

THE CPRS AND THE EUROPEAN UNION EMISSIONS TRADING SCHEME:

THE TRADE INTENSITY OF AUSTRALIAN INDUSTRY SECTORS

**Report prepared for the Minerals Council of
Australia**

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1. INTRODUCTION

There are significant differences in approach between the Australian Government's Carbon Pollution Reduction Scheme (CPRS) and the European Union's Emissions Trading Scheme (ETS) with respect to assessing industry sectors' eligibility for shielding - in the form of free allocated permits - from the impact of the schemes.

Emissions intensity under the CPRS is determined using emissions intensity thresholds based on emissions per unit of value-added alongside a secondary trade exposure test. In contrast, the EU ETS provides multiple tests through which industries can qualify for protection, including a simple trade intensity test. A summary of the eligibility criteria for protection under the two schemes is provided in Appendices A1 and A2.

In late September, the European Union released a list of European industry sectors that are at 'risk of carbon leakage' and thus eligible for up to 100 per cent free permits. The vast majority of EU sectors judged eligible to receive this transitional support – at least 117 sectors out of 164 - qualify on the basis of the trade intensity test.

The Minerals Council of Australia has commissioned BAEconomics to examine the trade intensity of Australian industry sectors with the objective of providing a preliminary analysis of Australian industry sectors that would qualify for EITE assistance under the CPRS if it were to include a similar trade intensity criterion to that utilised in the EU ETS.

2. TREATMENT OF TRADE-EXPOSED INDUSTRIES IN THE EU ETS

In March 2009, the European Parliament issued a Directive amending its emissions trading scheme 'so as to improve and extend [it]'. The Directive recognises that unilateral action to curb emissions in the absence of an international agreement has the potential to shift production of emissions-intensive goods and services to third nations with less stringent environmental regulations. The Directive notes that 'carbon leakage' has the potential to undermine the environmental integrity and benefits of actions taken by the European Community, while also placing domestic industries at an economic disadvantage (European Parliament 2009, p.14).

To address the possibility of carbon leakage, the Directive states the Community should allocate 100 per cent of allowances free of charge for the years 2013 to 2020 to sectors or sub-sectors meeting criteria relating to trade exposure, carbon cost exposure or a combination of these two. The European Commission must identify these industries at risk of carbon leakage (hereafter CL industries) by 31 December 2009. A preliminary list of CL industries was released in April 2009, and a second draft list was released in July, with the final approved by the EC in late September. The Commission must review the list every five years but may also add a sector or sub-sector at any time provided the sector or sub-sector meets the criteria (European Parliament 2009, p.43).

According to the Directive, there are three criteria for determining whether a sector or sub-sector is exposed to a significant risk of carbon leakage¹. Only one need be met for an industry sector to qualify for protection under the EU ETS:

Criterion 1:

- a. The sum of direct and indirect additional costs induced by implementation of the Directive would lead to a substantial increase of production costs, calculated as a proportion of the gross value added, of at least 5 per cent; and
- b. The intensity of trade with third countries is above 10 per cent.

Criterion 2:

- c. The sum of direct and indirect additional costs induced by the implementation of the Directive would lead to a particularly high increase in production costs, calculated as a proportion of the gross value added, of at least 30 per cent.

Criterion 3:

- a. The intensity of trade with third countries is above 30 per cent.

There is also scope for a sector or sub-sector to qualify for concessions following a qualitative assessment based on, among other things, its technical opportunities for emissions reduction and projected market characteristics (European Parliament 2009, p.45-6).

2.1. DEFINING 'INTENSITY OF TRADE'

A trade intensity test is designed to measure the degree to which the overall value of a sector is dependent on trade. In the case of an emissions trading scheme, trade exposure is particularly important because domestic exports must compete internationally while imports compete with domestic industries. If climate policy is disparate across regions that trade in the same or similar products, then carbon leakage becomes a major issue. Carbon leakage relates to the risk that companies in sectors subject to strong international competition might relocate from the country applying the climate policy to third countries with less stringent constraints on greenhouse gas emissions. Shielding trade exposed industries from the effects of the scheme is intended to reduce or avert carbon leakage until such time as other countries adopt similar policies and/or the domestic industries reduce their emissions intensities and thus improve their competitiveness under a policy which penalises emissions. Any threshold could theoretically be applied as a basis for determining the level of trade exposure at which an industry is classified as 'trade exposed', and hence this definition is at the discretion of policymakers.

The EU Directive defines intensity of trade as the ratio of the total value of exports to third countries plus the value of imports from third countries to the total market size for the Community, where the total market size is defined as annual turnover plus total imports from third countries. That is,

¹ The numbering of criteria in this report is not used in the EU Directive.

$$\text{Intensity of trade} = \frac{\text{exports} + \text{imports}}{\text{turnover} + \text{imports}}.$$

According to Bergman (2009), of the 258 sectors identified in the EU's NACE industry classification system at the 4-digit level, 146 sectors (or 57 per cent) meet Criteria 1, 2 or 3 for trade intensity. In particular;

- 27 sectors have both additional costs above 5 per cent and trade intensity above 10 per cent (meeting Criterion 1);
- 2 sectors have additional costs above 30 per cent with trade intensity below 10 per cent (meeting Criterion 2); and
- 117 sectors have trade intensity greater than 30 per cent (meeting Criterion 3).

A further five sectors at the NACE 4-digit level qualify on the basis of a qualitative assessment. Beyond four digits (in other words, at a greater level of disaggregation), another 13 sub-sectors qualify. Bergman (2009) states that sectors deemed to be at risk of carbon leakage account for about 75 per cent of the total greenhouse gas emissions of industries covered by the EU ETS. The list of industry sectors that have been analysed as at risk of carbon leakage under the EU ETS criteria is presented in Appendix 2 according to the criteria under which they qualify.

3. APPLICATION OF THE EU ETS TRADE EXPOSURE TEST TO AUSTRALIAN INDUSTRIES

3.1. METHODOLOGY

To appropriately apply the EU ETS test of trade exposure to Australian industries, BAE adopted the same definition of trade intensity as Criterion 3 of the EU ETS and as defined in the previous section. Note that 'turnover' is defined as domestic supply in the ensuing analysis.

The data used for the 109 industry analysis were drawn from Australian National Accounts: Input-Output Tables - Electronic Publication 2004-05 (tables 5 and 8 from catalogue 5209.0.55.001). These input-output tables are the latest available in final form from the ABS. Note that the ABS last week released preliminary updates for 2005-06, however these tables are still subject to user review and will not be finalised until November 2009.

In conducting the more detailed product level analysis for the minerals sector, data from ABS cat. no. 5215.0.55.001 Australian National Accounts: Input Output Tables - Product Details - Electronic Publication, Part 1 - Agriculture, Mining and Manufacturing industries were utilised.

3.2. KEY FINDINGS

Table 1 presents the findings of the analysis of trade intensity of Australian industry at the 109 industry level classification. Those sectors highlighted in red indicate those which would classify as trade intensive under the EU ETS's criterion 3 definition.

Table 1: Estimates of trade exposure of Australian industries based on EU criteria for carbon leakage

Code	Description of industry/sector	Domestic supply ¹	Imports ²	Exports ²	Ratio ³
		\$ million	\$ million	\$ million	%
0101	Sheep	4 201	1	1 755	41.8
0102	Grains	7 356	26	3 767	51.4
0103	Beef cattle	8 898	0	333	3.7
0104	Dairy cattle	3 693	0	86	2.3
0105	Pigs	856	0	1	0.1
0106	Poultry	1 817	1	3	0.2
0107	Other agriculture	11 577	734	858	12.9
0200	Services to agriculture; hunting and trapping	n.p.	14	766	--
0300	Forestry and logging	1 984	54	89	7.0
0400	Commercial fishing	2 543	103	186	10.9
1101	Coal	19 135	25	15 906	83.1
1201	Oil and gas	18 361	9 909	8 873	66.4
1301	Iron ores	8 039	190	6 873	85.8
1302	Non-ferrous metal ores	18 171	2 584	5 603	39.4
1400	Other mining	2 917	236	486	22.9
1500	Services to mining	n.p.	129	6	
2101	Meat and meat products	16 774	452	5 399	34.0
2102	Dairy products	9 399	687	2 152	28.1
2103	Fruit and vegetable products	3 823	1 191	786	39.4
2104	Oils and fats	2 089	552	219	29.2
2105	Flour mill products and cereal foods	3 774	321	620	23.0
2106	Bakery products	3 555	424	224	16.3

Code	Description of industry/sector	Domestic supply ¹	Imports ²	Exports ²	Ratio ³
		\$ million	\$ million	\$ million	%
2107	Confectionery	3 313	615	449	27.1
2108	Other food products	10 565	2 360	2 859	40.4
2109	Soft drinks, cordials and syrups	3 660	206	191	10.3
2110	Beer and malt	3 743	214	364	14.6
2113	Wine, spirits and tobacco products	6 623	1 513	2 703	51.8
2201	Textile fibres, yarns and woven fabrics	1 809	1 290	594	60.8
2202	Textile products	1 893	1 409	199	48.7
2203	Knitting mill products	864	515	62	41.8
2204	Clothing	2 890	4 106	695	68.6
2205	Footwear	490	1 108	71	73.8
2206	Leather and leather products	1 349	784	927	80.2
2301	Sawmill products	3 331	842	783	38.9
2302	Other wood products	5 575	797	233	16.2
2303	Pulp, paper and paperboard	1 951	2 417	446	65.5
2304	Paper containers and products	5 515	444	283	12.2
2401	Printing and services to printing	13 837	794	270	7.3
2402	Publishing; recorded media and publishing	7 736	1 896	296	22.8
2501	Petroleum and coal products	18 002	5 898	1 996	33.0
2502	Basic chemicals	9 948	7 484	1 636	52.3
2503	Paints	2 205	204	115	13.3
2504	Medicinal and pharmaceutical products, pesticides	7 430	7 187	1 463	59.2
2505	Soap and other detergents	1 684	361	146	24.8
2506	Cosmetics and toiletry preparations	703	943	201	69.5

Code	Description of industry/sector	Domestic supply ¹	Imports ²	Exports ²	Ratio ³
		\$ million	\$ million	\$ million	%
2507	Other chemical products	3 212	1 231	330	35.1
2508	Rubber products	1 582	2 136	160	61.7
2509	Plastic products	8 109	3 032	551	32.2
2601	Glass and glass products	1 861	559	101	27.3
2602	Ceramic products	1 441	797	96	39.9
2603	Cement, lime and concrete slurry	4 948	83	53	2.7
2604	Plaster and other concrete products	3 201	65	68	4.1
2605	Other non-metallic mineral products	1 614	468	125	28.5
2701	Iron and steel	15 663	4 373	2 555	34.6
2702	Basic non-ferrous metal and products	25 658	1 279	17 034	68.0
2703	Structural metal products	9 053	362	207	6.0
2704	Sheet metal products	4 530	428	147	11.6
2705	Fabricated metal products	7 620	3 535	622	37.3
2801	Motor vehicles and parts; other transport equipment	22 961	21 853	3 237	56.0
2802	Ships and boats	3 877	425	478	21.0
2803	Railway equipment	1 802	199	45	12.2
2804	Aircraft	2 445	3 389	334	63.8
2805	Photographic and scientific equipment	3 150	5 857	1 229	78.7
2806	Electronic equipment	4 420	18 495	1 406	86.8
2807	Household appliances	4 804	3 400	287	44.9
2808	Other electrical equipment	5 343	4 966	773	55.7
2809	Agricultural, mining and construction machinery, lifting and material handling equipment	4 551	6 431	709	65.0
2810	Other machinery and equipment	6 068	7 892	1 145	64.7

Code	Description of industry/sector	Domestic supply ¹	Imports ²	Exports ²	Ratio ³
		\$ million	\$ million	\$ million	%
2901	Prefabricated buildings	1 012	15	27	4.1
2902	Furniture	8 127	2 288	198	23.9
2903	Other manufacturing	3 768	3 061	738	55.6
3601	Electricity supply	27 349	10	58	0.2
3602	Gas supply	2 904	0	1	0.0
3701	Water supply; sewerage and drainage services	10 472	17	11	0.3
4101	Residential building construction	49 643	0	100	0.2
4102	Other construction	62 178	16	142	0.3
4201	Construction trade services	75 194	0	301	0.4
4501	Wholesale trade	91 936	0	9 475	10.3
4502	Wholesale mechanical repairs	1 608	0	0	0.0
4503	Other wholesale repairs	7 237	13	1	0.2
5101	Retail trade	82 606	499	3 476	4.8
5102	Retail mechanical repairs	18 991	3	19	0.1
5103	Other retail repairs	2 267	0	0	0.0
5701	Accommodation, cafes and restaurants	48 729	3 718	5 012	16.6
6101	Road transport	33 973	949	5 440	18.3
6201	Rail, pipeline and other transport	11 476	558	3 852	36.6
6301	Water transport	n.p.	187	1 475	--
6401	Air and space transport	n.p.	7 538	7 988	--
6601	Services to transport; storage	36 708	230	3 367	9.7
7101	Communication services	47 613	1 092	1 183	4.7
7301	Banking	32 726	249	499	2.3

Code	Description of industry/sector	Domestic supply ¹	Imports ²	Exports ²	Ratio ³
		\$ million	\$ million	\$ million	%
7302	Non-bank finance	12 897	135	249	2.9
7401	Insurance	21 886	872	545	6.2
7501	Services to finance, investment and insurance	33 380	211	460	2.0
7701	Ownership of dwellings	85 665	413	411	1.0
7702	Other property services	73 038	770	436	1.6
7801	Scientific research, technical and computer services	47 249	2 335	2 493	9.7
7802	Legal, accounting, marketing and business management services	58 221	2 117	2 087	7.0
7803	Other business services	46 071	964	924	4.0
8101	Government administration	51 870	0	58	0.1
8201	Defence	15 828	0	115	0.7
8401	Education	49 655	1 302	3 925	10.3
8601	Health services	56 567	560	520	1.9
8701	Community services	10 940	1	4	0.0
9101	Motion picture, radio and television services	14 078	938	182	7.5
9201	Libraries, museums and the arts	7 606	334	139	6.0
9301	Sport, gambling and recreational services	15 399	474	509	6.2
9501	Personal services	8 567	130	137	3.1
9601	Other services	17 865	3	43	0.3

¹ ABS 5209.0.55.001, table 5, ² ABS 5209.0.55.001, table 8, ³ Ratio is defined as (imports + exports) / (turnover + imports)

When the EU ETS criterion 3 tests for trade intensity of greater than 30 per cent trade with third countries is applied to Australian industries, the key findings are as follows:

- At least 39 industry sectors (or 36 per cent of sectors analysed) have trade intensities above 30 per cent. This represents a much greater proportion of industries qualifying for shielding than is presently being considered under the EITE rules.
- If the EU industry assistance criterion were applied to the CPRS, these sectors would be eligible for shielding under the Emissions Intensive Trade Exposed (EITE) program.
- The industries that would qualify for protection under the CPRS using a trade intensity criterion range from minerals commodities, beef processing, wine and spirits, pulp and paperboard, chemicals, electronic equipment, fabricated metal products, iron and steel products, ceramic products, textiles clothing and footwear, motor vehicles and parts, other manufacturing and many others.

3.3. SCOPE FOR FURTHER ANALYSIS

While it is clear from the above analysis that many Australian industries would receive protection under the CPRS if an additional criterion was included in the CPRS EITE rules to match criterion 3 under the EU ETS, it is also interesting to note what impact this would have at the product level.

BAE undertook a detailed product level analysis of the mining industry in Australia using the same trade intensity criterion. The results are presented in table 2.

Key findings include:

- Of the 25 products analysed, 15 products (or 60 per cent) would qualify as trade intensive under the EU ETS Criterion 3 definition.
- This percentage is still lower than the analysis done at a similar level of disaggregation using the EU 4 digit NACE level product codes, whereby 77 per cent of industrial sectors would qualify under one or other of the ETS shielding rules.
- The detailed analysis could be applied to the broader industrial classification, resulting in analysis for 990 products. BAE could also conduct a trade intensity analysis at this level of detail for only manufacturing if required. Such analysis would include greater resolution at the product level and include for example: alumina, aluminium, copper/silver/lead/zinc refining and smelting, iron and steel manufacturing, and fabricated metals products if this were of interest to the Minerals Council.

Table 2: Detailed estimates of trade exposure according to EU eligibility criteria, by mining product

Description	IOPC code	Industry	Australian production	Imports	Exports	Trade exposure ¹
			\$ million	\$ million	\$ million	%
Black coal (all types incl briquettes)	11010010	1101 - Coal	16776	15	15902	94.8
Brown coal-lignite (incl briquettes)	11020010	1101 - Coal	861	10	3	1.5
Crude oil (incl. condensate)	12000011	1201 - Oil and gas	11030	9830	5580	73.9
Liquefied natural gas	12000023	1201 - Oil and gas	3629	0	2956	81.5
Natural gas (in the gaseous state)	12000027	1201 - Oil and gas	2452	0	0	0.0
Liquefied petroleum gases - natural; coal gas & similar, other than petroleum gases & other gaseous hydrocarbons nec	12000028	1201 - Oil and gas	613	80	336	60.0
Iron ore (incl treatment; excl pelletising)	13110010	1301 -Iron ores	7590	103	6840	90.3
Iron ores n.e.i.	13119998	1301 -Iron ores	346	87	33	27.7
Bauxite	13120010	1302 - Non-ferrous metal ores	827	3	111	13.7
Copper concentrates, oxides and ores	13130012	1302 - Non-ferrous metal ores	3522	0	1721	48.9
Gold bullion and ores ²	13140010	1302 - Non-ferrous metal ores	4548	2478	0	35.3
Beneficiated ilmenite, ilmenite and leucoxene concentrates	13150010	1302 - Non-ferrous metal ores	368	0	317	86.1
Zircon concentrate and mineral sand ores nec	13150033	1302 - Non-ferrous metal ores	438	0	321	73.3
Silver and zinc ores	13170020	1302 - Non-ferrous metal ores	2548	45	829	33.7
Other non-ferrous metallic ores and concentrates n.e.i.	13199998	1302 - Non-ferrous metal ores	5391	58	2302	43.3
Gravel	14110010	1400 - Other mining	100	2	0	2.0

Description	IOPC code	Industry	Australian production	Imports	Exports	Trade exposure ¹
			\$ million	\$ million	\$ million	%
Sand	14110020	1400 - Other mining	358	1	25	7.2
Dimension stone	14190010	1400 - Other mining	30	11	6	41.5
Pebbles, gravel, broken or crushed stone, macadam; tarred macadam; granules, chippings and powder of stone	14190021	1400 - Other mining	833	3	0	0.4
Limestone (incl shell and coral)	14190030	1400 - Other mining	118	0	0	0.0
Salt	14200010	1400 - Other mining	218	0	0	0.0
Refined sulphur (excluding sublimed, precipitated or colloidal)	14200031	1400 - Other mining	0	8	0	no production
Gypsum; anhydrite; calcareous stone of a kind used for the manufacture of lime or cement (excluding limestone)	14200032	1400 - Other mining	19	10	9	65.5
Silica	14200033	1400 - Other mining	35	1	11	33.3
Sillimanite clay	14200035	1400 - Other mining	0	1	0	no production
Other non-metallic minerals n.e.i.	14209998	1400 - Other mining	868	95	435	55.0

Source: Australian Bureau of Statistics, Part 1 - Agriculture, Mining and Manufacturing industries

¹ Defined as (imports + exports) / (production + imports)

² Excludes refined gold products, which are attributed in the ABS I-O tables to Basic non-ferrous metals and products. See Table 1 for trade intensity of Basic non-ferrous metals industry.

REFERENCES

Bergman, H. (2009), 'Sectors deemed to be exposed to a significant risk of carbon leakage – outcome of the assessment' DG Environment C2, European Commission, http://ec.europa.eu/environment/climat/emission/pdf/wg3_16_sep_presentation.pdf (accessed 9 October 2009)

European Parliament (2009), 'Directive of the European Parliament and of the Council amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading scheme of the Community', Brussels, 26 March 2009 <http://register.consilium.europa.eu/pdf/en/08/st03/st03737.en08.pdf> (accessed 9 October 2009)

APPENDIX A

A.1. THE EUROPEAN UNION TEST FOR EMISSIONS INTENSIVE TRADE EXPOSED SUPPORT²

A sector shall be deemed to be exposed to a significant risk of carbon leakage if:

- the sum of direct and indirect costs ...would lead to a substantial increase of production costs, calculated as a proportion of the gross value added of at least 5 per cent
and
- the intensity of trade with third countries... is above 10 per cent

A sector or sub-sector is **also** deemed to be exposed to a significant risk of carbon leakage if:

- the sum of direct and indirect costs ...would lead to a substantial increase of production costs, calculated as a proportion of the gross value added of at least 30 per cent
or
- **the intensity of trade with third countries...is above 30 per cent. (emphasis added)**

Note: Trade intensity is defined as the ratio between the total value of exports to third countries plus the value of imports from third countries and the total market size for the Community (annual turnover plus imports from third countries).

A.2. THE CARBON POLLUTION REDUCTION SCHEME TEST FOR SUPPORT UNDER THE EMISSIONS INTENSIVE TRADE EXPOSED (EITE) PROGRAM

A sector shall be eligible for EITE support if:

- the emissions intensity of an 'activity' is at least 2000t CO_{2e} per \$ million revenue or 6000t CO_{2e} per \$m value-added, **and** that activity has a trade intensity of 10 per cent or meets certain qualitative criteria.
or
- the emissions intensity of an 'activity' is between 1000t and 2000t CO_{2e} per \$ million revenue or between 3000t and 6000t CO_{2e} per \$m value-added **and** that activity has a trade intensity of 10 per cent or meets certain qualitative criteria.

² Directive 2009/29/EC of the European Parliament and of the Council of 23 April 2009, published in the *Official Journal of the European Union* L140/63, 5/6/2009.

APPENDIX B

Table B.1: EU sectors and sub-sectors deemed to be at risk of carbon leakage

NACE	Description	Reason
1010	Mining and agglomeration of hard coal	Criterion 1 and 2 and/or 3
1110	Extraction of crude petroleum and natural gas	Trade intensity > 30%
1310	Mining of iron ores	Trade intensity > 30%
1320	Mining of non-ferrous metal ores, except uranium and thorium ores	Trade intensity > 30%
1411	Quarrying of ornamental and building stone	Trade intensity > 30%
1422	Mining of clays and kaolin	Trade intensity > 30%
1430	Mining of chemical and fertilizer minerals	Criterion 1 and 2 and/or 3
1450	Other mining and quarrying n.e.c	Trade intensity > 30%
1520	Processing and preserving of fish and fish products	Trade intensity > 30%
1533.14.27	Concentrated tomato puree and paste	Beyond NACE 4-digits, any criteria
1541	Manufacture of crude oils and fats	Trade intensity > 30%
1551.20	Milk and cream in solid forms	Beyond NACE 4-digits, any criteria
1551.53	Casein	Beyond NACE 4-digits, any criteria
1551.54	Lactose and lactose syrup	Beyond NACE 4-digits, any criteria
1562	Manufacture of starches and starch products	5% additional cost and 10% trade exposure
1583	Manufacture of sugar	5% additional cost and 10% trade exposure
1589.13.33	Dry bakers' yeast	Beyond NACE 4-digits, any criteria
1591	Manufacture of distilled potable alcoholic beverages	Trade intensity > 30%
1592	Production of ethyl alcohol from fermented materials	5% additional cost and 10% trade exposure
1593	Manufacture of wines	Trade intensity > 30%
1595	Manufacture of other non-distilled fermented beverages	5% additional cost and 10% trade exposure
1597	Manufacture of malt	Criterion 1 and 2 and/or 3

NACE	Description	Reason
1711	Preparation and spinning of cotton-type fibres	Criterion 1 and 2 and/or 3
1712	Preparation and spinning of woollen-type fibres	Trade intensity > 30%
1713	Preparation and spinning of worsted-type fibres	Trade intensity > 30%
1714	Preparation and spinning of flax-type fibres	Trade intensity > 30%
1715	Throwing and preparation of silk, including from noils, and throwing and texturing of synthetic or artificial filament yarns	Trade intensity > 30%
1716	Manufacture of sewing threads	Trade intensity > 30%
1717	Preparation and spinning of other textile fibres	Trade intensity > 30%
1721	Cotton-type weaving	Trade intensity > 30%
1722	Woollen-type weaving	Trade intensity > 30%
1723	Worsted-type weaving	Trade intensity > 30%
1724	Silk-type weaving	Trade intensity > 30%
1725	Other textile weaving	Trade intensity > 30%
1730	Finishing of textiles	Qualitative assessment
1740	Manufacture of made-up textile articles, except apparel	Trade intensity > 30%
1751	Manufacture of carpets and rugs	Trade intensity > 30%
1752	Manufacture of cordage, rope, twine and netting	Trade intensity > 30%
1753	Manufacture of non-wovens and articles made from non-wovens,	Trade intensity > 30%
1754	Manufacture of other textiles n.e.c.	Trade intensity > 30%
1760	Manufacture of knitted and crocheted fabrics	Trade intensity > 30%
1771	Manufacture of knitted and crocheted hosiery	Trade intensity > 30%
1772	Manufacture of knitted and crocheted pullovers, cardigans and	Trade intensity > 30%
1810	Manufacture of leather clothes	Criterion 1 and 2 and/or 3
1821	Manufacture of workwear	Trade intensity > 30%
1822	Manufacture of other outerwear	Trade intensity > 30%
1823	Manufacture of underwear	Trade intensity > 30%

NACE	Description	Reason
1824	Manufacture of other wearing apparel and accessories n.e.c.	Trade intensity > 30%
1830	Dressing and dyeing of fur; manufacture of articles of fur	Trade intensity > 30%
1910	Tanning and dressing of leather	Trade intensity > 30%
1920	Manufacture of luggage, handbags and the like, saddlery and h	Trade intensity > 30%
1930	Manufacture of footwear	Trade intensity > 30%
2010	Sawmilling and planing of wood; impregnation of wood	Trade intensity > 30%
2020	Manufacture of veneer sheets; manufacture of plywood, laminboard, particle board, fibre board and other panels and boards	Qualitative assessment
2052	Manufacture of articles of cork, straw and plaiting materials	Trade intensity > 30%
2111	Manufacture of pulp	Trade intensity > 30%
2112	Manufacture of paper and paperboard	5% additional cost and 10% trade exposure
2124	Manufacture of wallpaper	Trade intensity > 30%
2215	Other publishing	Trade intensity > 30%
2310	Manufacture of coke oven products	Criterion 1 and 2 and/or 3
2320	Manufacture of refined petroleum products	5% additional cost and 10% trade exposure
2330	Processing of nuclear fuel	Trade intensity > 30%
2411.11.50	Hydrogen (including the production of hydrogen in combination with syngas).	Beyond NACE 4-digits, any criteria
2411.11.60	Nitrogen	Beyond NACE 4-digits, any criteria
2411.11.70	Oxygen	Beyond NACE 4-digits, any criteria
2412	Manufacture of dyes and pigments	Trade intensity > 30%
2413	Manufacture of other inorganic basic chemicals	Criterion 1 and 2 and/or 3
2414	Manufacture of other organic basic chemicals	Criterion 1 and 2 and/or 3
2415	Manufacture of fertilizers and nitrogen compounds	Criterion 1 and 2 and/or 3
2416	Manufacture of plastics in primary forms	Qualitative assessment
2417	Manufacture of synthetic rubber in primary forms	Criterion 1 and 2 and/or 3
2420	Manufacture of pesticides and other agro-chemical products	Trade intensity > 30%

NACE	Description	Reason
2430.21	Prepared pigments, opacifiers and colours, vitrifiable enamels and glazes, engobes, liquid lustres and the like; glass frit	Beyond NACE 4-digits, any criteria
2441	Manufacture of basic pharmaceutical products	Trade intensity > 30%
2442	Manufacture of pharmaceutical preparations	Trade intensity > 30%
2452	Manufacture of perfumes and toilet preparations	Trade intensity > 30%
2462.10.30	Gelatin and its derivatives; isinglass (excluding casein glues and bone glues)	Beyond NACE 4-digits, any criteria
2463	Manufacture of essential oils	Trade intensity > 30%
2464	Manufacture of photographic chemical material	Trade intensity > 30%
2465	Manufacture of prepared unrecorded media	Trade intensity > 30%
2466	Manufacture of other chemical products n.e.c.	Trade intensity > 30%
2470	Manufacture of man-made fibres	Trade intensity > 30%
2511	Manufacture of rubber tyres and tubes	Trade intensity > 30%
2611	Manufacture of flat glass	5% additional cost and 10% trade exposure
2613	Manufacture of hollow glass	5% additional cost and 10% trade exposure
2614.11	Slivers, rovings, yarn and chopped strands, of glass fibre	Beyond NACE 4-digits, any criteria
2615	Manufacture and processing of other glass, including technical	Trade intensity > 30%
2621	Manufacture of ceramic household and ornamental articles	Trade intensity > 30%
2622	Manufacture of ceramic sanitary fixtures	Trade intensity > 30%
2623	Manufacture of ceramic insulators and insulating fittings	Trade intensity > 30%
2624	Manufacture of other technical ceramic products	Trade intensity > 30%
2625	Manufacture of other ceramic products	Trade intensity > 30%
2626	Manufacture of refractory ceramic products	Trade intensity > 30%
2630	Manufacture of ceramic tiles and flags	5% additional cost and 10% trade exposure
2651	Manufacture of cement	30% additional cost
2652	Manufacture of lime	30% additional cost
2681	Production of abrasive products	Trade intensity > 30%

NACE	Description	Reason
2682.14.00	Artificial graphite, colloidal, semi-colloidal graphite and preparations	Beyond NACE 4-digits, any criteria
2682.16.20	Exfoliated vermiculite, expanded clays, foamed slag and similar expanded mineral materials and mixtures thereof	Beyond NACE 4-digits, any criteria
2710	Manufacture of basic iron and steel and of ferro-alloys	Criterion 1 and 2 and/or 3
2721	Manufacture of cast iron tubes	5% additional cost and 10% trade exposure
2722	Manufacture of steel tubes	Trade intensity > 30%
2731	Cold drawing	Criterion 1 and 2 and/or 3
2741	Precious metals production	Trade intensity > 30%
2742	Aluminium production	Criterion 1 and 2 and/or 3
2743	Lead, zinc and tin production	5% additional cost and 10% trade exposure
2744	Copper production	Criterion 1 and 2 and/or 3
2745	Other non-ferrous metal production	Criterion 1 and 2 and/or 3
2751	Casting of iron	Qualitative assessment
2753	Casting of light metals	Qualitative assessment
2861	Manufacture of cutlery	Trade intensity > 30%
2862	Manufacture of tools	Trade intensity > 30%
2874	Manufacture of fasteners, screw machine products, chain and s	Trade intensity > 30%
2875	Manufacture of other fabricated metal products n.e.c.	Trade intensity > 30%
2911	Manufacture of engines and turbines, except aircraft, vehicle	Trade intensity > 30%
2912	Manufacture of pumps and compressors	Trade intensity > 30%
2913	Manufacture of taps and valves	Trade intensity > 30%
2914	Manufacture of bearings, gears, gearing and driving elements	Trade intensity > 30%
2921	Manufacture of furnaces and furnace burners	Trade intensity > 30%
2923	Manufacture of non-domestic cooling and ventilation equipment	Trade intensity > 30%
2924	Manufacture of other general purpose machinery n.e.c.	Trade intensity > 30%

NACE	Description	Reason
2931	Manufacture of agricultural tractors	Criterion 1 and 2 and/or 3
2932	Manufacture of other agricultural and forestry machinery	Trade intensity > 30%
2941	Manufacture of portable hand held power tools	Trade intensity > 30%
2942	Manufacture of other metalworking machine tools	Trade intensity > 30%
2943	Manufacture of other machine tools n.e.c.	Trade intensity > 30%
2951	Manufacture of machinery for metallurgy	Trade intensity > 30%
2952	Manufacture of machinery for mining, quarrying and constructi	Trade intensity > 30%
2953	Manufacture of machinery for food, beverage and tobacco proce	Trade intensity > 30%
2954	Manufacture of machinery for textile, apparel and leather pro	Trade intensity > 30%
2955	Manufacture of machinery for paper and paperboard production	Trade intensity > 30%
2956	Manufacture of other special purpose machinery n.e.c.	Trade intensity > 30%
2960	Manufacture of weapons and ammunition	Trade intensity > 30%
2971	Manufacture of electric domestic appliances	Trade intensity > 30%
3001	Manufacture of office machinery	Trade intensity > 30%
3002	Manufacture of computers and other information processing equ	Trade intensity > 30%
3110	Manufacture of electric motors, generators and transformers	Trade intensity > 30%
3120	Manufacture of electricity distribution and control apparatus	Trade intensity > 30%
3130	Manufacture of insulated wire and cable	Trade intensity > 30%
3140	Manufacture of accumulators, primary cells and primary batter	Trade intensity > 30%
3150	Manufacture of lighting equipment and electric lamps	Trade intensity > 30%
3162	Manufacture of other electrical equipment n.e.c.	Trade intensity > 30%
3210	Manufacture of electronic valves and tubes and other electron	Trade intensity > 30%
3220	Manufacture of television and radio transmitters and apparatus for line telephony and line telegraphy	Trade intensity > 30%

NACE	Description	Reason
3230	Manufacture of television and radio receivers, sound or video recording or reroforming apparatus and associated goods	Trade intensity > 30%
3310	Manufacture of medical and surgical equipment and orthopaedic appliances	Trade intensity > 30%
3320	Manufacture of instruments and appliances for measuring, checking, testing, navigating and other purposes, except industrial process control equipment	Trade intensity > 30%
3340	Manufacture of optical instruments and photographic equipment	Trade intensity > 30%
3350	Manufacture of watches and clocks	Trade intensity > 30%
3511	Building and repairing of ships	Trade intensity > 30%
3512	Building and repairing of pleasure and sporting boats	Trade intensity > 30%
3530	Manufacture of aircraft and spacecraft	Trade intensity > 30%
3541	Manufacture of motorcycles	Trade intensity > 30%
3542	Manufacture of bicycles	Trade intensity > 30%
3543	Manufacture of invalid carriages	Trade intensity > 30%
3550	Manufacture of other transport equipment n.e.c.	Trade intensity > 30%
3621	Striking of coins	Trade intensity > 30%
3622	Manufacture of jewellery and related articles n.e.c.	Trade intensity > 30%
3630	Manufacture of musical instruments	Trade intensity > 30%
3640	Manufacture of sports goods	Trade intensity > 30%
3650	Manufacture of games and toys	Trade intensity > 30%
3661	Manufacture of imitation jewellery	Trade intensity > 30%
3662	Manufacture of brooms and brushes	Trade intensity > 30%
3663	Other manufacturing n.e.c.	Trade intensity > 30%

Source: 'Draft Commission Decision of determining, pursuant to Directive 2003/87/EC of the European Parliament and of the Council, a list of sectors and sub-sectors which are deemed to be exposed to a significant risk of carbon leakage'. http://ec.europa.eu/environment/climat/emission/pdf/draft_dec_carbon_leakage_list16sep.pdf