

## **EU-MERCI**

**EU** coordinated **ME**thods and procedures based on **Re**al **C**ases for the effective implementation of policies and measures supporting energy efficiency in the **I**ndustry

HORIZON 2020 Project Nr. 693845

# ***Analysis of the industrial sectors in different Countries: Austria***

WP4: Picture of efficiency projects implemented by the  
Industry sector-by-sector and process-by-process

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# 1 General overview of industry in Austria

Although the service sector contributes most to Austria's overall economic performance, Austria is still considered to be an industrial MS. Manufacturing is the precondition for business-related services such as software development, data processing, consultancy services or personnel leasing. In addition, services which industrial firms used to provide in-house, e.g. electronic data processing, book-keeping or cleaning, are increasingly being outsourced to external suppliers. Industry therefore remains the principal driver of economic activities and development within Austria.

Industry comprises enterprises which process and work raw materials and semi-finished products in large, mechanised production sites, including mining undertakings.

Commerce tends to encompass small-scale, craft enterprises which work and process certain raw materials (wood, iron, etc).

The two segments are considered together in the category "Production of goods" to permit an international comparison.

Most of Austrian industry comprises small- and medium-sized enterprises. Approximately 40% of enterprises have fewer than 10 employees; almost 80% of all Austrian industrial enterprises employ fewer than 100 workers and only 1.4% of domestic industrial firms have more than 1 000 employees.

Austria has one of the world's largest industrial sectors in added value. Only in Ireland, Finland, Norway and Germany, and some countries in Central and Eastern Europe, is the share of industry in gross value added higher.

## 1.1 Main energy carriers in sectors

The main energy carriers in the industry sectors are the following:

- Iron and Steel: natural gas, electricity and coke
- Chemicals: natural gas, electricity and district heat/biofuels
- Non ferrous metals: natural gas, electricity
- Minerals and glass: natural gas, electricity and diesel
- Machinery: natural gas, electricity and diesel
- Food and beverages: natural gas, electricity and district heat
- Pulp and paper: biofuels, natural gas and electricity

## 2 Food & Beverage sector

The food and beverage sector is characterised by NACE Codes C10 (Manufacture of food products), C11 (Manufacture of beverages).

### 2.1 Sectoral Organisation

Austrian food and beverage sector is represented by several associations. The associations gather the producers and other stakeholders of food industry. The main associations are:

- Food and Beverage Industry, specialist representative Vienna (WKO)
- Association of Austrian beverage producers
- Agricultural market Austria (AMA)
- Chamber of agriculture Austria
- Austrian Coffee and Tea Association
- Poultry farming association Austria
- Association of Austrian breweries
- Austrian meat producing and processing industry
- Commercial fruit growers Austria
- Austrian association of the baking industry
- Austrian association of pig farmers

### 2.2 Economic Indicators

In 2015 in Austria there were 3,539 economic entities in food sector and 388 in beverage sector. There were 3,927 entities hiring over 83,930 employees.

The total output of food sector was 12.7 Billion € and 1.4 billion € for beverage sector.

**Table 1: Key economic parameters for the Austrian Food and Beverage sector.**

Description	NACE (group)	Number of enterprises	No, of persons employed	Production value [k€]	Value added [k€]	Sold production value [k€]
<b>Manufacture of food products</b>	<b>C10</b>	<b>3,539</b>	<b>74,828</b>	<b>4,254</b>	<b>12,742,827</b>	<b>16,592,791</b>
Processing and preserving of	C10.1	947	18,314	4,357	856,913	4,410,403

meat and production of meat products						
Processing and preserving of fish, crustaceans and molluscs	C10.2	10	N/A	N/A	N/A	
Processing and preserving of fruit and vegetables	C10.3	138	3,845	9,242	345,075	1,281,087
Manufacture of vegetable and animal oils and fats	C10.4	73	919	6,895	81,193	584,813
Manufacture of dairy products	C10.5	155	5,406	14,852	409,120	2,50,711
Manufacture of grain mill products, starches and starch products	C10.6	119	2,489	8,984	257,903	1,347,080
Manufacture of bakery and farinaceous products	C10.7	1,792	31,708	1,387	1,204	2,652
Manufacture of other food products	C10.8	233	9,819	9,712	696,204	2,664,160
Manufacture of prepared animal feeds	C10.9	72				
<b>Manufacture of beverages</b>	<b>C11</b>	<b>388</b>	<b>9,102</b>	<b>15,483</b>	<b>1,460,581</b>	<b>6,111,170</b>
Distilling, rectifying and blending of spirits	C11.01	149	922	1,085	56,205	173,962
Manufacture of wine from grape	C11.02	60	580	3,107	41,571	218,071
Manufacture of cider and other fruit wines	C11.03	10	N/A	N/A	N/A	N/A
Manufacture of other non-distilled fermented beverages	C11.04	N/A	N/A	N/A	N/A	N/A
Manufacture of beer	C11.05	96	3,934	11,639	501,701	1,180,472
Manufacture of malt	C11.06	2	N/A	N/A	N/A	N/A

Manufacture of soft drinks; production of mineral waters and other bottled waters	C11.07	71	3,429	62,823	837,694	4,447,937
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## 2.3 Energy Consumption

The whole sector NACE C10 and C11 consumed 29,863.01 TJ in 2015, in total 3.5% of the whole energy consumption in the Austrian industry.

## 3 Pulp and Paper sector

The pulp and paper sector is defined by NACE Code C17 (Manufacture of paper and paper products), which consists of subsectors C17.1 (Manufacture of pulp, paper and paperboard) and C17.2 (Manufacture of articles of paper and paperboard).

### 3.1 Sectoral Organisation

The pulp and paper sector in Austria is represented by The Association of Austrian Papermakers (austropapier).

### 3.2 Economic Indicators

In 2015 in Austria there were 140 enterprises in the pulp and paper sector employing 16,830 people.

**Table 2: Key economic parameters for the Austrian Pulp and Paper sector.**

Description	NACE (group)	Number of enterprises	No, of persons employed	Production value [k€]	Value added [k€]	Sold production value [k€]
<b>Manufacture of paper and paper products</b>	<b>C17</b>	<b>140</b>	<b>16,830</b>	<b>41,361</b>	<b>1,772,460</b>	<b>6,088,394</b>
Manufacture of pulp, paper and paperboard	C17.1	30	7,002	113,496	855,890	3,374,726
Manufacture of pulp	C17.11	2	N/A	N/A	N/A	N/A
Manufacture of paper and paperboard	C17.12	28	N/A	N/A	N/A	N/A
Manufacture of articles of paper and paperboard	C17.2	110	9,828	21,688	916,570	2,713,668

### 3.3 Energy Consumption

The whole sector NACE C17 consumed 68,413.79 TJ in 2015, so 7.6% of the industries consumption.



## 4 Petroleum refineries sector

The sector of coke and petrol products is defined by NACE code C19 (Manufacture of coke and refined petroleum products). There are two subsectors, NACE code C19.1 (Manufacture of coke oven products) and NACE code C19.2 (Manufacture of refined petroleum products).

### 4.1 Sectoral Organisation

The coke and petroleum sector in Austria is represented by the Austrian Association of the mineral oil industry.

### 4.2 Economic Indicators

In 2015 in Austria there were only 5 enterprises in coke and refined petroleum products sector with 1,180 employees.

**Table 3: Key economic parameters for the Austrian Petroleum refineries sector.**

Description	NACE (group)	Number of enterprises	No, of persons employed	Production value [k€]	Value added [k€]	Sold production value [k€]
<b>Manufacture of coke and refined petroleum products</b>	<b>C19</b>	<b>5</b>	<b>1,180</b>	<b>1,155,538</b>	<b>434,516</b>	<b>7,225,848</b>
Manufacture of coke oven products	C19.1	0	0	0	0	0
Manufacture of briquette and similar solid fuels from coal and peat, refined petroleum products	C19.2	5	1,180	1,155,538	434,516	7,225,848

## 5 Energy Consumption

The whole sector used 467,148 TJ in 2015, which makes 53.7 % of the total industries consumption in Austria.

### 5.1 Chemical sector

The chemical sector is defined by NACE Code C20 (Manufacture of chemicals and chemical products). Sectoral Organisation. The main association in the Austrian chemical sector is specialist association of the chemical industry (FCIO).

### 5.2 Economic Indicators

In 2015 in Austria there were 362 economic entities in chemical sector hiring 17,504 employees.

The total output of chemical sector was 2.6 Billion €.

**Table 4: Key economic parameters for the Austrian Chemical sector.**

Description	NACE (group)	Number of enterprises	No. of persons employed	Production value [k€]	Value added [k€]	Sold production value [k€]
<b>Manufacture of chemicals and chemical products</b>	<b>C20</b>	<b>362</b>	<b>17,504</b>	<b>35,379</b>	<b>2,656,788</b>	<b>13,212,660</b>
Manufacture of basic chemicals, fertilisers and nitrogen compounds, plastics and synthetic rubber in primary forms	C20.1	75	6,684	125,025	1,393,663	9,391,764
Manufacture of pesticides and other agrochemical products	C20.2	9	367	20,827	51,645	234,527
Manufacture of paints, varnishes and similar coatings, printing ink and mastics	C20.3	42	2,744	15,013	255,240	735,938
Manufacture of soap and	C20.4	154	2,611	4,516	341,682	823,509

detergents, cleaning and polishing preparations, perfumes and toilet preparations						
Manufacture of other chemical products	C20.5	75	2,455	12,173	270,520	1,034,158
Manufacture of man-made fibres	C20.6	7	2,643	143,420	344,038	992,764

### 5.3 Energy Consumption

The whole sector NACE C20 consumed 39.457 TJ in 2015, 4,5% of the total industry consumption.

## 6 Non-metallic minerals sector

### 6.1 Glass Sector

The glass sector is defined by NACE Code C23.1 (manufacture of glass and glass products) within the manufacture of other non-metallic mineral products sector (C23). This includes the manufacturing of flat glass, hollow glass, glass fibres and other glass products. The other sections within the non-metallic mineral products sector are listed in section 5 (ceramic & cement).

#### 6.1.1 Sectoral Organisation

One of the main associations concerning the Austrian glass industry is the Austrian professional glass association.

#### 6.1.2 Economic Indicators

In the sector of non-metallic mineral products, there were about 1,331 companies with 31,258 employees. The glass sector has only 146 companies with 8,709 employees, so it makes almost a third of the employees, due to bigger company sizes.

**Table 5: Key economic parameters for the Austrian Glass sector.**

Description	NACE (group)	Number of enterprises	No. of persons employed	Production value [k€]	Value added [k€]	Sold production value [k€]
<b>Manufacture of other non-metallic mineral products</b>	<b>C23</b>	<b>1,331</b>	<b>31,258</b>	<b>4,571</b>	<b>2,317,464</b>	<b>6,483,257</b>
<b>Manufacture of glass and glass products</b>	<b>C23.1</b>	<b>146</b>	<b>8,709</b>	<b>8,508</b>	<b>589,430</b>	<b>1,363,526</b>
Manufacture of flat glass	C23.11	6				
Shaping and processing of flat glass	C23.12	41	2,261	7,850	120,490	337,148
Manufacture of hollow glass	C23.13	70	1,501	4,200	135,978	364,774
Manufacture of glass fibres	C23.14	3				
Manufacture and processing of other glass, including	C23.19	26	4,745	22,846	325,116	623,345

technical glassware						
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### 6.1.3 Energy Consumption

The whole sector NACE C23 consumed 42,578.17 TJ in 2015, 5% of the whole Austrian industry consumption.

## 6.2 Ceramic and Cement Sector

The ceramic and cement sector is represented by most of the subgroups of NACE code C23 (Manufacture of other non-metallic mineral products), except for subgroup C23.1 of the glass industry. In this section, there is a focus on the subsectors C23.2 (Manufacture of refractory products), C23.3 (Manufacture of clay building material), C23.4 (Manufacture of other porcelain and ceramic products), C23.5 (Manufacture of cement, lime and plaster) specifically subsector C23.51. There are also other subsectors included in NACE code C23 (Manufacture of other non-metallic mineral products).

### 6.2.1 Sectoral Organisation

The manufacture of cement sector in Poland is represented by the Austrian cement industries association (VZÖ).

### 6.2.2 Economic Indicators

In 2015 in the manufacture of non-metallic mineral products sector in Austria there were 1,185 enterprises that employed about 22,549 employees.

**Table 6: Key economic parameters for the Austrian Food and Beverage sector.**

Description	NACE (group)	Number of enterprises	No, of persons employed	Production value [k€]	Value added [k€]	Sold production value [k€]
<b>Manufacture of other non-metallic mineral products</b>	<b>C23</b>	<b>1,331</b>	<b>31,258</b>	<b>4,571</b>	<b>2,317,464</b>	<b>6,483,257</b>
<b>Ceramic and cement sector</b>	<b>C23.2-C23.9</b>	<b>1,185</b>	<b>22,549</b>	90,768	1,728,034	5,119,731
Manufacture of refractory products	C23.2	14	1,467	29,031	123,100	403,282
Manufacture of clay building material	C23.3	24	879	6,639	64,581	171,899
Manufacture of other porcelain	C23.4	142	1,579	1,300	87,345	208,561

and ceramic products						
Manufacture of cement, lime and plaster	C23.5	11	1,140	35,473	161,707	377,890
Manufacture of articles of concrete, cement and plaster	C23.6	342	10,929	7,420	857,731	2,722,292
Cutting, shaping and finishing of stone	C23.7	570	3,447	551	158,656	334,345
Manufacture of abrasive products and non-metallic mineral products n.e.c.	C23.9	82	3,108	10,354	274,914	901,462

### 6.2.3 Energy Consumption

The whole sector NACE C23 consumed 42,578.17 TJ in 2015, making up 5% of the industries energy consumption.

## 7 Iron&Steel sector

The iron and steel sector is represented by the NACE codes C24.1 (Manufacture of basic iron and steel and of ferro-alloys n.e.c.), C24.2 (Manufacture of tubes, pipes, hollow profiles and related fittings, of steel), and C24.3 (Manufacture of other products of first processing of steel), as well as C24.51 (Casting of iron) and C24.52 (Casting of steel). The iron and steel sector is a part of manufacture of basic metals sector represented by NACE code C24.

### 7.1 Sectoral Organisation

The iron and steel sector is represented by the Austrian Steel Construction Association and the The Association of the Mining and Steel-Producing Industry.

### 7.2 Economic Indicators

In 2015 the entire basic metals sector employed 35,759 people, the non-ferrous metal sector employees 7,814. There were 148 enterprises, 53 of them from non-ferrous metal working companies.

In 2015 export value of manufacturing of basic metals sector reached about 20.6 billion Euro. The import value in this sector reached about 1.05 billion €. The iron and steel sector generates about half of the sold production value of the entire basic metals sector.

**Table 7: Key economic parameters for the Austrian Metallurgy sector.**

Description	NACE (group)	Number of enterprises	No, of persons employed	Production value [k€]	Value added [k€]	Sold production value [k€]
<b>Entire basic metals sector</b>	<b>C24</b>	<b>148</b>	<b>35,759</b>	<b>105,027</b>	<b>3,883,448</b>	<b>15,820,044</b>
Manufacture of basic iron and steel and of ferro-alloys n.e.c.	C24.1	18	14,531	415,283	1,871,746	7,433,318
Manufacture of tubes, pipes, hollow profiles and related fittings, of steel	C24.2	15	3,642	78,109	378,833	1,233,016
Manufacture of other products of first processing of steel	C24.3	12	3,119	71,940	274,957	872,212
Manufacture of basic precious and	C24.4	53	7,814	87,576	808,903	4,886,254

other non-ferrous metals						
Casting of metals	C24.5	50	6,653	27,849	549,009	1,395,244

### 7.3 Energy Consumption

The sector NACE C24 (except C24.4 and C24.5) consumed 34,770.43 TJ in 2015, around 4% of the total industries consumption.



## 8 Other metals sector

The other metals sector refers to the manufacture of basic metals and is defined by NACE Code C24 excluding iron and steel. The sector thus includes the Manufacture of basic precious and other non-ferrous metals (C24.4) that includes for example copper, lead, zinc, tin, and aluminium production, as well as the casting of light metals (C24.53) and casting of other non-ferrous metals (C24.54).

### 8.1 Sectoral Organisation

The non-ferrous metal sector is represented by Austrian Association of non-ferrous metals.

### 8.2 Economic Indicators

In 2015 the entire basic metals sector employed 35,759 people in 148 enterprises in Austria.

**Table 8: Key economic parameters for the Austrian Other metals sector.**

Description	NACE (group)	Number of enterprises	No, of persons employed	Production value [k€]	Value added [k€]	Sold production value [k€]
Entire basic metals sector	C24	148	35,759	105,027	3,883,448	15,820,044
Manufacture of basic precious and other non-ferrous metals	C24.4	53	7,814	87,576	808,903	4,886,254
Precious metals production	C24.41	7	162	29,079	18,283	212,539
Aluminium production	C24.42	22	4,302	123,938	436,824	2,979,279
Lead, zinc and tin production	C24.43	3	55	12,494	6,345	36,903
Copper production	C24.44	9	1,175	101,228	91,592	907,623
Other non-ferrous metal production	C24.45	12	2,120	63,569	255,859	749,910
Processing of nuclear fuel	C24.46	N/A	N/A	N/A	N/A	N/A
Casting of light metals	C24.53	25	3,931	35,074	338,497	861,097
Casting of other non-ferrous metals	C24.54	12	524	7,416	42,400	102,704

## 8.3 Energy Consumption

The whole sector C24 consumed 141,005 TJ of energy.

## 9 Machinery sector

The metal products, machinery, and equipment sector is a varied sector consisting of the Manufacture of fabricated metal products, except machinery and equipment (NACE code C25), Manufacture of computer, electronic and optical products (NACE code C26), Manufacture of electrical equipment (NACE code C27), and Manufacture of machinery and equipment not elsewhere classified (NACE code C28). There are many more subsectors under these four main categories.

### 9.1 Sectoral Organisation

There is no general organization gathering manufacturers in metal products, machinery and equipment sector.

### 9.2 Economic Indicators

In 2015 in Austria there were 6,227 enterprises in entire metal products, machinery and equipment industry sector, employing 222,461 people.

**Table 9: Key economic parameters for the Austrian Machinery sector.**

Description	NACE (group)	Number of enterprises	No. of persons employed	Production value [k€]	Value added [k€]	Sold production value [k€]
Entire metal products, machinery and equipment industry	C25, C26, C27, C28	6,227	222,461	51,958	14,849,257	52,900,357
Manufacture of fabricated metal products, except machinery and equipment	C25	3,810	74,883	3,660	5,508,995	14,439,061
Manufacture of structural metal products	C25.1	1,620	23,209	2,203	1,404,024	3,692,232
Manufacture of tanks, reservoirs and containers of metal	C25.2	51	3,535	14,780	311,963	791,658
Manufacture of steam generators, except central heating hot water boilers	C25.3	6	320	14,792	29,437	83,686
Manufacture of weapons and ammunition	C25.4	45	1,325	8,239	172,272	343,425
Forging, pressing, stamping and roll-forming of metal; powder metallurgy	C25.5	418	6,696	3,546	485,479	1,518,517

Treatment and coating of metals; machining	C25.6	842	13,736	3,257	891,730	2,834,932
Manufacture of cutlery, tools and general hardware	C25.7	406	18,236	8,548	1,645,986	3,523,374
Manufacture of other fabricated metal products	C25.9	422	7,826	3,479	568,104	1,650,870
<b>Manufacture of computer, electronic and optical products</b>	<b>C26</b>	<b>579</b>	<b>21,576</b>	<b>9,451</b>	<b>2,143,987</b>	<b>5,510,473</b>
Manufacture of electronic components and boards	C26.1	129	8,930	20,868	1,015,374	2,775,598
Manufacture of computers and peripheral equipment	C26.2	37	892	6,573	85,208	234,408
Manufacture of communication equipment	C26.3	67	2,063	5,410	170,046	391,761
Manufacture of consumer electronics	C26.4	31	354	3,891	33,896	123,843
Manufacture of instruments and appliances for measuring, testing and navigation; watches and clocks	C26.5	238	5,965	4,667	561,282	1,069,976
Manufacture of irradiation, electromedical and electrotherapeutic equipment	C26.6	55	2,331	13,665	192,429	722,378
Manufacture of optical instruments and photographic equipment	C26.7	22	1,041	8,704	85,752	192,500
Manufacture of magnetic and optical media	C26.8	N/A	N/A	N/A	N/A	N/A
<b>Manufacture of electrical equipment</b>	<b>C27</b>	<b>472</b>	<b>45,510</b>	<b>23,505</b>	<b>4,101</b>	<b>11,679,017</b>
Manufacture of electric motors, generators and transformers and electricity distribution and control apparatus	C27.1	199	23,867	30,217	2,250,834	6,332,946
Manufacture of batteries and accumulators	C27.2	6	718	46,227	60,043	300,552
Manufacture of wiring and wiring devices	C27.3	46	3,600	22,920	308,241	1,028,203
Manufacture of electric lighting equipment	C27.4	103	5,163	11,137	420,674	1,291,372
Manufacture of domestic appliances	C27.5	46	3,988	16,770	321,476	833,216
Manufacture of other electrical equipment	C27.9	72	8,165	25,434	739,817	1,892,728
<b>Manufacture of machinery and equipment n.e.c.</b>	<b>C28</b>	<b>1,366</b>	<b>80,492</b>	<b>15,342</b>	<b>7,192,174</b>	<b>21,271,806</b>

Manufacture of general-purpose machinery	C28.1	149	13,913	20,754	1,258,863	3,380
Manufacture of other general-purpose machinery	C28.2	502	26,070	13,653	2,319,253	6,658,452
Manufacture of agricultural and forestry machinery	C28.3	5	146	4,310	6,823	21,331
Manufacture of metal forming machinery and machine tools	C28.4	14	120	1,314	8,321	18,656
Manufacture of other special-purpose machinery	C28.9	440	27,551	17,755	2,576,797	7,775,402

### 9.3 Energy Consumption

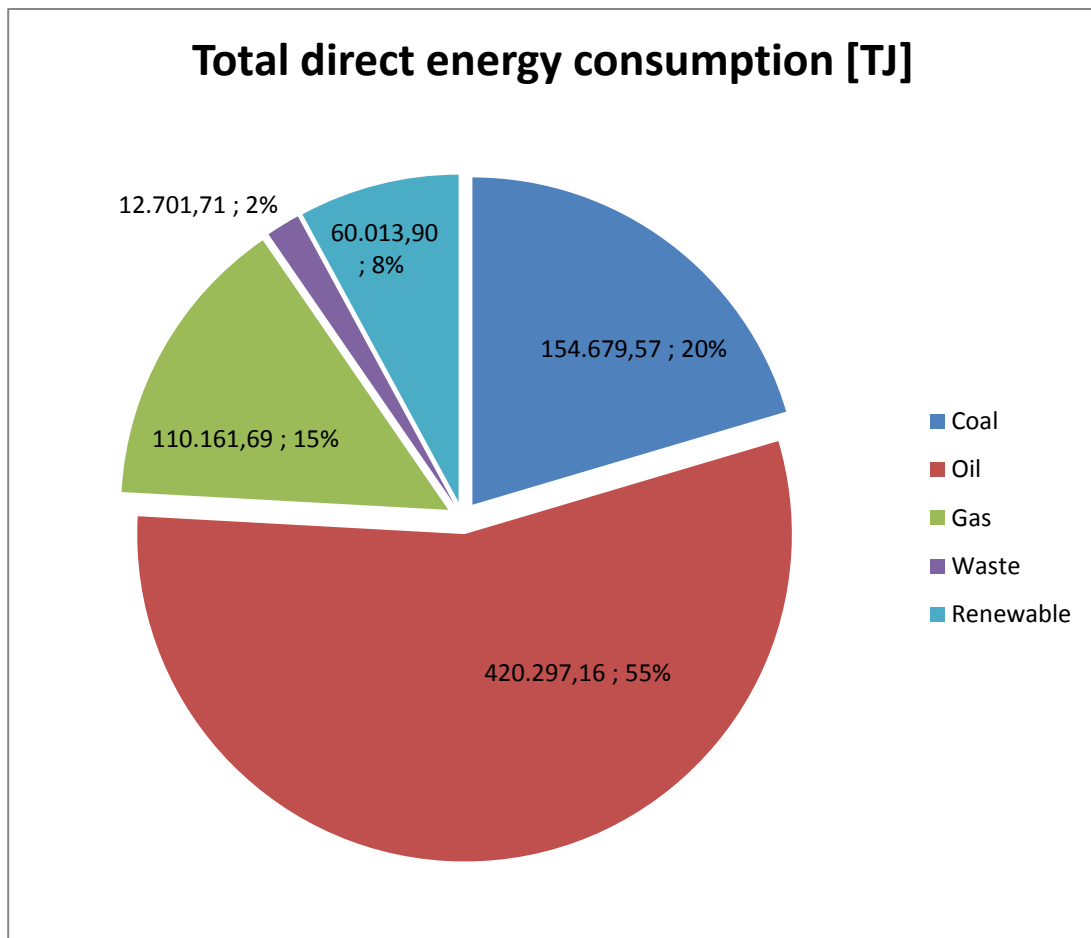
In 2015 the direct energy consumption in entire metal products, machinery and equipment industry was 28,739 TJ, so 3.3% percent of the total industries consumption.

## 10 Energy Statistics

### 10.1 Energy Consumption

The total direct consumption in austrian manufacturing industry (NACE code C) was 869 PJ in 2015. The main energy carriers used in industry sector were oil (420 PJ), natural gas (110 PJ) and coal (154 PJ).

The sectors with highest direct energy consumption were manufacture of coke and refined petroleum products (467 PJ), basic metals (141 PJ) and pulp and paper (66 PJ). The following tables and figures show the situation of Austrian industry.



**Figure 1: Direct energy consumption in manufacturing industry (NACE C) by energy carrier in Austria in 2015.**

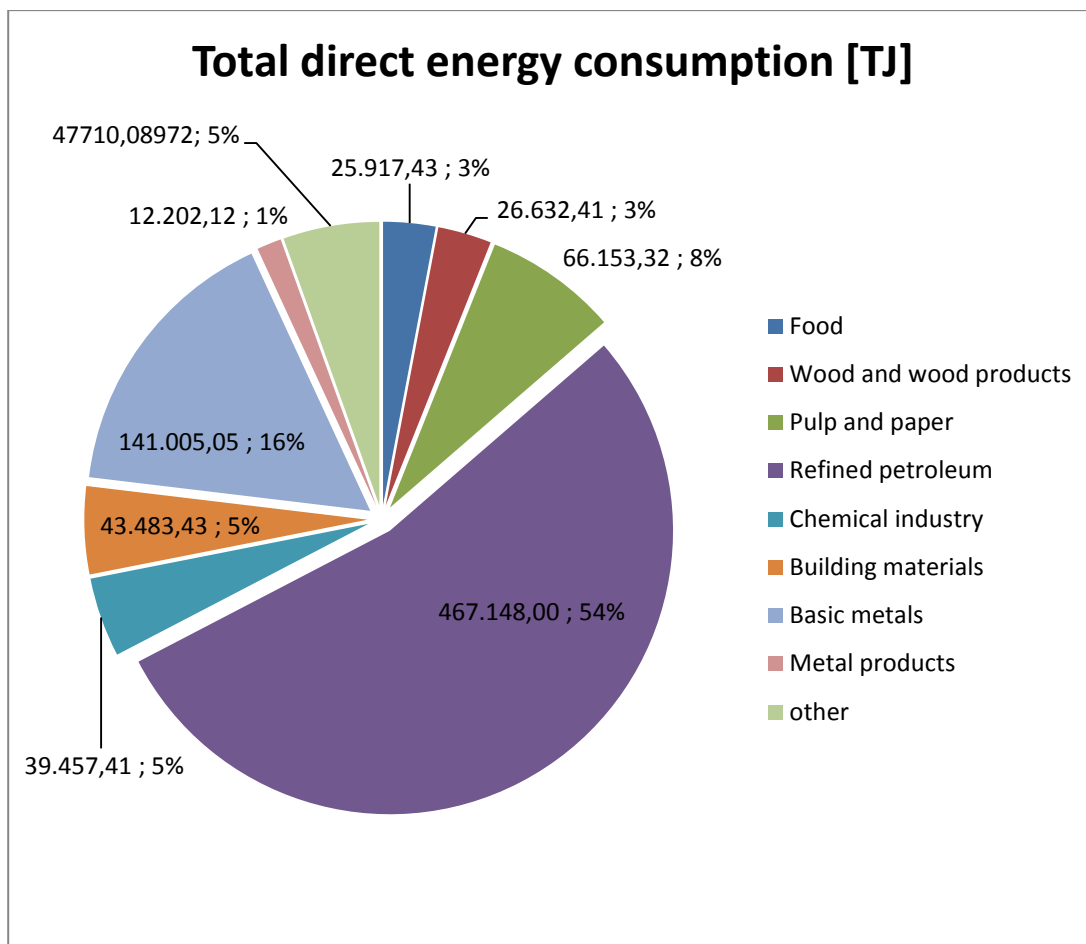


Figure 2: Direct energy consumption in manufacturing industry (NACE C) by sector in Austria in 2015.

Table 10: Total energy consumption by detailed industry sector breakdown in Austria in 2015.

Description	NACE (group)	Total direct energy consumption [TJ]		Coal	Oil	Gas	Waste	Renewable
<b>Entire industry sector</b>	C	869,709.25	100.00%	154,679.57	420,297.16	110,161.69	12,701.71	60,013.90
<b>Food</b>	10	25,917.43	2.98%	213.32	3,720.44	10,555.28	0.33	999.60
<b>Beverages</b>	11	4,297.69	0.49%	-	1,039.70	1,845.85	0.09	91.92
<b>Tobacco</b>	12	42.80	0.00%	-	-	-	-	6.17
<b>Textiles</b>	13	2,314.38	0.27%	-	201.14	986.83	0.02	25.88
<b>Clothing</b>	14	530.99	0.06%	-	139.28	182.03	-	14.64
<b>Leather and shoes</b>	15	707.04	0.08%	-	42.19	340.58	-	34.15
<b>Wood and wood products</b>	16	26,632.41	3.06%	-	2,967.61	2,231.70	1,503.48	10,942.61
<b>Pulp and paper</b>	17	66,153.32	7.61%	2,802.00	460.99	20,751.47	146.61	25,235.85
<b>Printing and publishing</b>	18	2,303.53	0.26%	-	282.88	600.49	-	33.28

<b>Refined petroleum</b>	19	467,148.00	53.71%	53,039.15	392,092.35	7,200.13	-	11,593.03
<b>Chemical industry</b>	20	39,457.41	4.54%	766.46	1,156.32	17,395.27	1,813.54	2,495.75
<b>Pharmaceuticals</b>	21	2,955.92	0.34%	-	201.98	339.26	-	16.97
<b>Rubber and plastics</b>	22	7,001.91	0.81%	-	565.76	1,576.73	1.08	64.70
<b>Building materials</b>	23	43,483.43	5.00%	2,888.41	8,808.27	12,505.16	7,191.43	5,395.36
<b>Basic metals</b>	24	141,005.05	16.21%	94,965.67	2,343.87	23,708.93	2,031.47	290.54
<b>Metal products</b>	25	12,202.12	1.40%	2.05	2,112.67	3,133.26	0.50	960.76
<b>Computers and electronics</b>	26	2,691.88	0.31%	0.68	216.92	328.17	-	106.07
<b>Electrical equipment</b>	27	5,341.93	0.61%	0.69	544.88	1,584.04	-	91.50
<b>Machinery</b>	28	8,503.93	0.98%	1.01	1,480.46	2,853.13	-	228.55
<b>Motor vehicles</b>	29	5,276.29	0.61%	-	440.88	1,508.99	-	80.54
<b>Other transport equipment</b>	30	459.83	0.05%	-	79.20	100.79	-	41.01
<b>Furniture</b>	31	3,106.44	0.36%	-	730.52	199.74	13.15	1,143.98
<b>Other manufacturing</b>	32	1,277.85	0.15%	-	303.79	190.42	-	37.61
<b>Repair and installation</b>	33	897.69	0.10%	0.12	365.06	43.41	-	83.41

## 10.2 Energy Prices

In the following table, the actual prices for the main energy carriers are listed. They refer to industrial use, except for fuel prices, which are customer prices.

**Table 11: Energy Prices in Austria in 2016.**

<b>Energy carrier (ref. 2016)</b>	<b>unit</b>	<b>excl. taxes</b>	<b>incl. taxes</b>
Natural gas (industry)	cent/kWh	2.74	4.3
Electricity (industry)	cent/kWh	6.85	12.29
Premium gas (consumer price)	€/liter	0.43	1.11
Diesel (consumer price)	€/liter	0.45	1.03
Light heating oil (industry)	€/liter	0.32	0.43
Heavy heating oil (industry)	€/to	238.7	306.4
LPG		no available data for Austria	



## 10.3 Carbon Dioxide and primary energy Conversion Factors

The carbon dioxide conversion and primary energy Conversion for different fuels are listed in a table:

**Table 12: Calorific values and Carbon Dioxide Conversion Factors for different types of fuels.**

Energy Carrier	primary energy conversion factor [kWh/kWh]	CO <sub>2</sub> conversion factor [g/kWh]
coal	1.46	337
oil	1.23	311
gas	1.17	236
biomass	1.08	4
electricity	2.62	417
district heating (renewable)	1.60	51
district heating (non-renewable)	1.52	291
district heating (efficient CHP)	0.92	73
waste heat	1.00	20