EfW - The Regulatory Framework

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The European Context

- **Integrated Pollution Prevention and Control (IPPC)**
  - Apply Best Available Techniques
  - No Significant Pollution (includes risk to human health)
  - Minimise Waste
  - Prevent Accidents and Limit Their Consequences
  - Return Land to Satisfactory State
- **Waste Incineration (WID)**
  - Sets Mandatory Minimum Standards for Emission Limit Values
  - monitoring and various operating conditions
- **Waste Framework Directive**
  - Waste Hierarchy
  - Recovery with High Energy Efficiency
  - R1 Energy Efficiency Formula

The Permitting Framework

- EfW plants – permitted under the Environmental Permitting regulations
- Requires the operator to submit an application to us
  - Description of the process and how it is controlled
  - Description of the impacts on the environment
  - Demonstrating how Best Available Techniques (BAT) will be used – inter alia to use materials and energy efficiently
- Requires us to assess the application
  - Decide whether to grant or refuse a permit
  - If granted we issue a permit for that particular activity containing a number of conditions

Current and Emerging Issues

- EU Renewable Energy Directive
- Increasing energy recovery in EfW plants
  - Our primary environmental outcome for the sector
  - Planning Process
  - High Energy Efficiency
  - R1 Energy Efficiency Formula
- Reducing ash going to landfill
  - Protocol for Sampling and Assessing IBA
  - Quality Protocol for processed IBA
  - Treatment options for Air Pollution Control Residues
- Maintaining public confidence in EfW plants
- Industrial Emissions Directive
  - Gasification / Pyrolysis processes producing products

Influence of the Renewables Obligation

Generation Type	Definition	ROCs / MWh
Energy from Waste with CHP	Electricity generation from the combustion of waste in a qualifying CHP plant	1
Gasification/Pyrolysis	Electricity generated from the conversion of waste or biomass into liquid/gaseous fuel(s) for use in a generating station by process of gasification, pyrolysis or both (fuel CV conditions apply)	2
Co-firing of biomass	Electricity generated from regular biomass in a month in which the generating station generates electricity partly from fossil fuel and partly from renewable sources	0.5
Co-firing of biomass with CHP	Electricity generated from regular biomass by a qualifying combined heat and power generating station in a month in which it generates electricity partly from fossil fuel and party renewable sources, and where the fossil fuel and regular biomass have been burned in separate boilers or engines	1
Co-firing of energy crops	Electricity generated from energy crops in a month in which the generating station generates electricity partly from fossil fuel and partly from renewable sources	1
Co-firing of energy crops with CHP	Electricity generated from energy crops by a qualifying combined heat and power generating station in a month in which it generates electricity partly from fossil fuel and energy crops, and where the fossil fuel and regular biomass have been burned in separate boilers or engines	1.5
Dedicated Biomass	Electricity generated from regular biomass in a month in which the generating station generates electricity only from biomass	1.5
Dedicated Biomass with CHP	Electricity generated from regular biomass by a qualifying combined heat and power generating station in a month in which the generating station generates electricity only from biomass	2
Dedicated Energy Crops (with or without CHP)	Electricity generated from energy crops in a month in which the generating station generates electricity only from energy crops or biomass	2

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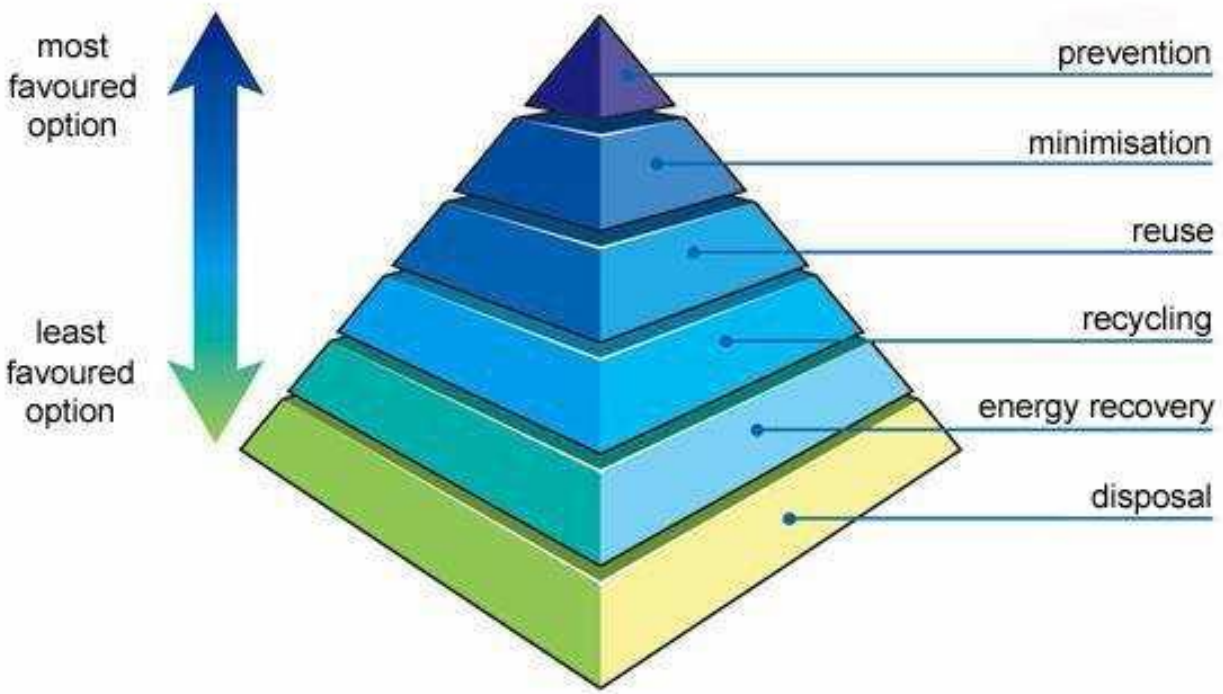
EfW within the waste hierarchy



Annex II of WfD includes a non-exhaustive list of recovery operations

R 1 ‘Use principally as a fuel or other means to generate energy’

This includes incineration facilities dedicated to the processing of **municipal solid waste** only where their energy efficiency is equal to or above:

0.60 for plants permitted before January 2009

0.65 for plants permitted after December 2008

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The R1 formula

$$\text{R1-factor} = \frac{Ep - (Ef + Ei)}{0.97 * (Ew + Ef)}$$

Ep – energy produced (includes some internal consumption)
Ef – energy from fuels
Ei – electricity or heat imported
Ew – energy in the waste

The R1 formula – need to knows

- Applies to plant dedicated to processing MSW
- Does not apply to co-incinerators or HWI, CWI, SSI
- Calculation includes all the waste processed
- Supported by guidance from the commission
- Commission guidance is not legally binding
- We are the competent authority for assessing status
- R1 status will not be a permit condition
- R1 status can be awarded to a line or an installation
- R1 status is time limited
- Application is voluntary

ESA Protocol for IBA

- Hazardous Waste Regulations
- Based on a load of IBA leaving the site
- Provides a sampling methodology
- Provides a statistical framework to deal with the inherent variability of IBA
- Scope for reduced sampling
- Subject to a six month review
- Allowance for use for metals analysis where merited

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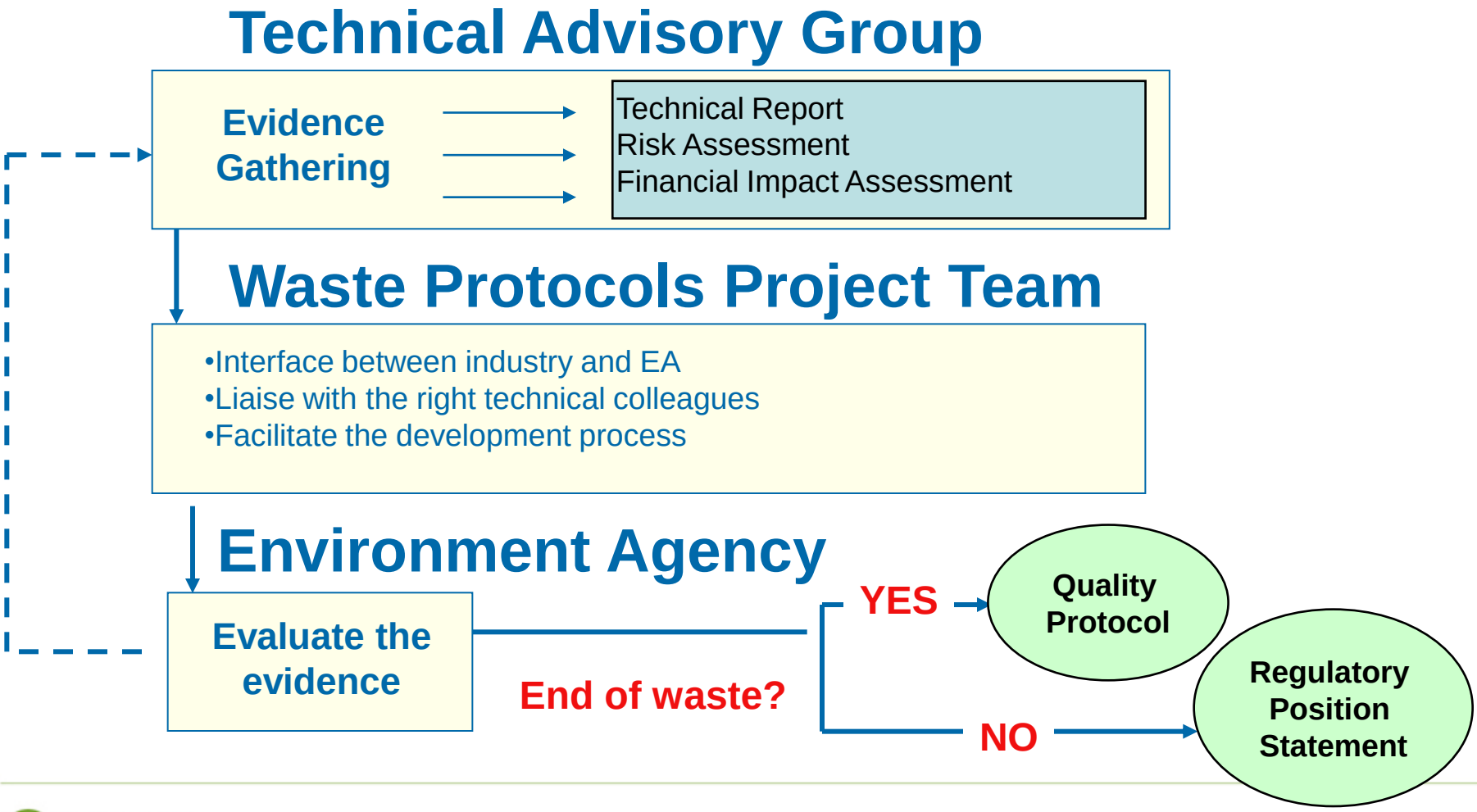
Quality Protocol for Processed IBA



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Quality protocol – indicative timeline

- Finalise sampling plan - **June 2011**
- Tender for sampling work - **July – December 2011**
- Conduct sampling and analysis **January – June 2012**
- Complete risk assessment and FIA **June – October 2012**
- Evaluate and decide whether to draft a QP - **October 2012**
- UK consultation on the draft QP - **December – March 2013**
- Revise QP - **April 2013**
- European consultation on the draft QP **May – November 2013.**
- Publish: **December 2013**

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Any questions?

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