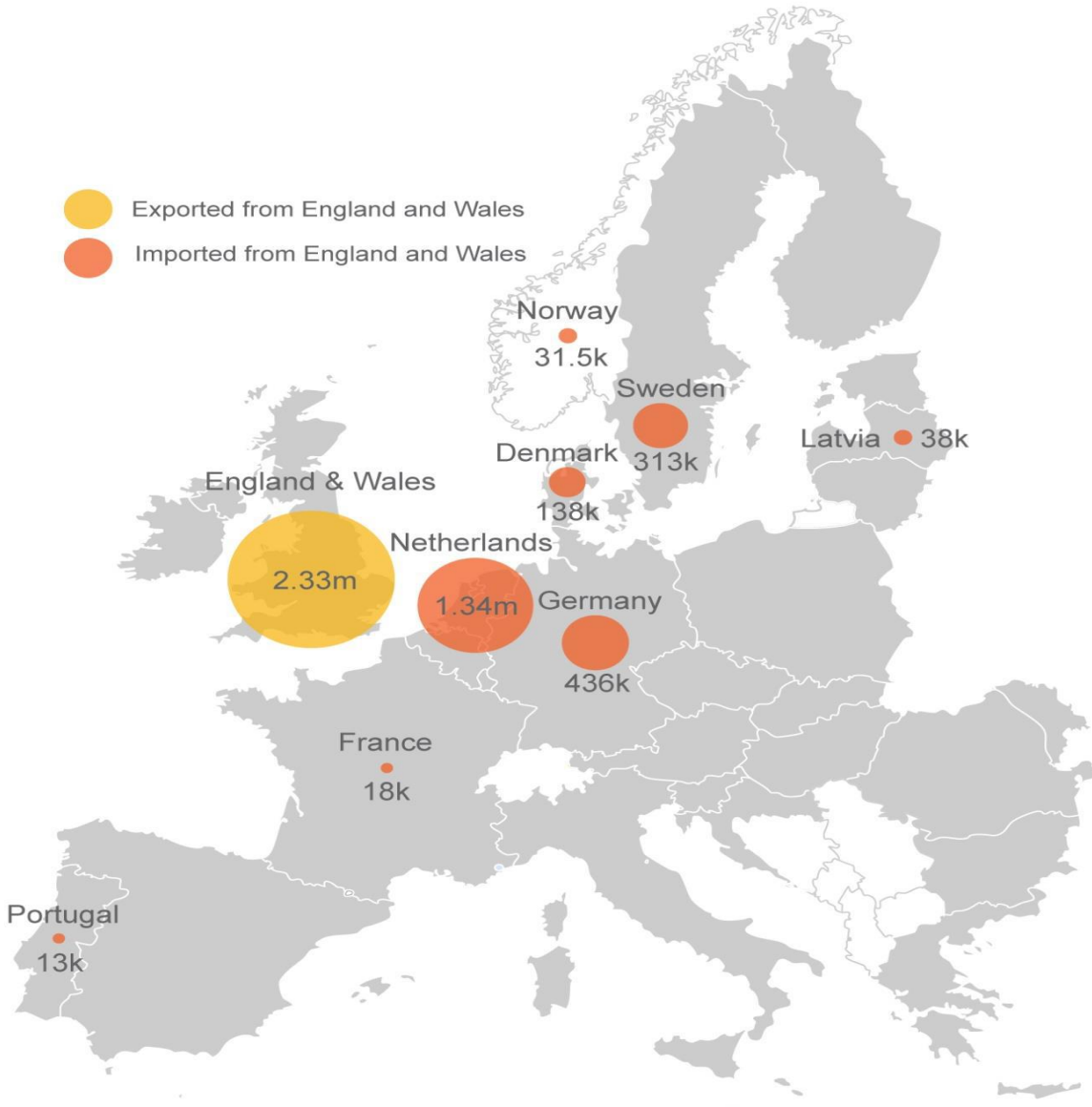


Destinations

Destination of UK RDF exports: July 2010 to June 2014



Source
EA UK



Source:
EUNOMIA

Today's drivers for export from UK

- ✓ Current landfill tax costs – high as a result of historic landfill tax escalator
- ✓ Lack of UK RDF processing capacity
- ✓ Demand in Europe due to over-capacity
 - Netherlands has over 50% over capacity, due to a slump in waste arisings plus high level recycling rates
 - This is pushing exports, gate fees reflect this and are plummeting in countries with high demand for RDF
- ✓So why shouldn't UK Local Authorities want a slice of the action – short term, low cost disposal??



Comments on UK developments according Prof. Adam Read

- ✓ RDF production is increasing
- ✓ More planned MBT plants going through system
- ✓ Exports from UK great now, but uncertain future
- ✓ UK resources are feeding EU so UK will start to STOP & THINK!
- ✓ So can UK close the loop locally?
- ✓ What will UK do to make it work?



Comments by



- ✓ RDF trade is here to stay and the UK is likely to remain a key trading partner
- ✓ New EU recycling target will be achieved by some but not all member states
- ✓ EfW still will remain an important disposal option
- ✓ Industry can improve asset performance and extract more value from waste
- ✓ Waste management sector provides a diversity of solutions and opportunities

Why RDF transborder shipments

- ✓ Available at short notice
- ✓ Low capital investment required
(pre-treatment, baling, wrapping)
- ✓ Allows access to R1 rated state-of-the-art facilities
- ✓ Maximizes the overall efficiency of assets in Europe



Defra UK

Response Defra's call for Evidence published December 2014

- ✓ Concerns raised about the exports of RDF and suggestions included banning, restricting or taxing exports
- ✓ These will not be taken forward as banning or taxing exports goes against free trade principles. Exports provide an important route for waste that may otherwise have gone to landfill.
- ✓ Other suggestions that will not be taken forward include
 - Subsidising EfW plants
 - Tightening R1 recovery criteria
 - Speeding up the planning process
 - Increasing UK incineration capacity

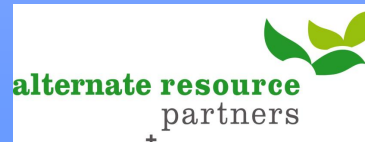
Available on Gov.uk website at

<https://www.gov.uk/government/consultations/refuse-derived-fuel-market-in-england-call-for-evidence>



Next steps announced by Defra UK

- ✓ Defra will ensure the enforcement work being undertaken covers RDF effectively
- ✓ Defra will feed into the work that Defra and the Environment Agency are doing on modifications to the permitting regime from an RDF perspective
- ✓ Defra will work closely with the Environment Agency and stakeholders to consider:
 - what a definition and standard could cover;
 - how they can address RDF quality issues;
 - the practicalities of introducing these;
 - potential costs and burdens



Observations & conclusions UK

- ❖ Legislation likely to be changed, influence on export?
- ❖ WfE plants are asking for a different material with a lower preparation cost and same waste hierarchy status
- ❖ Pressure to keep (energy) resources in UK
- ❖ Destinations are getting further away from UK
- ❖ RDF/SRF short term available even at initial better pricing for cement kilns
- ❖ Situation after 2020 uncertain due to:
 - WfE capacity at existing destinations (due to age)
 - Development WfE capacity in UK

General observations & conclusions

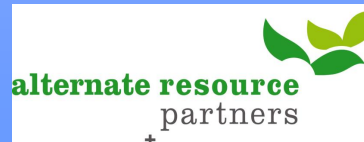
- ❖ Waste management market is influenced by many players all having their own interest
- ❖ AFR is becoming an international business even non hazardous waste are travelling over long distances
- ❖ Logistics is becoming more important as part of the supply chain for AFR
- ❖ Public perception in both exporting and importing countries play an important role
- ❖ Still valid Nothing destroys an AFR program faster than an environmental or safety emergency

Take home messages

- ✓ AFR pricing is a moving target like waste flows to the lowest point
- ✓ Opportunities come & go and need to be captured when available
- ✓ Energy savings and resource value will become target of 3rd parties – will give need to adapt strategy
- ✓ Multi year budgeting will become more difficult because of shorter waste solution cycles
- ✓ AFR pricing isn't an exact science
- ✓ Co-processing will continue to grow as part of resource management

Questions ?? Remarks !!

Thank you for your attention





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*Thank You for Your attention
Questions?? – Remarks!!*

