

[www.defra.gov.uk](http://www.defra.gov.uk)

# Phase 2 of the Impact Assessment of Proposals for a Revised IPPC Directive

## Part 6: Mixed Animal and Vegetable Food Production Final report

June 2008



Llywodraeth Cynulliad Cymru  
Welsh Assembly Government



**DOE**

Department of  
the Environment  
[www.environment.gov.uk](http://www.environment.gov.uk)



**The Scottish  
Government**



**defra**  
Department for Environment  
Food and Rural Affairs

Department for Environment, Food and Rural Affairs  
Nobel House  
17 Smith Square  
London SW1P 3JR  
Telephone 020 7238 6000  
Website: [www.defra.gov.uk](http://www.defra.gov.uk)

© Crown copyright 2008

Copyright in the typographical arrangement and design rests with the Crown.

This publication (excluding the royal arms and departmental logos) may be re-used free of charge in any format or medium provided that it is re-used accurately and not used in a misleading context. The material must be acknowledged as crown copyright and the title of the publication specified.

Information about this publication and further copies are available from:

Defra  
Industrial Pollution Control Programme  
Area 3C Ergon House  
C/o Nobel House  
17 Smith Square, London SW1P 3JR  
Tel: 020 7238 1687

Email: [control.pollution@defra.gsi.gov.uk](mailto:control.pollution@defra.gsi.gov.uk)

This document is available on the Defra website:

<http://www.defra.gov.uk/corporate/consult/emissions-other/>

Published by the Department for Environment, Food and Rural Affairs  
Produced by Entec UK Ltd

# Executive Summary

## Introduction

The Commission published its proposal and an impact assessment for a Directive on industrial emissions (Industrial Emissions Integrated Pollution Prevention and Control, IE(IPPC)D<sup>1</sup>) on 21<sup>st</sup> December 2007. This consolidates seven existing Directives related to industrial emissions into “a single clear and coherent legislative instrument” and includes a number of changes related to new and existing activities. The main objective of this report is to assess, in outline, the likely impacts of the proposal in relation to non-ferrous metals installations within the UK.

## Proposed Changes

The EC has proposed the addition of the following as a listed activity within the IPPC Directive:

*“Treatment and processing, other than exclusively packaging, of the following raw materials, whether previously processed or unprocessed, intended for the production of food products for humans or animals from a mix of animal and vegetable raw materials with a finished product production capacity in tonnes per day greater than:*

- 75 if A is equal to 10 or more
- $[300 - (22.5 \times A)]$  in any other case

*where ‘A’ is the portion of animal material (in percent) of the finished product production capacity”.*

Packaging is not included in the final weight of the product. In addition, this new subsection does not apply where the raw material is milk only.

The purpose of the proposed inclusion is to include installations which are mixing animal and vegetable food within their products. Thresholds currently within the IPPC Directive are only set for the production from exclusively one type of raw material (75 tonnes a day for animal raw materials and 300 tonnes per day for vegetable raw materials).

---

<sup>1</sup> “Proposal for a Directive of the European Parliament and of the Council on industrial emissions (integrated pollution prevention and control) (recast)”. European Commission, Brussels, 21<sup>st</sup> December 2007. Available from: <http://ec.europa.eu/environment/ippc/proposal.htm>

## Baseline Definition

There are approximately 6,947 food and drink manufacturing installations in the UK. 369 of these are currently regulated under IPPC. In the UK it is estimated that 25% of all IPPC permitted food and drink installations are 'mixed installations'.

**10 sites** have been identified which are not currently permitted under IPPC and which *may* fit into the definition outlined in the proposed revisions to the IPPC Directive (9 in England and Wales and 1 in Scotland). The main sector that may be affected by the proposed changes to the Directive, as defined by the SIC code, is expected to be 15.8 'Manufacture of other food products'.

This sector represents the manufacture of biscuits, cakes, confectionary and soups. These sub-sectors may use small amounts (<10%) of animal raw material in their products (for example butter, animal protein, eggs, gelatine etc.), which may allow them to be captured under this option. Other sectors that may come under this scope include the manufacture of prepared animal feeds, which consists of two sub-sectors, compound animal feed and pet feed manufacturing.

The main environmental impacts associated with mixed food and drink industries include water use, effluent discharges, energy use and waste generation. The Food and Drink BREF and the Environment Agency Sector Guidance Note S6.10 provide BAT for the prevention and reduction of environmental impacts.

## Costs & Benefits

### *Compliance costs*

Compliance costs for the food and drink installation that may be affected by the proposed changes to the threshold have been estimated based on discussions with food and drink companies and published information on the potential measures that may be required and their associated costs.

Estimates of the compliance costs likely to be incurred by operators of the mixed food and drink installations that would be included under IPPC are presented in the tables below. These costs have been estimated on the assumption that **10 installations** in the UK would be affected by the proposed revisions to the IPPC Directive. Costs have been split for the 9 installations in England and Wales and 1 in Scotland.

The costs do not reflect the significant costs which may be incurred through major capital projects, such as installation of thermal oxidisers or effluent treatment plants. These have been required for some food and drink installations which are currently permitted, and the associated costs are reported to have been in the order of several million pounds.

**Table 1 Compliance Costs for the Affected Sites in England and Wales Associated with the Proposed Revisions to the IPPC Directive**

Cost Element	Affected installations	Proportion affected (%)	Capital cost (£/unit)		Annual cost (£/unit)	Total annualised capital cost (£)		Total annual cost (£)	Key assumptions
			Low	High		Low	High		
Development of a formal EMS	9	50%	£10,000	£30,000		£3,166	£9,499		
Site closure plan	9	100%	£2,000	£4,000	-	£1,266	£2,533		
Accident management plan	9	100%	£2,000	£4,000		£1,266	£2,533		
Review of secondary containment of raw materials	9	100%	NE	NE	NE	NE	NE	NE	
Drain integrity survey	9	60%	£2,500	£4,000		£950	£1,520		
Monitoring & measuring emissions to air	9	80%	£3,000	£20,000		£1,520	£10,132		
Monitoring & measuring emissions to water/sewer	9	80%	£3,000	£20,000		£1,520	£10,132		
Review of cleaning techniques	9	unknown	£5,000	£20,000		unknown	unknown		
Noise management plan	9	50%	£2,000	£4,000		£633	£1,266		
Odour management plan	9	70%	£3,000	£5,000	£1,500	£1,330	£2,216	£9,450	
<b>Total Cost</b>			<b>£32,500</b>	<b>£111,000</b>	<b>£1,500</b>	<b>£11,652</b>	<b>£39,831</b>	<b>£9,450</b>	
<p>These costs are indicative estimates based on consultation and internal expert judgment.</p> <p>Total annualised costs are estimated based on installations affected and the proportion affected</p> <p>Total annualised costs are estimated using a discount rate of 3.5% over a 20 year lifetime which is consistent with the HM Treasury Green book</p> <p>NE – Not Estimated (information on costs of secondary containment or equivalent measures has not yet been received)</p>									

**Table 2 Compliance Costs for the Affected Sites in Scotland, Associated with the Proposed Revisions to the IPPC Directive**

Cost Element	Affected installations	Proportion affected (%)	Capital cost (£/unit)		Annual cost (£/unit)	Total annualised capital cost (£)		Total annual cost (£)	Key assumptions
			Low	High		Low	High		
Development of a formal EMS	1	50%	£10,000	£30,000		£352	£1,055		
Site closure plan	1	100%	£2,000	£4,000	-	£141	£281		
Accident management plan	1	100%	£2,000	£4,000		£141	£281		
Review of secondary containment of raw materials	1	100%	NE	NE	NE	NE	NE	NE	
Drain integrity survey	1	60%	£2,500	£4,000		£106	£169		
Monitoring & measuring emissions to air	1	80%	£3,000	£20,000		£169	£1,126		
Monitoring & measuring emissions to water/sewer	1	80%	£3,000	£20,000		£169	£1,126		
Review of cleaning techniques	1	unknown	£5,000	£20,000		unknown	unknown		
Noise management plan	1	50%	£2,000	£4,000		£70	£141		
Odour management plan	1	70%	£3,000	£5,000	£1,500	£148	£246	£1,050	
<b>Total Cost</b>			<b>£32,500</b>	<b>£111,000</b>	<b>£1,500</b>	<b>£1,295</b>	<b>£4,426</b>	<b>£1,050</b>	

These costs are indicative estimates based on consultation and internal expert judgment.  
Total annualised costs are estimated based on installations affected and the proportion affected  
Total annualised costs are estimated using a discount rate of 3.5% over a 20 year lifetime which is consistent with the HM Treasury Green book  
NE – Not Estimated (information on costs of secondary containment or equivalent measures has not yet been received)

### Administrative Costs

Administrative costs would be incurred by the food and drink installations through permit application and annual subsistence costs as the proposed change to the IPPC Directive includes sites, which have previously not been regulated under the IPPC regime.

The administrative costs associated with the proposed change to incorporate mixed food and drink installations within the IPPC Directive are summarised in the tables below. For calculation of these costs, it has been assumed that **10 installations** in the UK (**9 in England and Wales and 1 in Scotland**) would be affected by the proposed revisions to the IPPC Directive.

Administration costs in Table 3 are based on those for England and Wales. Costs in Table 4 are based on administrative costs for Scotland, with the exception of permit application time costs, improvements costs and subsistence costs, which have been based on those for England and Wales<sup>2</sup>.

<sup>2</sup> As costs for England and Wales are higher than those for Scotland, these should be considered as worst case basis

**Table 3 Administrative Costs for the Affected Sites in England and Wales, Associated with the Proposed Revisions to the IPPC Directive**

Cost element	Unit cost (£/installation)		Total annualised one off costs (£)		Total Annual costs (£/year)	
	Low	High	Low	High	Low	High
<b>Operators</b>						
Permit application fees	£10,000	£20,000	£6,332	£12,665	-	-
Permit application time costs	£20,000	£60,000	-	-	£180,000	£540,000
Improvement costs	£30,000	£350,000	-	-	£270,000	£3,150,000
Subsistence fees	£6,000	£10,000	£3,799	£6,332	£54,000	£90,000
Subsistence time costs	£25,000	£65,000	-	-	£225,000	£585,000
Surrender costs	£10,000	£15,000	£6,332	£9,499		
<i>Sub-Total</i>	<i>£101,000</i>	<i>£520,000</i>	<i>£16,464</i>	<i>£28,496</i>	<i>£729,000</i>	<i>£4,365,000</i>
<b>Regulatory Authorities</b>						
Permit application time costs (regulators)			Assuming costs covered within the application fee			
Subsistence time costs			Assuming costs covered within the application charge			
Sub-Total	N/A	N/A	N/A	N/A	N/A	N/A
<b>Total Annualised Administrative Costs</b>	<b>£101,000</b>	<b>£520,000</b>	<b>£16,464</b>	<b>£28,496</b>	<b>£729,000</b>	<b>£4,365,000</b>

Note: Surrender charge has been estimated as it is dependent upon installation complexity and cannot be easily calculated without further information.

**Table 4 Administrative Costs for the Affected Sites in Scotland, Associated with the Proposed Revisions to the IPPC Directive**

Cost element	Unit cost (£/installation)		Total annualised one off costs (£)		Total Annual costs (£/year)	
	Low	High	Low	High	Low	High
<b>Operators</b>						
Permit application fees	£15,260	£15,260	£1,074	£1,074	-	-
Permit application time costs	£20,000	£60,000	-	-	£20,000	£60,000
Improvement costs	£30,000	£350,000	-	-	£30,000	£350,000
Subsistence fees	£3,380	£3,380	£238	£238	£3,380	£3,380
Subsistence time costs	£25,000	£65,000	-	-	£25,000	£65,000
Surrender costs	£2,754	£2,754	£194	£194		
<i>Sub-Total</i>	<i>£96,394</i>	<i>£496,394</i>	<i>£1,505</i>	<i>£1,505</i>	<i>£78,380</i>	<i>£478,380</i>
<b>Regulatory Authorities</b>						
Permit application time costs (regulators)			Assuming costs covered within the application fee			
Subsistence time costs			Assuming costs covered within the application charge			
Sub-Total	N/A	N/A	N/A	N/A	N/A	N/A
<b>Total Annualised Administrative Costs</b>	<b>£96,394</b>	<b>£496,394</b>	<b>£1,505</b>	<b>£1,505</b>	<b>£78,380</b>	<b>£478,380</b>

Note: Permit application time costs, improvement costs and subsistence costs are based on costs for England and Wales.

One-off costs have been annualised over the lifetime of a permit (assumed to be 20 years in line with Defra, 2006) with a discount rate of 3.5%.

Following discussions with the Environment Agency, we have made the assumption in the calculations that regulatory cost burden associated with the proposed revisions to the IPPC Directive will be fully recovered through the fees and charges.

### Limitations/Uncertainties

- It has been assumed that the UK government will apply the proposed IPPC Directive changes in line with current arrangements for IPPC, namely division into part A, A(1), A(2) and part B processes and based upon the same thresholds as currently apply;
- there are uncertainties around the number of installations that may be affected by the proposed changes to the Directive. **10 sites** have been identified that *may* potentially be affected, however a further **5 sites** could also potentially be covered (4 additional sites in Scotland and 1 in Northern Ireland). These sites have not yet been confirmed and we were unable to obtain any information on these sites. Further discussions with SEPA and Northern Ireland would be required to confirm these sites. Compliance and administration costs have been estimated for the 5 additional sites based on costs for Scotland and Northern Ireland; and
- in addition, other than those operators that will be genuinely affected by the proposed changes to the Directive, there maybe others that will apply for a permit, not because they currently exceed the threshold, but to avoid risk of error/ miscalculation of their output vs composition in the future, owing to the less certain approach associated with having two variables. It is not possible to determine the number of installations that may be affected by this.

# Contents

<b>1.</b>	<b>Introduction</b>	<b>1</b>
1.1	<b>This Report</b>	<b>1</b>
1.2	<b>What is the Issue?</b>	<b>2</b>
1.2.1	Overview of Revised IPPC Directive	2
1.2.2	Proposed Changes:	3
1.3	<b>What are the Objectives and Intended Effects?</b>	<b>4</b>
<b>2.</b>	<b>Policy Options</b>	<b>7</b>
2.1	<b>Food and Drink Installations</b>	<b>7</b>
<b>3.</b>	<b>Who is Affected?</b>	<b>9</b>
<b>4.</b>	<b>Baseline Definition</b>	<b>11</b>
4.1	<b>Approach</b>	<b>11</b>
4.2	<b>Proposed Installations</b>	<b>11</b>
4.2.1	Number of Installations	11
4.2.2	Environmental Impact	18
4.2.3	Techniques for Prevention or Reduction of Environmental Impacts	24
4.3	<b>Overview of Current Legislation</b>	<b>25</b>
4.3.1	Current IPPC Requirements for Food and Drink Industries	25
4.3.2	Other Key Legislation	27
4.4	<b>Sector Association Initiatives</b>	<b>28</b>
4.5	<b>Results</b>	<b>29</b>
4.6	<b>Summary</b>	<b>30</b>
<b>5.</b>	<b>Costs</b>	<b>31</b>
5.1	<b>Approach</b>	<b>31</b>
5.1.1	Compliance Costs	31
5.2	<b>Administrative Costs</b>	<b>32</b>
5.2.1	Operators	32
5.2.2	Regulators	35
5.3	<b>Results</b>	<b>35</b>
5.4	<b>Uncertainties</b>	<b>39</b>

<b>6.</b>	<b>Benefits</b>	<b>43</b>
6.1	Mixing Rule	43
6.2	Approach	44
6.3	Summary	46
<b>7.</b>	<b>Quarterly Basis Amendment</b>	<b>47</b>
<b>8.</b>	<b>Competition Assessment</b>	<b>49</b>
<b>9.</b>	<b>Distributional Impacts on Different Sizes</b>	<b>51</b>
9.1	Summary	52
9.2	Limitations/Uncertainties	52
Table 1.1	Key Dates for the Discussion and Implementation of the Proposed IE(IPPC)D	3
Table 4.1	Food and Drink Manufacturing Industry by SIC Codes and Industry Statistics (2006 data)	12
Table 4.2	Number of Installations Currently Regulated Under IPPC	14
Table 4.3	Type and Number of Sites Identified that may be Affected by the Changes to the IPPC Directive	17
Table 4.4	Potential Impact of Food and Drink Industry	19
Table 4.5	Environmental Performance of the Food and Drink Industry 2006	20
Table 4.6	Total Releases (tonnes) from Animal, Vegetable and Food PPC regulated sites for 2005 and 2006	23
Table 5.1	Compliance Costs for Sites in England and Wales	36
Table 5.2	Compliance Costs for Sites in Scotland	37
Table 5.3	Administrative Costs for Sites in England and Wales	38
Table 5.4	Administrative Costs for Sites in Scotland	39
Table 5.5	Administrative Costs for 4 Additional Sites in Scotland	40
Table 5.6	Administrative Costs for 1 Site in Northern Ireland	41
Table 6.1	Environmental Benefits	44
Table 8.1	Summary of the Competition Test	49
Table 9.1	Annualised Costs (£) per Affected Installation	51
Figure 4.1	Proposed Amendment to IPPC Directive for Mixed Food and Drink Installations	15
Figure 4.2	Total Energy Consumption by sub-sector	22
Figure 6.1	Proposed Amendment to IPPC Directive for Mixed Food and Drink Installations	43

# 1. Introduction

## 1.1 This Report

### Introduction

The overall aim of this report is to provide support to Defra in response to the publication of the European Commission's proposal for a new Directive on industrial emissions. This work will be undertaken under Entec's framework contract with Defra on "*The Preparation of Regulatory Environmental Impact Assessments in Relation to Proposals for Air Quality Legislation*" contract (RIA). The main objective of this report is to assess the likely impacts of the proposal in relation to mixed animal and vegetable installations within the UK, building and commenting on as well as extending the Commission's Impact Assessment (IA), where appropriate. In particular, this report focuses on the proposed changes relating to the definition of "mixed" food and drink installations.

The project team has consulted with the following stakeholders to support the development of this report:

- Environment Agency for England & Wales (EA);
- Food and Drink Federation (FDF);
- Scottish Environment Protection Agency (SEPA);
- Environment and Heritage Service (EHS) Northern Ireland;
- Agricultural Industries Confederation (AIC);
- Chilled Foods Association (CFA);
- Pet Food Manufacturers Association (PFMA); and
- A number of food manufacturers:
  - Premier Foods
  - Northern Foods
  - Unilever

- Baxters
- Greencore

## 1.2 What is the Issue?

### 1.2.1 Overview of Revised IPPC Directive

The Commission has published its proposal and an impact assessment for a Directive on industrial emissions (Industrial Emissions Integrated Pollution Prevention and Control, henceforth cited as “IE(IPPC)D”<sup>3</sup>) on 21<sup>st</sup> December 2007, which consolidates seven existing Directives related to industrial emissions into a single clear and coherent legislative instrument. These existing Directives include titanium dioxide industry related directives (78/176/EEC, 82/883/EEC, 92/112/EEC), the IPPC Directive (96/61/EC), the Solvent Emission Directive (1999/13/EC), the Waste Incineration Directive (2000/76/EC) and the LCP Directive (2001/80/EC). The Commission’s IA<sup>4</sup> identified a number of problems related “(1) to shortcomings in the current legislation that lead to unsatisfactory implementation and difficulties in Community enforcement actions and, thereby, to loss of health and environmental benefits and (2) to the complexity and lack of coherence of parts of the current legal framework.”

The Commission has provided an indicative timeline for discussion and implementation of the proposals. It is important to note that this is dependent on the length of time it takes to discuss and agree the proposed directive within the co-decision procedure. The initial timetable is set out below in Table 1.1.

---

<sup>3</sup> “Proposal for a Directive of the European Parliament and of the Council on industrial emissions (integrated pollution prevention and control) (recast)”. European Commission, Brussels, 21<sup>st</sup> December 2007. Available from: <http://ec.europa.eu/environment/ippc/proposal.htm>

<sup>4</sup> “Commission Staff Working Document: Accompanying document to the Proposal for a Directive of the European Parliament and of the Council on industrial emissions (integrated pollution prevention and control) (recast). Impact Assessment.” European Commission, Brussels, 21<sup>st</sup> December 2007. Available from: <http://ec.europa.eu/environment/ippc/proposal.htm>

**Table 1.1 Key Dates for the Discussion and Implementation of the Proposed IE(IPPC)D**

Date	Description
12/2007	The Commission adopts its proposal for a Directive on industrial emissions as well as issuing its Communication 'Towards an improved policy on industrial emissions'
01/2009	First reading in the European Parliament and political agreement in Council.
12/2010	Completion of the co-decision process and publication of the Directive on industrial emissions within the Official Journal.
07/2012	Member States fully transpose the new Directive (18 months after entry into force). The Directive applies to all new installations from this date onwards.
01/2014	All existing installations previously subject to IPPC, Waste Incineration, Solvent Emissions and Titanium Dioxide Directives must meet the requirements of the new Directive. Large Combustion Plants do not yet need to meet the new Emission Limit Values (ELVs) prescribed within the Directive
07/2015	The newly prescribed activities such as additional poultry installations, smaller combustion units and wood preservation activities must meet the requirements of the new Directive.
01/2016	Large Combustion Plants must meet the requirements set out in Chapter 2 of the new Directive, as well as the ELVs set out in Annex V

1.2.2 **Proposed Changes:**

The EC has proposed the addition of the following as a listed activity within the IPPC Directive:

*“Treatment and processing, other than exclusively packaging, of the following raw materials, whether previously processed or unprocessed, intended for the production of food products for*

humans or animals from a mix of animal and vegetable raw materials with a finished product production capacity in tonnes per day greater than:

- 75 if A is equal to 10 or more
- $[300 - (22.5 \times A)]$  in any other case

where 'A' is the portion of animal material (in percent) of the finished product production capacity".

Packaging is not included in the final weight of the product. In addition, this new subsection does not apply where the raw material is milk only.

The purpose of the proposed inclusion is to include installations which are mixing animal and vegetable food within their products. Thresholds currently within the IPPC Directive are only set for the production from exclusively one type of raw material (75 tonnes a day for animal raw materials and 300 tonnes per day for vegetable raw materials).

### 1.3 What are the Objectives and Intended Effects?

The main drivers for the revision of industrial emissions legislation are described in the IA undertaken by the Commission:

- The Lisbon Strategy and the EU Sustainable Development Strategy; this strategy stresses the role of environmental technologies in having "*significant economic, environmental and employment potential*";
- the different Thematic Strategies (Air Pollution, Soil Protection etc.) set objectives to protect human health and the environment from key air pollutants. Industrial emissions regulation has a major role in meeting these objectives;
- the need for "Better Regulation" and designing laws and legislation in a more coherent way and with minimum administrative burden; and
- experience in the implementation of the IPPC Directive in the last 10 years and ways to improve the legal framework to ensure that its objectives are met.

The Commission's proposals aim to address the issues identified via a number of amendments to the existing legislation including the following:

- Clarification and strengthening of the concept of Best Available Techniques (BAT);
- revision of the minimum Emission Limit Values (ELVs) for some sectors (for example, large combustion plants) to bring them into line with BAT standards;
- introduction of provisions on inspection and environmental improvements;
- stimulating innovation and the development and deployment of new techniques;
- simplifying and clarifying certain provisions on issuing permits, monitoring and reporting to cut unnecessary administrative burdens; and
- extending and clarifying the scope and provisions of the legislation to better contribute to the objectives of the Thematic Strategies.

For this particular amendment, the main objectives are to improve consistency providing a more level playing field when dealing with mixed food and drink installations. The current scope of the IPPC Directive is regarded as ambiguous for those food and drink installations using a combination of animal and vegetable raw materials and this has been interpreted differently by different Member States.

In addition, the proposed changes should provide a positive environmental and social impact through the implementation of BATs already established in existing BAT Reference documents (BREFs).



## **2. Policy Options**

This section presents the policy options considered in this report for the proposed addition of the mixed food and drink installations. This was discussed and agreed with Defra at the inception meeting (08<sup>th</sup> April 2008).

### **2.1 Food and Drink Installations**

The following two options have been considered for food and drink installations:

1. No change
2. As proposed in the IE(IPPC)D.



### **3. Who is Affected?**

This section presents a list of those stakeholders likely to be affected by the proposed changes for inclusion of mixed food and drink installations within the IPPC Directive:

- Operators of food and drink installations that come under the scope of the proposed changes to the Directive;
- competent authorities e.g. Environment Agency, SEPA, NIEHS; and
- Trade Associations e.g. FDF, CFA, AIC, PFMA.



## 4. Baseline Definition

### 4.1 Approach

This section outlines the approach that has been taken to define the baseline for the relevant installations and/or activities and their associated emissions that may be affected by the proposed changes to the Directive.

### 4.2 Proposed Installations

#### 4.2.1 Number of Installations

The food and drink manufacturing industry is the single largest manufacturing sector in the UK. As of 2006, there were 6,947 food and drink manufacturing enterprises<sup>5</sup> in the UK, employing some 440,000 employees<sup>5</sup>, with the majority of these enterprises employing fewer than 10 people<sup>6</sup>. In terms of turnover, which could be taken as a crude measure of production capacity, activity in the sector is dominated by a relatively small number of large companies. The sector has a combined annual turnover of over £72bn, and accounts for 17% of the total UK manufacturing sector by turnover<sup>5</sup>.

The food and drink manufacturing industry consists of 9 distinct sectors. Table 4.1 provides a breakdown of the food and drink industry by Standard Industrial Classification codes (SIC).

---

<sup>5</sup> Office of National Statistics (2006): *Annual Business Inquiry* [http://www.statistics.gov.uk/abi/downloads/Subsection\\_DA.xls](http://www.statistics.gov.uk/abi/downloads/Subsection_DA.xls)

<sup>6</sup> Based on 2006 data from Nomis labour market statistics: *Annual Business Inquiry, 2008*

**Table 4.1 Food and Drink Manufacturing Industry by SIC Codes and Industry Statistics  
(2006 data)<sup>5</sup>**

<b>Classification Food &amp; Drink Industry (by SIC code)</b>	<b>No. of Enterprises</b>	<b>Total Turnover (£ million)</b>	<b>Approximate Gross Value Added at Basic Prices (£ million)</b>	<b>Total Employment</b>
15.1 Production, processing and preserving of meat and meat products	994	13,653	3,045	102,000
15.2 Processing and preserving of fish and fish products	388	2,247	423	17,000
15.3 Processing and preserving of fruit and vegetables	434	4,448	1,501	38,000
15.4 Manufacture of vegetable and animal oils and fats	33	1,133	111	1,000
15.5 Manufacture of dairy products	520	5,998	1,147	28,000
15.6 Manufacture of grain mill products, starches and starch products	122	3,559	1,125	13,000
15.7 Manufacture of prepared animal feeds	475	3,748	769	13,000

**Table 4.1 (continued) Food and Drink Manufacturing Industry by SIC Codes and Industry Statistics (2006 data)<sup>5</sup>**

<b>Classification Food &amp; Drink Industry (by SIC code)</b>	<b>No. of Enterprises</b>	<b>Total Turnover (£ million)</b>	<b>Approximate Gross Value Added at Basic Prices (£ million)</b>	<b>Total Employment</b>
15.8 Manufacture of other food products	3,133	21,148	8,576	180,000
15.9 Manufacture of beverages	848	16,130	4,080	49,000
<b>Total</b>	<b>6,947</b>	<b>72,064</b>	<b>20,778</b>	<b>440,000</b>

The food and drink sector is currently regulated by the Environmental Permitting Regulations (EPR) 2007 in England and Wales under section 6.8 "The Treatment of Animal and Vegetable Matter and Food Industries" Part A(1) (d). The regulations apply to food and drink industries that;

1. Treat and process animal raw materials with a finished product production capacity greater than 75 tonnes per day; and
2. treat and process vegetable raw materials with a finished product production capacity greater than 300 tonnes per day.

The same activity definitions are contained in the Pollution Prevention and Control Regulations for Scotland and for Northern Ireland.

The Environment Agency defines animal raw material as:

*Anything from a living or dead animal and includes minerals derived from an animal source, such as bone<sup>7</sup>.*

<sup>7</sup> Environment Agency (2008): *Regulatory Guidance Series No. EPR 2 'Understanding the meaning of regulated facility', Version 1.0*

In 2006 there were a total of 369 sites regulated by the Environment Agency under the IPPC Directive. It is estimated that one fourth (approximately 92 sites) of all the IPPC permitted food and drink installations are currently “mixed” installations<sup>8</sup>, as under current EA guidance<sup>9</sup>, any operator exceeding a level of 10% animal raw materials on any single day would be viewed as a processor of animal raw materials. Table 4.2 provides a breakdown of the food and drink installations regulated under IPPC.

**Table 4.2 Number of Installations Currently Regulated Under IPPC**

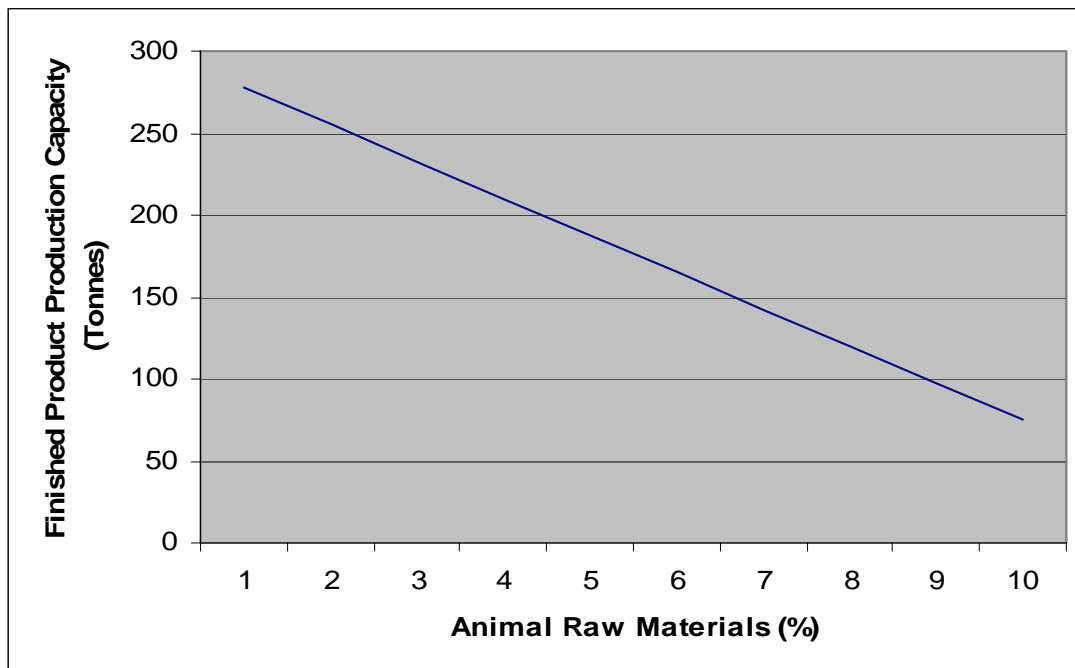
<b>No. of IPPC Permitted Installations (2006)</b>	<b>No. of Installations Permitted under Part A(1) (d)(i)</b>	<b>No. of Installations Permitted under Part A(1) (d)(ii)</b>	<b>No. of Permitted Installations Covered Elsewhere under Section 6.8 of the EPR</b>
369	82	166	121

The proposed amendments to Section 6.4 of the Directive include the incorporation of the > 10% animal raw materials rule for mixed installations, which is already defined within UK guidance. The proposed amendments also considers a proportional approach to regulating food and drink companies with a daily finished product production capacity of between 75 and 300 tonnes and an animal raw material content of between 1 – 10%. This method is as outlined in Figure 4.1 below.

<sup>8</sup> Commissions Impact Assessment

<sup>9</sup> Environment Agency (2008), *Regulatory Guidance Series No. EPR 2 – Understanding the meaning of regulated facility, Version 1.0 March 2008*

**Figure 4.1 Proposed Amendment to IPPC Directive for Mixed Food and Drink Installations**



Based on discussions with the stakeholders outlined in Section 1.1, the main sector that may be affected by the proposed changes to the Directive, as defined by the SIC code (refer to Table 4.1) is expected to be 15.8 'Manufacture of other food products'. There are 3,133 enterprises in this sector, making up 45% of the total food and drink manufacturing sector. The sector employs approximately 180,000 people<sup>10</sup>. This sector is large and consists of 9 sub-sectors. The following sub-sectors were identified as being the most likely to be affected by the proposed changes to the Directive;

- 15.81: Manufacture of bread, fresh pastry goods and cakes;
- 15.82: Manufacture of rusks and biscuits, preserved pastry goods and cakes;
- 15.84: Manufacture of cocoa, chocolate and sugar confectionary; and
- 15.89: Manufacture of other food products not elsewhere classified (15.89/1 represents the manufacture of soup).

These 4 sub-sectors consist of 2,857 enterprises and account for 91% of the whole 15.8 sector (Manufacture of other food products) or, alternatively, 41% of the total number of food and drink

<sup>10</sup> Office of National Statistics (2006): *Annual Business Inquiry* [http://www.statistics.gov.uk/abi/downloads/Subsection\\_DA.xls](http://www.statistics.gov.uk/abi/downloads/Subsection_DA.xls)

manufacturing enterprises in the UK. The majority of these enterprises are likely to have < 10 employees<sup>11</sup>, which is representative of the overall UK sectoral profile.

These sub-sectors may use small amounts of animal raw material in their products (for example butter, animal protein, eggs, gelatine etc.), which may allow them to be captured under the IPPC Directive. The main processes involved in the manufacture of cakes are: mixing, baking and cooling. For biscuit manufacturing the processes involved are: dough mixing, formation of the dough pieces, baking, cooling and packaging. The basic processes involved in chocolate production are: the preparation and mixing of ingredients, refining and conching.

Other sectors which are likely to be affected include<sup>12</sup>;

- 15.7 Manufacture of prepared animal feeds.

This sector can be broken down into two distinct sub-sectors;

- 15.71: Manufacture of prepared feeds for farm animals; and
- 15.72: Manufacture of prepared pet foods.

The animal feed sector consist of 475 enterprises (308 in the compound (livestock) feed and 167 in the pet feed), accounting for 6.8% of the total food and drink manufacturing sector. The animal feed sector employees approximately 13,000 people (9,000 employees in compound animal feed and 4,000 employees in pet feed). Livestock feeds are predominately dry, while pet food may have significant moisture content (for cats and dogs). However, dry pet food also exists (for cats, dogs, birds and rodents). The compound feed manufacturers may also produce dry feeds for pets. Thus there are linkages between the two sub-sectors. In both sectors, the manufacturing process involves blending of a range of ingredients such as cereals, protein sources, vitamins, minerals, fats and oils. The process involves grinding and blending of ingredients. Steam is applied in a process known as conditioning before the feed is converted to pellets. The feed pellets are then dried, cooled and packaged.

Based on discussions with the stakeholders, **10 sites** have been identified, which are not currently permitted under IPPC and which *may* fit into the definition outlined in the revised IPPC Directive and outlined in Figure 4.1 above. This figure is based on a response from four of the larger food manufacturing companies in the UK and discussions with the regulators. There is

---

<sup>11</sup> Based on 2006 data obtained from Nomis labour market statistics: *Annual Business Inquiry, 2008*

<sup>12</sup> Based on discussions with key stakeholders

the potential that more sites affected by the proposed amendment exist, although it is not possible to quantify the total number due to the limited information for the sector. Table 4.3 summarises the types and number of installations identified that may be affected.

**Table 4.3 Type and Number of Sites Identified that may be Affected by the Changes to the IPPC Directive**

SIC Code	Type of Installation	Number. of Sites Potentially Affected	Total Number of Food Production Sites per Company in UK
15.81, 15.82	Cake manufacturing	5	60
15.82	Biscuit manufacturing	3	17
15.89	Meat based Soups	1	4
15.89	Soups and other products	1	6
	<b>Total</b>	<b>10</b>	<b>87</b>

A further 4 sites may be affected in Scotland and 1 in Northern Ireland, according to SEPA and the EHS. However, these sites have not been confirmed and no further information on these sites could be obtained.

In addition, other than those operators that will be genuinely affected by the proposed changes to the Directive, there will be others that may apply for a permit, not because they currently exceed the threshold, but to avoid risk of error/ miscalculation of their output vs composition in the future, owing to the less certain approach associated with having two variables. The EA experience this type of behaviour by operators of food and drink installation when the IPPC Directive was initially implemented.

Based on Entecs experience of the food and drink industry, an assumption could be made that plants employing <10 people, are unlikely to have the production capacity to meet the proposed threshold and therefore would fall outside the scope of IPPC. It is not accurately known how many enterprises employ between 1-10 people, however, based on 2006 data obtained from the Annual Business Enquiry, this figure could be above 80% of the food and drink manufacturing sector <sup>13</sup>.

<sup>13</sup> Based on 2006 data from Office of National Statistics: *Annual Business Inquiry, 2008*

Discussions with one of the largest manufacturers of chilled food (including prepared meals, cakes and desserts) in the UK, indicated that all installations for this company that are not already covered by IPPC, would not be affected under the proposed changes as they all have a production capacity of <75 tonnes per day. Further discussions with the CFA are required to get an indication of how many and what type of chilled food installations may come under this option.

The Agricultural Industries Confederation (AIC) indicated that the proposed changes may affect a significant number of those installations not currently covered under IPPC, however further consultation is required with the trade association and its members to fully establish the impact for this sector<sup>14</sup>.

Similarly, it could not be determined how many of pet food manufacturing installations may be covered by these changes, and again, further consultation is required with the Pet Food Manufacturing Association (PFMA) and its members<sup>9</sup>.

#### 4.2.2 Environmental Impact

The potential impacts of food and drink industries on the environment have been described in detail in a fact sheet produced on behalf of the Commission and are summarised in Table 4.4 below.

---

<sup>14</sup> The AIC and PFMA are awaiting feedback from members, and will provide further information at a later stage.

**Table 4.4 Potential Impact of Food and Drink Industry**

Environmental Compartment	Potential Effect/Emission
Water	<ul style="list-style-type: none"> <li>F&amp;D industry is a large user of water: as an ingredient, cleaning agent, means of conveyance and feed to utility systems.</li> </ul>
Waste Water	<ul style="list-style-type: none"> <li>Untreated waste water is high in both chemical and biological oxygen demand (COD and BOD respectively). Can also be high in suspended solids, fats, oils and greases, depending on the type of industry.</li> </ul>
Energy	<ul style="list-style-type: none"> <li>Consumption can be high and is used for process heating (20% of total energy used); process cooling and refrigeration (16%).</li> </ul>
Air	<ul style="list-style-type: none"> <li>Associated with energy production (CO<sub>2</sub>, NO<sub>x</sub>, SO<sub>2</sub>, particulates)</li> <li>Dust and odour (some caused by volatile organic compounds (VOC)).</li> <li>Odour – related to the process, or storage of raw materials, by-products or waste.</li> <li>Refrigerant releases – NH<sub>3</sub>, halogen</li> <li>Noise – from processes such as grinding in animal feed manufacture</li> </ul>
Waste	<ul style="list-style-type: none"> <li>The main sources of solid output are spillage, leakage, overflow, defects/ returned products, inherent loss, retained material that cannot freely drain to the next stage in the process and heated deposited waste.</li> </ul>

The environmental performance of food and drink sites in England and Wales regulated under IPPC has improved and this trend should continue as the regulatory influence of the Environment Agency expands. Data shows that green house gas emissions and waste production to be on the rise from this sector, but this is most likely to be a consequence of the increase in sites that now report to the Environment Agency. The releases to air and water from this sector are low (less than 5% from all industry regulated by the Environment Agency). Operator performance has improved in 2006. The proportion of sites ranked in the highest band increased from 30% to 36%; however the number of sites ranked at the lowest environmental performance increased slightly to 10, although proportionally the amount decreased. Table 4.5 provides an overview of the environmental performance of sites regulated under IPPC in England and Wales<sup>15</sup>.

**Table 4.5 Environmental Performance of the Food and Drink Industry 2006**

<b>No. of PPC Permitted sites</b>	<b>UK primary energy use (2005) oil equivalent</b>	<b>UK electricity use (2005)</b>	<b>Greenhouse gas emissions (CO<sub>2</sub>e) (2005)</b>	<b>Waste produced 2006</b>	<b>Water use<sup>16</sup></b>	<b>No. of times permit conditions breached</b>	<b>No. of serious pollution incidents</b>
369	3.8 million tonnes oil equivalent	12,593 GWh	10.5 million tonnes	3.4 million tonnes	435 million m <sup>3</sup>	34	21

<sup>15</sup> Environment Agency (2007): *Spotlight on business - Environmental performance in 2006*

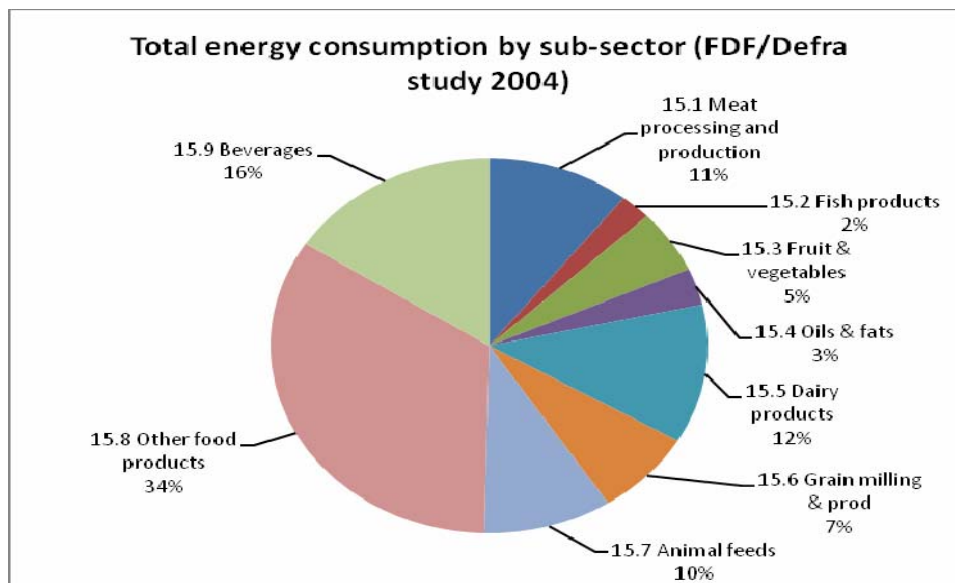
<sup>16</sup> Envirowise (2006): *A Review of Water Use in the Food and Drink industry*

The most significant environmental issues associated with the food and drink manufacturing sector is water consumption and contamination. The industry is a major water user, as an ingredient, cleaning agent, means of conveyance and feed to utility systems. The sector accounts for approximately 10% of all industrial use of the public water supply. Most of the water which is not used as an ingredient ultimately appears in the wastewater stream. Typically, untreated wastewater from the sector is high in BOD and COD. Wastewater can also be high in suspended solids, fats, oils and greases which is very much dependant on the industry. A critical issue is keeping raw materials, intermediates, product and by-product out of wastewaters, by controlling product wastage and cleaning processes.

It is difficult to estimate the environmental impact of 'mixed installations', as these may include, on the one hand, installations producing prepared meals, whose effluents may contain high COD and BOD. However other 'mixed installations' producing compound animal feed for example, generate practically no effluents, but where dust may be a bigger issue.

The industry is a relatively energy intensive sector accounting for 4.3% of the UK non-domestic energy consumption. According to the Defra (2007) *Food Statistics Pocketbook*, energy consumption in the food, drink and tobacco manufacturing industry totalled 3.8 million tonnes of oil equivalent in 2005, down 1.5 per cent on 2004. Since 1996, energy consumption has decreased by 373,700 tonnes of oil equivalent, a fall of 8.9 per cent. This decrease is mainly due to declining petroleum and coal consumption. Usage of electricity has increased by 11.2 per cent over the same period, while usage of natural gas has increased by 2.1 per cent. Figure 4.2 illustrates the total energy consumption by sub-sector in 2004.

**Figure 4.2 Total Energy Consumption by sub-sector<sup>17</sup>**



Greenhouse gas emissions include carbon dioxide, methane, nitrous oxide, hydro-fluorocarbons, perfluorocarbons and sulphur hexafluoride. Greenhouse gas emissions from food and drink manufacturing have fallen by 8.1 per cent since 1990 and totalled 10.5 million tonnes of carbon dioxide equivalent in 2005.<sup>18</sup>

Acid rain precursor emissions include sulphur dioxide, nitrogen oxides and ammonia. Acid rain precursor emissions from food and drink manufacturing have fallen by 63.4 per cent since 1990 and totalled 35.5 thousand tonnes of sulphur dioxide equivalent in 2005<sup>14</sup>.

According to the Environment Agency, the food and drink sector is the third highest producer of waste (transferred off-site) of all the sites that are regulated by the Environment Agency, contributing **3.4 million tonnes** of waste in 2006. Of this waste, **68% was recovered**. In 2006 there was a 30% increase in the amount of non-hazardous waste that was recovered. IPPC data from 2006 on waste for the sector indicates that 40% of the disposals of the IPPC registered food industry were to landfill. Of this landfill material, the largest component was classified as 'mixed municipal waste'.

<sup>17</sup> AEA report for Defra (2007): Resource efficiency scoping study for the Food and Drink industry.

<sup>18</sup> Defra (2007): *Food Statistics Pocketbook*

Recovery of materials within the animal, vegetable and food sector appears advanced compared to other sectors. In total, IPPC data indicates that in England and Wales, the animal, vegetable and food industry recovers double the tonnage that it disposes of<sup>19</sup>.

**Table 4.6 Total Releases (tonnes) from Animal, Vegetable and Food PPC regulated sites for 2005 and 2006<sup>20</sup>**

<b>Waste Disposal and Recovery</b>	<b>2005</b>	<b>2006</b>
Disposal of Non-hazardous waste (tonnes)	798076.42	1051802.98
Recovery of non-hazardous waste (tonnes)	1767541.2	2292274.25
Disposal of hazardous waste (tonnes)	222.56	24972.03
Recovery of hazardous waste (tonnes)	17827.36	6498.31

Discussions with a number of installation operators revealed that improvements under PPC regulation are considered to be limited. The main areas where improvements have been noted are in waste management, particularly the requirements for dealing with hazardous waste. Resource efficiency initiatives in the areas of energy and water consumption were already been undertaken before the industry came under PPC regulation. The food industry has noted considerable improvements in these areas, driven mainly by the representative trade association initiatives.

In 2004, the food, drink and tobacco manufacturing sector was one of the largest sectors in terms of expenditure on environmental protection measures, accounting for approximately £574.8 million or 17.7 per cent of the total industry expenditure. The largest spending areas for the sector were water and solid waste, accounting for 51.1% and 28% of the environmental expenditure for the sector<sup>21</sup>.

<sup>19</sup> NISP (2007): *OpportunitY and H report*

<sup>20</sup> Environment Agency (2008): *Pollution Inventory data*

<sup>21</sup> Defra (2007): *Food Statistics Pocketbook*

There are, however, some inherent barriers to the implementation of environmental improvements by the industry. Barriers to the adoption of new technology, which could reduce water use, energy use and waste production during processing include:

- Reluctance to change when attempting to produce products to rigorous quality and hygiene specifications in a market of narrow margins;
- lack of investment capital for new equipment;
- sunk costs in existing technology;
- product price vs environmental protection conflict. Price tends to win every time;
- lack of public/government pressure to reduce resource use;
- data quality - difficult to obtain robust data on resource consumption (especially from SMEs –which make up a large part of the industry); and
- SMEs and resource constraints<sup>22</sup>.

#### 4.2.3 Techniques for Prevention or Reduction of Environmental Impacts

The Food and Drink BREF provides BAT for the prevention and reduction of environmental impacts from the sector. The Sector Guidance Note S6.10 provides BAT for installations in the UK. For example, the single most important factor in reducing wastewater strength in this sector is the adoption of dry-cleaning techniques. Wherever possible, raw materials and product should be kept out of the wastewater system. BAT is to remove as much residual material as possible from vessels and equipment before they are washed and to modify, where practicable, process lines and operations that causes excessive spillage of material onto the floor.

For the control of emissions to water or sewer, an on-site biological treatment plant can be designed to deliver BOD concentrations of 10-20mg/l for any incoming load. Minimisation of water usage would therefore be important. Lower values can be achieved by filtration as secondary or tertiary treatment. To prevent accidents and minimise their harm to the environment as a whole, BAT is to, amongst others, identify and implement the control measures which may include using spillage equipment and isolating drains to minimise the impact of an accidental release of liquids.

---

<sup>22</sup> AEA report for Defra (2007): Resource efficiency scoping study for the Food and Drink industry.

For the control of emissions to air, energy efficient techniques such as good combustion chamber design and low NO<sub>x</sub> burners should be used. In addition, heat recovery systems on indirect fired ovens, utilise exhaust air for pre-heating and also recycle the exhaust gas to the heater. The combustion of recycled exhaust gas should be considered as a technique for reducing NO<sub>x</sub> emissions to atmosphere. To control dust emissions, for example from animal feed processes (e.g. grinding), abatement options such as cyclones and/or fabric filters are considered BAT.

Where odour could be a problem from effluent treatment systems, the operator may be required to prepare an odour management plan. The installation may also require further odour abatement with investment in equipment such as thermal oxidisers to reduce odorous emissions.

## 4.3 Overview of Current Legislation

### 4.3.1 Current IPPC Requirements for Food and Drink Industries

The food and drink industry is regulated in England and Wales by the Environmental Permitting Regulations (EPR) 2007 (replacing the PPC (England and Wales) Regulations 2000) under section 6.8 "The Treatment of Animal and Vegetable Matter and Food Industries". The same activity definitions are contained in the Pollution Prevention and Control Regulations for Scotland and for Northern Ireland.

The regulations apply to food and drink industries that:

1. Treat and process animal raw materials with a finished product production capacity greater than 75 tonnes per day; and
2. treat and process vegetable raw materials with a finished product production capacity greater than 300 tonnes per day.

Within Environment Agency guidance<sup>23</sup> the definition of what is included under the PPC is further expanded on to include mixed installations. Specifically installations where the operator processes > 10 % a day of animal raw materials as ingredients on any one day and where there is an output threshold from the site exceeding 75 tonnes/ day.

---

<sup>23</sup> Environment Agency (2008): *Regulatory Guidance Series No. EPR 2 'Understanding the meaning of regulated facility', Version 1.0*

This guidance also specifies that packaging is not to be included within the weight of the finished product.

Under the IPPC Directive, the food and drink industry is subject to integrated environmental regulation for the first time. The sector is significant not only in terms of installation numbers and environmental impact, but it also brings with it significant challenges, for example to reconcile hygiene and food safety issues and pollution prevention measures, with regards to cleaning and reuse of water.

There were 369 IPPC permitted food and drink installations in the UK in 2006. It is estimated that 25% of these are mixed installations.

The food industry is also regulated under Part A(2) of the Environmental Permitting Regulations (England and Wales only) for installations that:

- a) Dispose or recycle animal carcasses or animal waste by rendering at plant with treatment capacity exceeding 10 tonnes per day of animal carcasses or animal waste or both in aggregate.

According to Environment Agency data, there is only one installation covered by Part A(2) in England and Wales.

Smaller scale industries will be controlled by the 'Part B' regime of the Regulations, which focuses on air emissions only. The industry is regulated under Part B, where installations are involved in the following activities:

(a) Processing, storing or drying by the application of heat the whole or part of any dead animal or any vegetable matter (other than treatment of effluent) if these activities: (i) are not covered by Part A (1) or A(2), (ii) is not an excluded activity, or (iii) which may result in releases to air of any substance in paragraph 6(3) of Part 1, or any offensive smell noticeable outside premises.

It could not be determined for this assessment how many food and drink manufacturing installations are currently regulated under Part B. However, within the animal feed sector, 76 animal compound feed installations, 17 dry pet food manufacturing installations and 14 wet pet food manufacturing installations are regulated under Part B of the Regulations.

#### 4.3.2 Other Key Legislation

##### Hazardous Waste Regulations (Special Waste Regulations in Scotland)

These regulations affect installations that produce, handle, store, treat or dispose of substances classified as 'hazardous waste'. Installations are required to register with the regulatory body as a hazardous waste producer, segregate and safely dispose of hazardous waste at a site licensed to accept the materials, pre-treat all hazardous waste before sending it to landfill and ensure that the correct documentation for the waste transfer is retained.

##### Water Resources Act 1991– Discharge Consents

Installations discharging effluent to controlled waters require a discharge consent from their regulator in order to regulate the quality of the discharges to help protect water quality, the environment and human health. Discharge consent holders are allowed to discharge agreed levels of pollutants into rivers, ground waters and coasts. Untreated wastewater from the food and drink manufacturing industry is high in BOD and COD, as well as suspended solids, oil, fats and greases, depending on the type of industry.

The same activity definitions are contained in the Water Environment (Controlled Activities)(Scotland) Regulations 2005 and the Water (Northern Ireland) Order 1999.

##### Animal By-Products Regulations (ABPR)

The ABPR Regulations apply controls on the use, treatment, handling and disposal of animal by-products. The aim is to control the risks, including disease, to both animals and the public and affect the disposal of food waste.

##### Water Industry Act (as amended)

Businesses discharging anything other than domestic sewage or clean rainwater to sewer need to have a trade effluent agreement with their sewerage undertaker.

The same activity definitions are contained in the Sewerage (Scotland) Act in Scotland and the Water (Northern Ireland) Order 1999 in Northern Ireland.

## Air Quality (England) Regulations

The same activity definitions are contained in the Air Quality Regulations for Scotland and for Northern Ireland.

These regulations give air quality objectives for NO<sub>x</sub>, SO<sub>x</sub> and PM<sub>10</sub> to be achieved by specified dates.

## Climate Change Levy (CCL) Regulations

The CCL is a levy on some types of energy used by businesses. Many companies within the food and drink industry are part of a CCA which can rebate up to 80% of the levy.

### 4.4 Sector Association Initiatives

As well as the legislative drivers, there are a number of sector association initiatives in place which are designed to drive environmental improvement within the food and drink industry.

#### FDF member's Five-Fold ambition for the environment<sup>24</sup>:

- 20% reduction in CO<sub>2</sub> emissions by 2010 compared to 1990 and a 30% reduction in CO<sub>2</sub> emissions by 2020;
- send zero food and packaging waste to landfill from 2015;
- make a significant contribution to WRAP's work to achieve an absolute reduction (340,000 tonnes) in the level of packaging reaching households by 2010 compared to 2005 and provide more advice to consumers on how best to recycle or otherwise recover used packaging;
- an industry-wide target to reduce water use by 20% by 2020 compared to 2007; and
- food chain to reduce environmental and social impacts by 20% by 2012 by embedding environmental standards into transport practices.

WRAP Courtauld Commitment: FDF members are working with WRAP to increase the number of food and drink manufacturers who have signed up to the Courtauld Commitment.

---

<sup>24</sup> FDF (2006): *The environment: making a real difference*

FDF Federation House Commitment (FHC): jointly developed by the FDF and Envirowise, the FHC aims to reduce overall water usage across the Food and Drink industry by 20% by the year 2020. The FHC is open to all food and drink manufacturing companies. Members will review their current water use, develop site specific action plans to cut water use and costs within six months of signing up to the commitment and report annually on water and cost savings made on site.

## 4.5 Results

Based on discussions with the stakeholders there are a number of sites that may be affected by the proposed amendment to the IPPC Directive. Our study identified **10 potential sites**, however this number is likely to be higher<sup>25</sup>. The total number of affected production installations could not be determined due to the limited availability of data for the sector.

The main environmental impacts associated with mixed food and drink industries include water use, effluent discharges, energy use and waste generation. The sector is a significant water consumer for process consumption, means of conveyance and cleaning. Untreated wastewater can be high in BOD and COD, suspended solids, fats, oils and greases. Main emissions to air from food and drink processes are dust and odour (some caused by VOC). The industry is also a major energy user, the main energy using technologies being process heating, cooling and refrigeration. Emissions to air from combustion processes include CO<sub>2</sub>, SO<sub>x</sub>, NO<sub>x</sub>, particulates. Other emissions to air include refrigerant releases containing ammonia and halogen. The food and drink industry is reported to be the third highest producer of waste of all sites regulated under IPPC.

While these sites that may be affected by the changes are not currently permitted under IPPC, they are covered by legislation which controls the waste, emissions to water and energy use. In addition there are a number of sector specific initiatives which are designed to drive improvements in efficiencies within this sector.

---

<sup>25</sup>. A further 4 sites may be affected in Scotland and 1 in Northern Ireland according to SEPA and the EHS. In addition, the AIC believe that a number of animal feed installations may also come under the scope of the proposed changes to the Directive.

## 4.6 Summary

There are approximately 6,947 food and drink manufacturing installations in the UK. 369 of these are currently regulated under IPPC. In the UK it is estimated that 25% of all IPPC permitted food and drink installations are 'mixed installations'.

**10 sites** have been identified which *may* fit into the definition outlined in the proposed revisions to the IPPC Directive, 9 sites located in England and Wales and 1 in Scotland. The main sector that may be affected by the proposed changes to the Directive, as defined by the SIC code, is expected to be 15.8 Manufacture of other food products. This sector represents the manufacture of biscuits, cakes, confectionary and soups. These sub-sectors may use small amounts (<10%) of animal raw material in their products (for example butter, animal protein, eggs, gelatine etc.), which may allow them to be captured under this option. Other sectors that may come under this scope include the manufacture of prepared animal feeds, which consists of two sub-sectors, compound animal feed and pet feed manufacturing

The main environmental impacts associated with mixed food and drink industries include water use, effluent discharges, energy use and waste generation. The Food and Drink BREF and the Environment Agency Sector Guidance Note S6.10 provide BAT for the prevention and reduction of environmental impacts.

## 5. Costs

### 5.1 Approach

#### 5.1.1 Compliance Costs

Compliance costs for the food and drink installation that may be affected by the proposed changes to the threshold have been estimated based on discussions with food and drink companies and published information on the potential measures that may be required and their associated costs. Due to the diverse nature of the food and drink sector and limited information on the types of food and drink companies that will be affected by the proposed amendments, it is difficult to understand what improvements will need to be implemented as a result of a requirement to meet BAT.

Based on professional knowledge and understanding of the generic environmental impacts of the food and drink sector, it may include the following:

- Development of a formal environmental management system;
- development of a site closure plan;
- development of an accident management plan;
- review of the containment and pollution prevention measures provided for the potentially polluting substances held on-site in order to prevent fugitive losses, including:
  - Review of bunding of raw material storage vessels
  - Review of the condition of all sub-surface pipe work (i.e. through a drainage survey)
- monitoring and measuring of emissions (to air and to sewer/controlled waters);
- review of cleaning techniques, including assessing opportunities for waste minimisation and cleaning agent selection;
- noise management plan;
- odour management plan.

## 5.2 Administrative Costs

### 5.2.1 Operators

Under the Environmental Permitting (England and Wales) Regulations, mixed food and drink installations would be classed as tier 3 facilities, which means they are regarded as being more complex and high risk facilities that require a more detailed and individually-tailored permit. The associated costs for application submission fees and annual subsistence charges for these installations will therefore be based on the relevant permit application charge multiplier for that facility, multiplied by the relevant Environmental Protection Operator and Pollution Risk Appraisal (EP-OPRA) charging score for that facility. Based on the 2008/2009 figures the permit application charge multiplier is £195 and the subsistence charge multiplier is £94, and the full surrender charge multiplier £121.

Administrative costs for operators within England and Wales can be broken down into two main elements each of which can be further sub-divided:

- Permit application (one-off cost):
  - Permit application fee (£10,000 - £20,000)
  - Time to prepare the permit (staff time, consultancy fees) - between £20,000 - £60,000 depending upon the extent to which external consultants are used, the complexity of the operations and the extent to which emission monitoring and modelling is required.
  - Improvement costs – (e.g. costs for secondary containment, minimisation studies, odour abatement, setting up a management system etc) Between £30,000 - £350,000 - Costs are variable depending on the issue, ranging from a few £1000's for secondary containment improvements up to several million pounds for the installation of thermal oxidiser abatement plant or the installation of effluent treatment plant.
- Subsistence costs (annual cost):
  - Subsistence Charge (£6,000 - £10,000)

- Annual Operational costs – (staff time for management and reporting) – generally between £25,000 and £65,000 per year including on-site resource costs for management, reporting and emissions monitoring requirements.

One-off costs have been annualised over the lifetime of a permit (assumed to be 20 years in line with Defra, 2006) with a discount rate of 3.5%.

Within Northern Ireland, the fees and charges associated with IPPC are set out in a guidance document published by EHS (Northern Ireland)<sup>26</sup>. The administrative costs are component-based<sup>27</sup> and include:

- Permit application (one-off cost)
  - Permit application fee (£4,385 per component).
  - Time to prepare the permit (staff time, consultancy fees) - between £20,000 - £60,000 depending upon the extent to which external consultants are used, the complexity of the operations and the extent to which emission monitoring and modelling is required.
  - Improvement costs – (e.g. costs for secondary containment, minimisation studies, odour abatement, setting up a management system etc) Between £30,000 - £350,000 - Costs are variable depending on the issue, ranging from a few £1000's for secondary containment improvements up to several million pounds for the installation of thermal oxidiser abatement plant or the installation of effluent treatment plant.
- Subsistence costs (annual cost):
  - Subsistence charge (£1,525 per component)
  - Annual Operational costs – (staff time for management and reporting) – generally between £25,000 and £65,000 per year including on-site resource costs for management, reporting and emissions monitoring requirements.

---

<sup>26</sup> EHS (Northern Ireland (2007) *The Pollution Prevention and Control (Industrial Pollution and Radiochemical Inspectorate) Charging Scheme (Northern Ireland) 2007*

<sup>27</sup> Currently the component-based charging scheme is calculated for 6.8 Part A 1(d) as 1 component charged where processing is less than or equal to 5 times the Schedule 1 thresholds (300 t/d & 75 t/d). 2 components are charged where processing capacity is greater than 5 times the Schedule 1 thresholds.

- Surrender costs (one-off cost):
  - Surrender charge (£2,345)

In Scotland, the fees and charges associated with IPPC are set out in a guidance booklet published by SEPA<sup>28</sup>. The administrative costs are activity-based and include:

- Permit application (one-off cost)
  - Permit application fee (£3,052 x (A+2) where A is sum of application charge units). For installations falling under 6.8 Part A (1)(d) this charge can be calculated to be £3,052 x (3+2) = £15,260.
  - Time to prepare the permit (staff time, consultancy fees) - between £20,000 - £60,000 depending upon the extent to which external consultants are used, the complexity of the operations and the extent to which emission monitoring and modelling is required.
  - Improvement costs – (e.g. costs for secondary containment, minimisation studies, odour abatement, setting up a management system etc) Between £30,000 - £350,000 - Costs are variable depending on the issue, ranging from a few £1000's for secondary containment improvements up to several million pounds for the installation of thermal oxidiser abatement plant or the installation of effluent treatment plant.
- Subsistence costs (annual cost):
  - Subsistence charge (S x £676 (where S is the number of subsistence charge units)) For installations falling under 6.8 Part A (1)(d) this charge can be calculated to be £676 x (3+2) = £3,380.
  - Annual Operational costs – (staff time for management and reporting) – generally between £25,000 and £65,000 per year including on-site resource costs for management, reporting and emissions monitoring requirements.
- Surrender costs (one-off cost):
  - Surrender charge (£2,754)

---

<sup>28</sup> SEPA (2008) *Summary of charging schemes 2008-2009* CHBK2008-2009 Rev Summary: [http://www.sepa.org.uk/pdf/charging/booklets/2008\\_09/booklet\\_mayRev.pdf](http://www.sepa.org.uk/pdf/charging/booklets/2008_09/booklet_mayRev.pdf)

## 5.2.2 Regulators

It can be assumed that the permit fees and subsistence charges paid by operators through the charging schemes employed in the UK would be sufficient to cover regulators' costs for the processing of the permit and ongoing enforcement.

## 5.3 Results

### Compliance Costs

Estimates of the compliance costs likely to be incurred by operators of the mixed food and drink installations that would be included under IPPC are presented in Table 5.1 and 5.2 below. These costs are broken down into capital (one-off) and annual costs. For calculation of these costs, it has been assumed that **10 installations** in the UK would be affected by the proposed revisions to the IPPC Directive. Table 5.1 provides estimated compliance costs for the 9 sites identified in England and Wales and Table 5.2 provides costs for 1 site in Scotland.

Due to the wide range of food and drink industry activities and resulting BAT, it is not possible to capture all of the costs associated with ensuring compliance with the IPPC Directive. The costs do not reflect the significant costs which may be incurred through major capital projects, such as installation of thermal oxidisers or effluent treatment plants. These have been required for some food and drink installations which are currently permitted, and the associated costs are reported to have been in the order of several million pounds.

**Table 5.1 Compliance Costs for Sites in England and Wales**

Cost Element	Affected installations	Proportion affected (%)	Capital cost (£/unit)		Annual cost (£/unit)	Total annualised capital cost (£)		Total annual cost (£)	Key assumptions
			Low	High		Low	High		
Development of a formal EMS	9	50%	£10,000	£30,000		£3,166	£9,499		
Site closure plan	9	100%	£2,000	£4,000	-	£1,266	£2,533		
Accident management plan	9	100%	£2,000	£4,000		£1,266	£2,533		
Review of secondary containment of raw materials	9	100%	NE	NE	NE	NE	NE	NE	
Drain integrity survey	9	60%	£2,500	£4,000		£950	£1,520		
Monitoring & measuring emissions to air	9	80%	£3,000	£20,000		£1,520	£10,132		
Monitoring & measuring emissions to water/sewer	9	80%	£3,000	£20,000		£1,520	£10,132		
Review of cleaning techniques	9	unknown	£5,000	£20,000		unknown	unknown		
Noise management plan	9	50%	£2,000	£4,000		£633	£1,266		
Odour management plan	9	70%	£3,000	£5,000	£1,500	£1,330	£2,216	£9,450	
<b>Total Cost</b>			<b>£32,500</b>	<b>£111,000</b>	<b>£1,500</b>	<b>£11,652</b>	<b>£39,831</b>	<b>£9,450</b>	
<p>These costs are indicative estimates based on consultation and internal expert judgment.</p> <p>Total annualised costs are estimated based on installations affected and the proportion affected</p> <p>Total annualised costs are estimated using a discount rate of 3.5% over a 20 year lifetime which is consistent with the HM Treasury Green book</p> <p>NE – Not Estimated (information on costs of secondary containment or equivalent measures has not yet been received)</p>									

**Table 5.2 Compliance Costs for Sites in Scotland**

Cost Element	Affected installations	Proportion affected (%)	Capital cost (£/unit)		Annual cost (£/unit)	Total annualised capital cost (£)		Total annual cost (£)	Key assumptions
			Low	High		Low	High		
Development of a formal EMS	1	50%	£10,000	£30,000		£352	£1,055		
Site closure plan	1	100%	£2,000	£4,000	-	£141	£281		
Accident management plan	1	100%	£2,000	£4,000		£141	£281		
Review of secondary containment of raw materials	1	100%	NE	NE	NE	NE	NE	NE	
Drain integrity survey	1	60%	£2,500	£4,000		£106	£169		
Monitoring & measuring emissions to air	1	80%	£3,000	£20,000		£169	£1,126		
Monitoring & measuring emissions to water/sewer	1	80%	£3,000	£20,000		£169	£1,126		
Review of cleaning techniques	1	unknown	£5,000	£20,000		unknown	unknown		
Noise management plan	1	50%	£2,000	£4,000		£70	£141		
Odour management plan	1	70%	£3,000	£5,000	£1,500	£148	£246	£1,050	
<b>Total Cost</b>			<b>£32,500</b>	<b>£111,000</b>	<b>£1,500</b>	<b>£1,295</b>	<b>£4,426</b>	<b>£1,050</b>	
<p>These costs are indicative estimates based on consultation and internal expert judgment.</p> <p>Total annualised costs are estimated based on installations affected and the proportion affected</p> <p>Total annualised costs are estimated using a discount rate of 3.5% over a 20 year lifetime which is consistent with the HM Treasury Green book</p> <p>NE – Not Estimated (information on costs of secondary containment or equivalent measures has not yet been received)</p>									

## Administrative Costs

Administrative costs would be incurred by the food and drink installations through permit application and annual subsistence costs as the proposed change to the IPPC Directive includes sites, which have previously not been regulated under the IPPC regime.

The administrative costs associated with the proposed change to incorporate mixed food and drink installations within the IPPC Directive are summarised in Table 5.3 and 5.4 below. For calculation of these costs, it has been assumed that 10 installations in the UK would be affected by the proposed revisions to the IPPC Directive. Table 5.3 provides estimated administrative costs for the 9 sites identified in England and Wales and Table 5.4 provides costs for 1 site in Scotland.

**Table 5.3 Administrative Costs for Sites in England and Wales**

Cost element	Unit cost (£/installation)		Total annualised one off costs (£)		Total Annual costs (£/year)	
	Low	High	Low	High	Low	High
<b>Operators</b>						
Permit application fees	£10,000	£20,000	£6,332	£12,665	-	-
Permit application time costs	£20,000	£60,000	-	-	£180,000	£540,000
Improvement costs	£30,000	£350,000	-	-	£270,000	£3,150,000
Subsistence fees	£6,000	£10,000	£3,799	£6,332	£54,000	£90,000
Subsistence time costs	£25,000	£65,000	-	-	£225,000	£585,000
Surrender costs	£10,000	£15,000	£6,332	£9,499		
<i>Sub-Total</i>	<i>£101,000</i>	<i>£520,000</i>	<i>£16,464</i>	<i>£28,496</i>	<i>£729,000</i>	<i>£4,365,000</i>
<b>Regulatory Authorities</b>						
Permit application time costs (regulators)			Assuming costs covered within the application fee			
Subsistence time costs			Assuming costs covered within the application charge			
Sub-Total	N/A	N/A	N/A	N/A	N/A	N/A
<b>Total Annualised Administrative Costs</b>	<b>£101,000</b>	<b>£520,000</b>	<b>£16,464</b>	<b>£28,496</b>	<b>£729,000</b>	<b>£4,365,000</b>

Note: Surrender charge has been estimated as it is dependent upon installation complexity and cannot be easily calculated without further information.

**Table 5.4 Administrative Costs for Sites in Scotland**

Cost element	Unit cost (£/installation)		Total annualised one off costs (£)		Total Annual costs (£/year)	
	Low	High	Low	High	Low	High
<b>Operators</b>						
Permit application fees	£15,260	£15,260	£1,074	£1,074	-	-
Permit application time costs	£20,000	£60,000	-	-	£20,000	£60,000
Improvement costs	£30,000	£350,000	-	-	£30,000	£350,000
Subsistence fees	£3,380	£3,380	£238	£238	£3,380	£3,380
Subsistence time costs	£25,000	£65,000	-	-	£25,000	£65,000
Surrender costs	£2,754	£2,754	£194	£194		
<i>Sub-Total</i>	<i>£96,394</i>	<i>£496,394</i>	<i>£1,505</i>	<i>£1,505</i>	<i>£78,380</i>	<i>£478,380</i>
<b>Regulatory Authorities</b>						
Permit application time costs (regulators)			Assuming costs covered within the application fee			
Subsistence time costs			Assuming costs covered within the application charge			
Sub-Total	N/A	N/A	N/A	N/A	N/A	N/A
<b>Total Annualised Administrative Costs</b>	<b>£96,394</b>	<b>£496,394</b>	<b>£1,505</b>	<b>£1,505</b>	<b>£78,380</b>	<b>£478,380</b>

Note: Permit application time costs, improvement costs and subsistence costs are based on costs for England and Wales.

#### 5.4 Uncertainties

- A further **5 sites (4 in Scotland and 1 in Northern Ireland)** may be affected by the proposed changes according to SEPA and the EHS. The following compliance and administrative costs have been estimated for these sites, based on costs for Scotland and Northern Ireland.
  - Compliance costs
    - Total annualised compliance capital costs for 4 sites in Scotland = £5,179 - £17,703
    - Total annualised compliance capital costs for 1 site in Northern Ireland = £1,295 - £4,426
  - Administrative costs
    - Tables 5.5 and 5.6 provide a breakdown of the administrative costs for 4 sites in Scotland and 1 site in Northern Ireland.

**Table 5.5 Administrative Costs for 4 Additional Sites in Scotland**

Cost element	Unit cost (£/installation)		Total annualised one off costs (£)		Total Annual costs (£/year)	
	Low	High	Low	High	Low	High
<b>Operators</b>						
Permit application fees	£15,260	£15,260	£4,295	£4,295	-	-
Permit application time costs	£20,000	£60,000	-	-	£80,000	£240,000
Improvement costs	£30,000	£350,000	-	-	£120,000	£1,400,000
Subsistence fees	£3,380	£3,380	£951	£951	£13,520	£13,520
Subsistence time costs	£25,000	£65,000	-	-	£100,000	£260,000
Surrender costs	£2,754	£2,754	£775	£775		
<i>Sub-Total</i>	<i>£96,394</i>	<i>£496,394</i>	<i>£6,021</i>	<i>£6,021</i>	<i>£313,520</i>	<i>£1,913,520</i>
<b>Regulatory Authorities</b>						
Permit application time costs (regulators)	Assuming costs covered within the application fee					
Subsistence time costs	Assuming costs covered within the application charge					
Sub-Total	N/A	N/A	N/A	N/A	N/A	N/A
<b>Total Annualised Administrative Costs</b>	<b>£96,394</b>	<b>£496,394</b>	<b>£6,021</b>	<b>£6,021</b>	<b>£313,520</b>	<b>£1,913,520</b>

**Table 5.6 Administrative Costs for 1 Site in Northern Ireland**

Cost element	Unit cost (£/installation)		Total annualised one off costs (£)		Total Annual costs (£/year)	
	Low	High	Low	High	Low	High
<b>Operators</b>						
Permit application fees	£4,385	£4,385	£309	£309	-	-
Permit application time costs	£20,000	£60,000	-	-	£20,000	£60,000
Improvement costs	£30,000	£350,000	-	-	£30,000	£350,000
Subsistence fees	£1,525	£1,525	£107	£107	£1,525	£1,525
Subsistence time costs	£25,000	£65,000	-	-	£25,000	£65,000
Surrender costs	£2,345	£2,345	£165	£165		
<i>Sub-Total</i>	<i>£83,255</i>	<i>£483,255</i>	<i>£581</i>	<i>£581</i>	<i>£76,525</i>	<i>£476,525</i>
<b>Regulatory Authorities</b>						
Permit application time costs (regulators)	Assuming costs covered within the application fee					
Subsistence time costs	Assuming costs covered within the application charge					
Sub-Total	N/A	N/A	N/A	N/A	N/A	N/A
<b>Total Annualised Administrative Costs</b>	<b>£83,255</b>	<b>£483,255</b>	<b>£581</b>	<b>£581</b>	<b>£76,525</b>	<b>£476,525</b>
Note: Permit application time costs, improvement costs and subsistence costs are based on costs for England and Wales.						

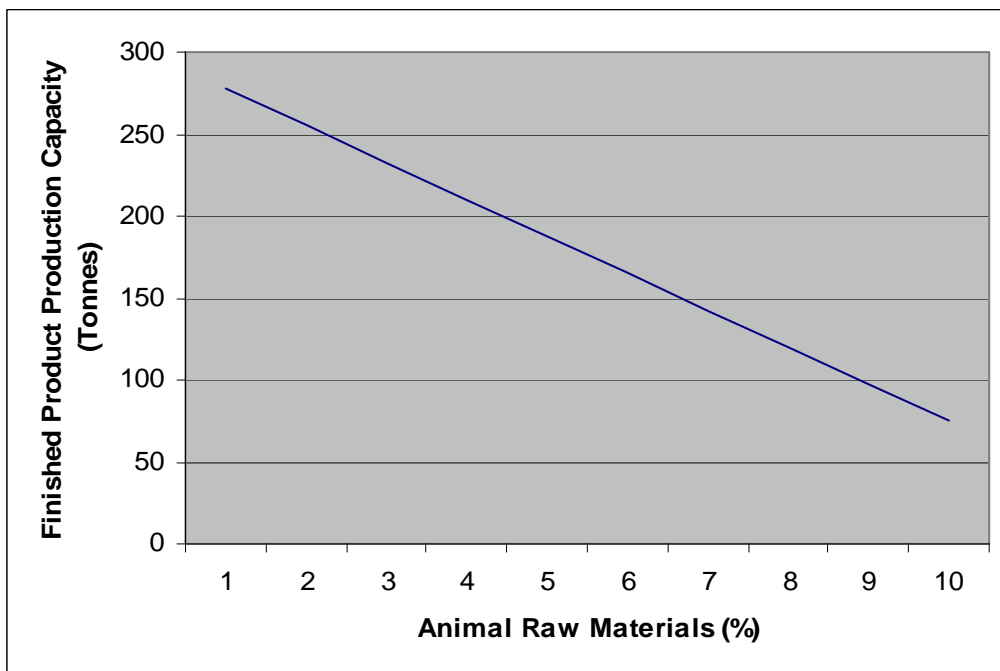


## 6. Benefits

### 6.1 Mixing Rule

Members of the FDF feel that the Commission’s proposed mixing rule would prove unworkable for companies because of the steepness of the line involved going from 10 to 0% animal content, as is shown in Figure 6.1. For example a variation of +/- 1% in the animal raw material content will result in +/- 22.5 tonnes in the product output threshold, which represents a span of 45 tonnes or 60% of the 75 tonne threshold. This will clearly create practical difficulties and uncertainty for installations where the animal content of the product would typically fluctuate according to product formulation and ingredient sources.

**Figure 6.1 Proposed Amendment to IPPC Directive for Mixed Food and Drink Installations**



The members of the FDF are currently considering an alternative proportional approach method which is deemed to be a simpler, more rational, practical and defensible approach to dealing with installations operating with mixed animal and vegetable raw materials than either the current or proposed methods represent. We understand that the FDF are currently discussing this matter with the CIAA.

The view of the EA is that this proportional approach, while a rational calculation, is complex and may result in potential difficulties in interpretation both with the operators and also the EA. The EA are concerned about how the approach could be practically translated. As it is a complex scenario, explanatory guidance would be required and could lead to further inconsistencies and potential challenges.

## 6.2 Approach

The following table summarises the benefits likely to be achieved from permitting those mixed installations with a production capacity between 75 –300 tonnes per day and using <10% animal raw material. Due to the lack of available information, it has not been possible to numerically quantify the benefits.

**Table 6.1 Environmental Benefits**

Benefits	Situation under IE(IPPC)D	Business as Usual (BAU)
Formalisation of environmental management systems	IPPC permits include standard conditions designed to require the operators to implement and maintain a management system, maintain a management system, organisational structure and allocate resources that are sufficient to achieve compliance with the limits and conditions of the permit.	There are currently no requirements to implement an environmental management system. The discharge consents do not contain conditions to address environmental management.
Fugitive emissions	IPPC permits issued to food and drink installations may contain improvement conditions relating to a need to review and provide secondary containment to raw material storage areas.	This is not currently addressed

**Table 6.1 (continued) Environmental Benefits**

Benefits	Situation under IE(IPPC)D	Business as Usual (BAU)
Odour and Noise	<p>IPPC permits issued to food and drink installations may include improvement conditions which include:</p> <ul style="list-style-type: none"> <li>• A need to have in place odour and/ or management plan/s;</li> <li>• Requirements to implement odour abatement measures (i.e. thermal oxidisers, scrubbers etc.) or noise attenuation measures (acoustic cladding etc.)</li> </ul>	Noise and odour will be currently regulated by the local authority as Statutory Nuisance.
Waste reduction, minimisation and resource efficiency	All IPPC permits include standard conditions designed to address waste reduction, minimisation and resource efficiency.	Waste reduction, minimisation and resource efficiency are currently addressed through industry initiatives, although these are not enforced.

Food and drink manufacturing installations can affect the environment through the release of emissions, including wastewater, air pollutants such as dust, odour and pollutants from combustion processes (CO<sub>2</sub>, SO<sub>x</sub>, NO<sub>x</sub>), water and energy consumption. The impact of these may include;

- Pollution of controlled waters;
- Local Air Pollution;
- public nuisance due to odour;
- depletion of natural resources;

- global warming; and
- acidification.

In the UK the food and drink industry is already covered by water emissions regulations, packaging requirements and waste management regulations. The larger installations are regulated under IPPC. The main impact of the proposed changes would be to enforce further resource efficiency measures to reduce water consumption, wastewater generation, packaging, waste and energy usage. Resource efficiency issues are currently being addressed through industry initiatives such as the FDF's five fold ambition for the environment and the Courtauld commitment. However, these initiatives are not currently enforced on non-permitted sites. Reductions in the volume of wastewater generated in this sector can be achieved through waste minimisation.

There are opportunities for reduction of emissions caused by energy use (CO<sub>2</sub>, SO<sub>2</sub>, NO<sub>x</sub>). There is scope for significant costs savings within IPPC through the implementation energy efficiency measures, if unnecessary energy losses are prevented.

It was not possible to quantitatively estimate benefits of reduced environmental impacts in quantitative or monetary terms due to the limited availability of data for the sector.

### 6.3 **Summary**

The application of IPPC requirements to the installations that may be affected by the proposed change to the IPPC Directive with the inclusion of those food and drink 'mixed installations', could potentially lead to a reduction in water and energy usage, wastewater generation and emissions to air including odour. However due to the absence of data, it was not possible to quantify this.

## 7. Quarterly Basis Amendment

The IE(IPPC) D has been amended to remove the phrase “average value on a quarterly basis” from section 6.4(a)(ii), when referring to the calculation of finished product production capacity of facilities treating and processing vegetable raw materials. While this was not part of the scope of this impact assessment, the views of some of the stakeholders is that this amendment may have significant impact on the food and drink sector. The comments received from the stakeholders in relation to this amendment is detailed below.

### Food and Drink Federation

The FDF would like to see this reinstated into Annex I, Section 6.4 (b) (ii). This phrase indicates that the finished product production capacity is based on actual output of the plant averaged over a 3 month rolling period for the days processing took place. This is seen as a more pragmatic approach to defining thresholds as it can be extremely difficult to determine the design or theoretical capacity for any one production unit. An actual output approach is also easier to monitor from the authorities’ perspective as production records are readily kept by companies. For the same reasons FDF would like Section 6.4 (b) (i) concerning the animal product threshold to incorporate an actual production approach averaged over a year as opposed to production capacity.

### Agricultural Industries Confederation

The proposed change as read, would bring in feedmills based on capacity rather than actual production. This would mean that virtually every animal feed mill would be subject to IPPC.

To date, over 70 feedmills are subject to PPC with average permit costs, upgrades and extra staffing resources estimated to be in the region of £80,000 per mill. A further 20-30 or more compound mills are likely to fall into the scope of the proposals, along with an estimated 70 blending sites. Farm-based facilities may also be captured by the changes (although it is not possible to determine the number of sites affected without discussions with the National Farmers Union).

In the first two years of PPC permit operations, the feed industry has been subject to legislative costs of 5-6 million. Permitting the additional facilities, outlined above, would more than double this cost which would be crippling to the industry. The risk of this cost is further mill closures as companies are unable to restructure or finance the additional burden.

For larger companies, owning multiple mills, the proposals add further to their costs and add weight to business decisions to export production outside of the UK. For the smaller companies

owning smaller, single mills their income is unlikely to be sufficient to pay for the PPC permitting process and upgrade cost and so their future viability would be threatened.

Fewer feedmills in the UK would mean an increase on imports which would add to transport emissions. In a global context, these emissions may exceed impacts from the feedmill facilities themselves. In addition additional problems may result from a security of supply and animal welfare implications.

The view of the AIC is that the legislative burden is very clearly disproportionate to the environmental risk involved.

### Environment Agency

The Environment Agency have included within their guidance documentation supporting the Environmental Permitting Regulations, the following in relation to the treating and processing of materials intended for the production of food products from animal raw materials:

*Note 6.8.14: Finished product production capacity for an installation treating and processing animal raw materials means design capability, or where not readily known, past or proposed future output based on operating 24 hours a day (subject to physical or legal constraints on capacity, for example planning constraints, down time for essential cleaning due to legal requirements (such as hygiene standards) and/ or plant restrictions such as chilling capacity).*

The following definition is included within the guidance in relation to the treating and processing of materials intended for the production of food products from vegetable raw materials:

*Note 6.8.19: Finished product production capacity for an installation treating and processing vegetable raw materials means actual output in any consecutive 90 day period averaged over the number of days in that 90 day period when production takes place, converted to a daily average.*

The base output threshold on capability of plant is a much tighter criterion for operators than the current 'actual' output that vegetable processors currently enjoy. Taking away the 'average value on a quarterly basis' for vegetable processors will lead to additional operators being captured by the IPPC Directive if the EA exercise parity with the approach for meat processors. The 'average value on a quarterly basis' was the only justification we had for having a different approach.

## 8. Competition Assessment

The competition guidelines (August 2007)<sup>29</sup> set out four main questions in order to ascertain whether the proposed policy (revisions in the IPPC Directive) would affect the market by:

1. Directly limiting the number or range of suppliers?
2. Indirectly limiting the number or range of suppliers?
3. Limiting the ability of suppliers to compete?
4. Reducing suppliers' incentives to compete vigorously?

A brief summary of the four questions are presented in and for those where the answer to one of the questions is "Yes", then an explanation is provided in the following sections.

The results should be included in the "Evidence Base" within the Impact Assessment template.

**Table 8.1 Summary of the Competition Test**

Question	Mixed Food and Drink Installations
Q1. Directly limit the number or range of suppliers?	No
Q2. Indirectly limit the range of suppliers?	No
Q3. Limit the ability of suppliers to compete?	No
Q4. Reduce suppliers' incentives to compete vigorously?	No

<sup>29</sup> [http://www.offt.gov.uk/shared\\_offt/reports/comp\\_policy/oft876.pdf](http://www.offt.gov.uk/shared_offt/reports/comp_policy/oft876.pdf)

Based on Entecs' experience of the food and drink industry, an assumption could be made that plants employing <10 people, are unlikely to have the production capacity to meet the proposed threshold and therefore would fall outside the scope of IPPC. It is not accurately known how many enterprises employ between 1-10 people, however based on 2006 data obtained from the Office of National Statistics Annual Business Enquiry, this figure could be above 80% of the food and drink manufacturing sector.

Less uncertainties and discrepancies between EU member states may reduce market distortions and create a more "level playing field" for companies. Up to 10 installations (see table 4.3) have been identified that may be affected by the proposed revisions and this represents a small number relative to the overall number of enterprises (6,947 food and drink manufacturing enterprises).

## 9. Distributional Impacts on Different Sizes

As mentioned in the previous section up to **10 installations** are likely to be affected. Based on the costs shown in section 5 and turnover data (see table 4.1) it is estimated that these installations could incur annualised costs in the region of £85k-492k which would represent a cost/turnover percentage of 1-7%. This is shown below in Table 9.1.

**Table 9.1 Annualised Costs (£) per Affected Installation**

<b>Costs Per Affected Installation (£)</b>		
<b>Turnover</b>		
Turnover of manufactures of other food product (SIC code 15.8)	£21,148,000,000	
Number of enterprises	3,133	
Average turnover per enterprise p.a.	£6,750,080	
<b>Cost of IPPC legislation per affected installation</b>	<b>Low</b>	<b>High</b>
Average annualised cost of compliance	£2,345	£5,476
Average annualised cost of admin	£81,704	£486,407
Average total annualised cost of IPPC (compliance +admin)	£84,048	£491,883
<b>Average cost/turnover</b>	<b>1%</b>	<b>7%</b>

Note:

- It is assumed in the absence of better data an even distribution of turnover amongst the enterprises
- Average total annualised costs are based total annualised values (one off + annual costs) divided by the number of affected installations

Costs under a high scenario represent a significant impact on an installations turnover if these costs can not be passed on. Without further installation level information on their products (who

they supply and compete against) it is unclear whether pass on of costs is possible in the price. It is worth noting that operating costs are likely to be rising in part due to higher energy and grain prices and combined with growing consumer pressure on these industries to not increase prices further, it is unclear if these costs would be fully passed on to consumers.

## 9.1 Summary

There are approximately 6,947 food and drink manufacturing installations in the UK. 369 of these are currently regulated under IPPC. In the UK it is estimated that 25% of all IPPC permitted food and drink installations are 'mixed installations'.

**10 sites** have been identified which *may* fit into the definition outlined in the proposed revisions to the IPPC Directive, 9 sites located in England and Wales and 1 in Scotland. The main sector that may be affected by the proposed changes to the Directive, as defined by the SIC code, is expected to be 15.8 Manufacture of other food products. Other sectors that may come under this scope include the manufacture of prepared animal feeds, which consists of two sub-sectors, compound animal feed and pet feed manufacturing.

The application of IPPC requirements to the installations that may be affected by the proposed change to the IPPC Directive with the inclusion of those food and drink 'mixed installations', could potentially lead to a reduction in water and energy usage, wastewater generation and emissions to air including odour. However due to the absence of data, it was not possible to quantify this.

## 9.2 Limitations/Uncertainties

- It has been assumed that the UK government will apply the proposed IPPC Directive changes in line with current arrangements for IPPC, namely division into part A, A(1), A(2) and part B processes and based upon the same thresholds as currently apply; and
- there are uncertainties around the number of installations that may be affected by the proposed changes to the Directive. **10 sites** have been identified that *may* potentially be affected, however a further **5 sites** could also potentially be covered (4 additional sites in Scotland and 1 in Northern Ireland). These sites have not yet been confirmed and we were unable to obtain any information on these sites. Further discussions with SEPA and the EHS would be required. Compliance and administration costs



