

AVAILABLE ON LINE
www.sourceoecd.org
DISPONIBLE EN LIGNE



Energy Consumption in Industry

© OECD, 2001.

© Software: 1987-1996, Acrobat is a trademark of ADOBE.

All rights reserved. OECD grants you the right to use one copy of this Program for your personal use only. Unauthorised reproduction, lending, hiring, transmission or distribution of any data or software is prohibited. You must treat the Program and associated materials and any elements thereof like any other copyrighted material.

All requests should be made to:

Head of Publications Service,
OECD Publications Service,
2, rue André-Pascal,
75775 Paris Cedex 16, France.



Energy Consumption in Industry

FOREWORD

This publication presents annual energy consumption data in manufacturing sectors. It was prepared by the Energy Statistics Division of the International Energy Agency (IEA). The energy data have also been collected under the auspices of the Statistical Working Party of the Industry Committee.

All data and information included in this publication were also published in Volume 2: Energy Consumption of the Structural Statistics for Industry and Services (SSIS) series, which is in two volumes.

Volume 1 Core Data provides detailed annual statistics on a number of structural variables for the industrial and service sectors. However, following the recommendations of the Statistical Working Party of the Industry Committee (SWIC), disaggregated national accounts have been omitted from the publication. Data presented in this publication facilitates an assessment of the evolution of the economic structure of OECD Member countries. The publication was prepared by the Statistics Directorate in the OECD Secretariat under the auspices of the SWIC. The Secretariat wishes to thank the representatives of all the national authorities who have assisted in the preparation of this publication.

All series published in Volume 1 and Volume 2 of the Structural Statistics for Industry and Services series, as well as data for earlier years, are held on the SSIS database (previously called Information System on Industrial Structures - ISIS) which is also available on CD-ROM and on line at www.source.oecd.org. Moreover, the electronic version contains more detailed statistics relating to variables and to industrial and service sectors which are not presented in the printed publication. These statistics are published on the responsibility of the Secretary-General of the OECD.

INTRODUCTORY REMARKS

The SSIS¹ Energy Data Pilot Project was launched in 1995 in close collaboration between the Energy Statistics Division of the IEA and the Statistics Directorate of the OECD. Energy consumption data in manufacturing industry are collected as part of (Table 4) the annual SSIS questionnaire “Industrial Statistics”. In the 48th meeting of the OECD Statistical Working Party of the Industry Committee in October 1997, the Pilot Phase of the Project came to an end and the collection of energy data has been made a permanent feature of the SSIS questionnaire.

The aims of the SSIS Energy Data Programme are:

- to establish a unified process for the collection of official manufacturing industry energy consumption data at a disaggregated level;
- to pursue review of energy efficiency indicators studies;
- to improve our understanding of where and how energy is used in the OECD Member countries;
- to provide Member countries and researchers data to allow them to make inter-country comparisons;
- to support the Secretariat’s programme on energy and environment;
- to provide the information required to track progress on energy efficiency by simplifying analysis of energy efficiency trends and by providing inter-country comparisons.

The energy data presented in this volume have been collected during the Pilot phase of the project. The data contain time series of annual energy consumption in manufacturing industry for most of the OECD Member countries from 1990 to 1999 where available.

Although the consistency of the data with the methodology has been checked, discrepancies that still remain for some sectors and some countries (when known) together with explanatory notes on the collected data have been reported in the country notes section. However, there may still exist some problems which have not been identified. Consequently, we would be grateful if you could contact us about any anomaly you find in order to allow us to make corrections.

Since the data are submitted in either ISIC Revision 2² or Revision 3³ format, databases are not complete. The latest details of these databases and the SSIS Energy Data Programme Future Work Plan are described on the World Wide Web at <http://iea.org/stats/files/ssis.htm>.

For the calculation of energy indicators we recommend that you use the corresponding socio-economic statistics collected by the OECD and especially those reported in the main SSIS publication.

¹ Initially called ISIS, Information System on Industrial Structures.

² International Standard Industrial Classification of All Economic Activities. Statistical Papers, Series M, No. 4, Rev.2, United Nations, New York, 1968.

³ International Standard Industrial Classification of All Economic Activities. Statistical Papers, Series M, No. 4, Rev.3, United Nations, New York, 1990.

TABLE OF CONTENTS

	Page
Methodology	9
Country Notes	13

PART I

TOTAL ENERGY CONSUMPTION IN MANUFACTURING INDUSTRY

(Data in ISIC REVISION 2)

Australia	25
Australia	27
Belgium	28
Finland.....	29
Germany	30
Hungary	31
Korea	32
Mexico.....	33
Norway	34
Portugal	35
Sweden	36
Switzerland.....	37
Turkey	38
United States.....	39

PART II

TOTAL ENERGY CONSUMPTION IN MANUFACTURING INDUSTRY

(Data in ISIC REVISION 3)

Austria	41
Austria	43
Canada.....	45
Czech Republic.....	47
Denmark	49
France	51
Germany	53
Hungary	55
Iceland	57
Japan.....	59
Luxembourg.....	61
Netherlands.....	63
New Zealand.....	65
Norway	67
Poland.....	69
Slovak Republic.....	71
Sweden	73
Switzerland.....	75
United Kingdom.....	77

PART III
ENERGY CONSUMPTION IN MANUFACTURING INDUSTRY BY FUEL TYPES

(Data in ISIC REVISION 2)	79
Australia	81
Belgium	89
Finland.....	90
Germany	99
Hungary	103
Korea	111
Mexico.....	120
Norway	129
Portugal	130
Sweden	131
Switzerland	134
Turkey	140
United States.....	144

PART IV
ENERGY CONSUMPTION IN MANUFACTURING INDUSTRY BY FUEL TYPES

(Data in ISIC REVISION 3)	145
Austria	147
Canada	167
Czech Republic.....	185
Denmark	197
France	209
Germany	221
Hungary	227
Iceland	229
Japan.....	245
Luxembourg.....	263
Netherlands.....	283
New Zealand.....	289
Norway	309
Poland.....	319
Slovak Republic.....	329
Sweden	341
Switzerland	349
United Kingdom	351
ANNEX I : Definitions of ISIC Revision 2 Manufacturing Industry Sectors.....	369
ANNEX II : Definitions of ISIC Revision 3 Manufacturing Industry Sectors	373
ANNEX III : General Conversion Factors	379

METHODOLOGY

The type of energy data collected by the International Energy Agency (IEA) since it was established in 1974 has largely reflected the energy security concerns of its Member countries. IEA collects data on energy consumption in industry in five annual questionnaires (*Oil, Solid Fuels, Natural Gas, Renewables and wastes, and Electricity and Heat*) in a format designed to facilitate the construction of national energy balances. In these questionnaires, the use of fuels by industrial enterprises for transport, for the production of other fuels (i.e. for transformation), and for own consumption in energy producing industries, is not included in final consumption and allocated to the specific industry, but combined and reported separately as Transport, Transformation, Energy Sector etc. The SSIS energy data programme overcomes this shortcoming by requiring all uses of fuels to be reported by the actual consuming industry.

In addition, the SSIS Energy Data Programme has other advantages: By allowing for detailed analyses of energy demand in industry, it reveals opportunities for improving energy efficiency, as well as providing the information required to track progress on the energy efficiency front. Since it has a unified data collection methodology, the data are consistent and internationally comparable. Consistency of the SSIS energy data with OECD economic statistics provides a key tool to link economic and energy variables. Finally, its structure allows for energy efficiency studies in disaggregated manufacturing industry. IEA data are available in 2 digit ISIC level for manufacturing industry; SSIS data are available in 4 digit (in ISIC Revision 2 and/or Revision 3). It is therefore possible to calculate energy efficiency indicators for a number of manufacturing industry groups that can be classified according to different aggregation schemes, e.g., based on technology, wages, orientation, skills and environmental pollution.

A comparison of the IEA and SSIS approaches is illustrated in a schematic representation set out below.

SSIS Methodology:

Energy consumption in a manufacturing industry (in SSIS)	=	Energy consumption for	<div style="text-align: center;"> <p>the actual <i>production</i> activity</p> <p>+</p> <p>energy <i>transformation</i> activity</p> <p>+</p> <p><i>own use</i> (of energy in transformation processes)</p> <p>+</p> <p><i>transportation</i> activity</p> </div>	in the industry
---	---	---------------------------	---	-----------------

IEA Methodology:

Energy consumption in a manufacturing industry (in IEA)	=	Energy consumption for	<div style="text-align: center;"> <p>the actual <i>production</i> activity</p> </div>	in the industry
--	---	---------------------------	---	-----------------

Production activity comprises the use of purchased primary and secondary fuels that are not transformed (ie, disappear) in the production activity.

Transformation comprises the conversion of primary forms of energy to secondary and further transformation (e.g. coking coal to coke; crude oil to petroleum products; heavy fuel oil to electricity; PCI coal, coke oven coke, natural gas and oil to blast furnace gas or coke oven gas; fuel inputs to electricity/heat etc.).

Own use refers to the primary and secondary energy consumed during transformation. It covers energy consumed for: heating; lighting; operation of all equipment used in the extraction process; traction; and distribution.

Transportation (on-site) relates to the movement of materials by pipeline, road, railway, air and internal navigation.

In other words, the energy data in the SSIS Energy Database covers the amount of primary and secondary fuels purchased to support the activity of the industry in question. Moreover, if the transformation output is sold to third parties (including electricity and steam) then the corresponding inputs are reduced accordingly if known. In addition, the quantity of electricity consumed and the quantity of electricity produced on-site for its own use are asked for separately. Therefore, "Electricity" refers to purchased electricity plus electricity that is generated and is consumed on-site, whereas "steam" refers to purchased steam only.

The SSIS Energy Data Programme covers 8 types of fuel classes: solid fuels, LPG, distillate oils, residual fuel oil, gas, biomass fuels, steam, and electricity.

- *Solid Fuels* (Solid) include anthracite, steam coal, coking coal, sub-bituminous coal, lignite, peat, gas coke, coke oven coke, patent fuel, BKB (Braunkohlenbrikettes), petroleum coke.
- *Liquefied Petroleum Gas* (LPG) includes ethane, propane, and butane.
- *Distillate Oils and Others* (Distiloil) include naphtha, gasolines (motor, aviation), kerosene, jet fuel (gasoline or kerosene type), gas oil/diesel oil, other petroleum products.
- *Gas* (Gas) includes natural gas, coke oven gas, blast furnace gas, refinery gases, gas works gas, oxygen steel furnace gas.
- *Biomass fuels* (Biomass) include wood and wood wastes, ethanol, black liquor, sludge/sewage gases, landfill gas, animal products and waste, industrial waste, and municipal waste.
- *Steam* (Steam) includes heat.
- *Electricity* (Electr) includes production from solar, hydro, wind and geothermal on-site)
- *of which generated on site for own use* (own use)
- *Total* = Solid + LPG + Distiloil + RFO + Gas + Biomass + Steam + Electr - Own use

SSIS Energy Data excludes the quantities of fuels used for non-energy purposes⁴ and quantities of fuels purchased but resold. Non-energy use includes the use of energy products as raw materials (such as white and industrial spirits, lubricants, bitumen and petroleum waxes) in different sectors; that is, those not consumed as a fuel or transformed into another fuel.

The energy content of a fuel can be measured as the heat released on complete combustion. This energy content is referred to as a fuel's calorific value (or heat content), and it can be expressed as a gross (or higher) value, or a net (or lower) value. The burning of fossil fuels includes a loss of energy through the combination of hydrogen and oxygen and the vaporisation of water. The heat value of fossil fuels before vaporisation is the Gross Calorific Value (GCV). The Net Calorific Value (NCV) is the amount of heat which is actually available from the combustion process for capture and end use, after the evaporation of moisture. Except electricity, the data are expressed in terms of **Terajoules (TJ) using Net Calorific Values (NCV)** of individual fuel types. The unit of electricity is Megawatt hours (MWh). 1 MWh = 0.0036 TJ.

Due to market liberalisation, some data have become confidential. The qualifier "c" in the data tables indicates where these confidential data are.

The complete data shown in this publication are available on diskettes suitable for use on IBM-compatible personal computers. An order form has been provided inside of the book.

Enquiries, comments and suggestions are welcome and should be addressed to:

Mr. Lawrence Metzroth
Energy Statistics Division
International Energy Agency
9, rue de la Federation,
75739 Paris Cedex 15
France

Tel: +33 1 40 57 6631
Fax: +33 1 4057 6649

E-mail: lawrence.metzroth@iea.org

Mrs. Corinne Heckmann
Energy Statistics Division
International Energy Agency
9, rue de la Federation,
75739 Paris Cedex 15
France

Tel: +33 1 40 57 6644
Fax: +33 1 4057 6649

E-mail: corinne.heckmann@iea.org

⁴ Non-energy uses of fuels covers their use

i) as raw material for the manufacture of, for example, plastics or fertilizers,

ii) for their specific physical properties (such as white spirit, paraffin waxes, lubricants and bitumen) as lubricants or roofing materials,

iii) for their chemical properties (petrochemical feedstocks).

COUNTRY NOTES

SSIS Energy Data are collected in 4-digit ISIC Revision 2 and/or ISIC Revision 3.

The first character in the industry sector code specifies to which ISIC Revision that sector belongs. The industry sector codes beginning with the letter “S” in the database indicates ISIC Revision 2 and “C” indicates ISIC Revision 3.

AUSTRALIA

• General notes on collected data

Data are available from 1991 to 1998 in ISIC 2.

Australian data submission to the IEA refers to the fiscal year July to June. Therefore, July 1994 to June 1995, for example, is considered as 1995.

Ethane is classified as GAS.

No available data for transportation in manufacturing industry.

Biomass includes bagasse.

ISIC Sector S3119, S3122, S3114 are included in S3118.

• Source of SSIS energy data

Australian Bureau of Statistics using FES (fuel and electricity survey).

• Publications

Australian energy consumption and production; historical trends and projections to 2009/10. Reports data collected in *FES*. Historical data set: 1973-1994, 1994-2010 (forecast). Data refer to fiscal year.

AUSTRIA

• General notes on collected data

Data are available from 1990 to 1999 in ISIC 3.

C15 includes C16.

C17 includes C18 from 1996 onward.

C20 includes C36 up to 1996.

C24 includes C25 up to 1996.

C29 includes C369.

C28 includes C273, C33 up to 1996.

C30 includes C31, C32, C33 (from 1996 onward).

C34 includes C35.

C36 includes C37 from 1996 onward.

Except refining industry, transformation input is added to the final consumption. The assumption made is that establishments do not sell their transformed outputs to other establishments.

From 1996 onward, the industrial classification system was changed from Betriebsstatistik 68 to NACE: some breaks may occur between 1995 and 1996.

• Source of SSIS energy data

Austrian Central Statistics Office (ÖSTAT)

Concordance between Austrian Classification System (Betriebsystematik 68) and ISIC rev 3.

(10) manuf. of food, beverages and tobacco	ISIC 15,16
(11) manuf. of textiles, textile products	ISIC 17
(12) manuf. of wearing apparel and bedding	ISIC 18
(13) manuf. of leather, leather substitutes and footwear	ISIC 19
(14) manuf. of wood and wooden sheets	ISIC 20
(15) manuf. and processing of paper and paper prod.	ISIC 21
(16) printing and reproduction	ISIC 22
(17) manuf. of chemicals, rubber and plastic products	ISIC 24, 25
(18) manuf. of derivatives of oil and natural gas	ISIC 23
(19) manuf. of glass and glass products	ISIC 26(1)
(20) iron and non-iron basic industry, semi-final products	ISIC 271, 272
(21) metal processing, steel and light metal construction	ISIC 273
(22) manuf. of metallic products	ISIC 28
(23) manuf. of measurement and control equipment, medical and optical goods	ISIC 33
(24) manuf. of machinery except electrical	ISIC 29,369
(25) manuf. of electrotechnik apparatus	ISIC 30-32
(26) manuf. of transport equipment	ISIC 34,35

• Publications

Energieversorgung Österreich: Entgeltige Energiebilanz 19XX, ÖSTAT

BELGIUM

• General notes on collected data

Data are available for 1993 in ISIC 2.

Refinery gas is included in Distillate oils.

• Source of SSIS energy data

Bilans Annuels Détaillés, Ministère des Affaires Economiques

• Publications

Energie en Belgique 19XX, Ministère des Affaires Economiques

CANADA

• General notes on collected data

Data are available from 1990 to 1998 in ISIC 3. In 2000, the time series have been updated from 1990.

Coke oven gas is included in Solid fuels.

• Source of SSIS energy data

Office of Energy Efficiency - Natural Resources Canada

• Publications

Quarterly Report on Energy Supply - Demand in Canada, Natural Resources Canada.

CZECH REPUBLIC

- **General notes on collected data**

Data are available from 1993 to 1996 and from 1998 to 1999 in ISIC 3.

The coding of ISIC rev. 3 and CZ-NACE is identical down to the 2nd digit. The ISIC may differ from the 3rd digit down. The CZ-NACE is more detailed than ISIC and several CZ-NACE codes are usually embraced in one ISIC code.

- **Source of SSIS energy data**

Czech Statistical Office

- **Publications**

The Fuel and Energy Annual consumption data are published in an internal working CSO publication Consumption of fuels in XXXX (year).

DENMARK

- **General notes on collected data**

Data are available for 1990, 1993, 1995, 1996, 1997, 1999 in ISIC 3 (Statistics Denmark makes industry surveys every 2 or 3 years).

C1511 includes C1552

C1549 includes C1544

C2222 includes C2230

C2429 includes C2430 and 2421

C2519 includes C2511

C2691 includes C2692

C271 includes C2731

C272 includes C2732

C2912 includes C2911

C2929 includes C2923 and C2927

C3599 includes C3520

C2699 includes C2693

The data include sold electricity and steam which corresponds to less than five percent of total electricity and steam consumption.

- **Source of SSIS energy data**

Danmarks Statistik

- **Publications**

Statistiske Efterretninger, Industri og Energi, Statistics Denmark

FINLAND

- **General notes on collected data**

Data are available from 1990 to 1998 in ISIC 2.

The data in Energy and Emissions, Statistics Finland, have been converted to the SSIS format by making some adjustments (the fuel inputs have been adjusted to the electricity and steam sold to third parties).

- **Source of SSIS energy data**

Statistics Finland

- **Publications**

Yearbook of Industrial Statistics Volume 1, Statistics Finland.

Energy and Emissions, Statistics Finland.

FRANCE

- **General notes on collected data**

Data are available from 1994 to 1999 in ISIC 3.

Consumption of combustible fuels is not calculated from primary fuels.

The energy consumption in the following sectors is confidential: basic chemicals and non-ferrous metals.

- **Source of SSIS energy data**

Ministère de l'Economie, des Finances et de l'Industrie, Secrétariat d'Etat à l'Industrie.

- **Publications**

Tableaux des consommations d'énergie en France

Les Consommations d'énergie dans l'industrie

GERMANY

- **General notes on collected data**

Data are available from 1991 to 1994 in ISIC 2 and from 1995 to 1997 in ISIC 3.

For 1991, only electricity consumption is available.

S3211 is included in S3215 for 1994

S3219 is included in S3214 for 1992, 1993, 1994

S3419 is included in S3412 for 1993, 1994

S3540 is included in S3530 for 1992, 1993, 1994

S3529 is included in S3521 for 1992, 1993, 1994

S3819 and S3845 are included in S3800 for 1992

S3829 is included in S3821 for 1993, 1994

S3901 is included in S3909 for 1993, 1994

Data for LPG, Biomass, Steam and Own use are not available.

Heavy Fuel Oil includes medium fuel oil.

- **Source of SSIS energy data**

Monthly Report on Mining and Manufacturing, Central Statistical Office

- **Publications**

Energie Daten, Bundesministerium fuer Wirtschaft

Produzierendes Gewerbe, Statistisches Bundesamt

Ausgewaelte Zahlen zur Energiewirtschaft, Statistisches Bundesamt

HUNGARY

- **General notes on collected data**

Data are available from 1990 to 1997 in ISIC 2 and for 1999 in ISIC 3.

TEOR (Hungarian industry classification system) was changed in 1992. The new system TEOR 92 is compatible with ISIC but the old system, TEOR 87, is not. Moreover, there is no direct concordance between TEOR 87 and TEOR 92.

Peat is reported in LPG.

- **Source of SSIS energy data**

Energy Information Agency

- **Publications**

Statistical Yearbook

ICELAND

- **General notes on collected data**

Data are available from 1992 to 1999 in ISIC 3.

In 2000, the time series have been updated from 1992. Only electricity consumption for ISIC breakdown is available.

- **Source of SSIS energy data**

National Energy Authority

JAPAN

- **General notes on collected data**

Data are available from 1990 to 1998 in ISIC 3.

In 2000, the time series have been updated from 1990, as they revised the source material of 'the structural survey of Energy Consumption in Commerce and Manufacturing': some breaks may occur with the last publication of SSIS.

Crude oil and Oil produced by conversion are added to 'Distillate oils and others'.

Natural gas liquid is added to 'Gas'.

Collected black liquor is added to 'Biomass Fuels'.

The amount of steam generated in the establishment by the steam boiler, which is converted into the calorific value, is applied to 'Steam'.

The amount of consumption electric power in the establishment is applied to 'Electricity'. As for 'Electricity of which generated on site for own use', all the electric power of private power generation such as heat, waterpower, co-generation system and others (the electric power generated inside the establishment such as geothermal generation) is included.

- **Source of SSIS energy data**

MITI

- **Publications**

Handbook of Energy & Economic Statistics in Japan, The Energy Conservation Centre.
Structural Survey of Energy Consumption in Commerce, Mining and Manufacturing
Overall Energy Statistics Yearbook, called the Red Book "AKAHON".

KOREA

- **General notes on collected data**

Data are available from 1991 to 1999 in ISIC 2.

Electricity figures are only given for 2 digit sectors.

The other energy variables are given for 2 digit sectors from 1997 onwards.

Until 1996, feedstocks consumption is not available.

- **Source of SSIS energy data**

Korea Energy Economics Institute (KEEI)

- **Publications**

Yearbook of Energy Statistics

LUXEMBOURG

- **General notes on collected data**

Data are available from 1990 to 1999 in ISIC 3.

In 2000, the time series have been updated from 1990.

Only the total energy consumption is available for: Steel, Metal transformation, Chemical, Non-Metallic mineral, Food beverages and tobacco.

- **Source of SSIS energy data**

Fédération des Industries Luxembourgeoises

- **Publications**

Rapport d'activité, Ministère de l'Énergie

MEXICO

• General notes on collected data

Data are available from 1990 to 1998 in ISIC 2.

The figures for own use in sector S3909 prior to 1993 include mining & construction.

Own use figures are not available before 1993.

Consumption figures reported for the years 1990-1993 in petroleum refineries (S3530) should be reported in S3511.

• Source of SSIS energy data

Table: Consumo de energia en el sector industrial por rama de actividad (net TJ), Ministry of Energy and Public Industry

• Publications

Balance Nacional de Energia

NETHERLANDS

• General notes on collected data

Data are available from 1993 to 1995 in ISIC 3.

Data are taken from column 17 of "de nederlandse energihuishouding deel 1" of the Central Bureau of Statistics. Own use electricity consumption is taken from column 13.

Table 3.1.1 Food, beverages and tobacco	C15 (ISIC Rev3)
Table 3.1.2 Textile, clothes and leather industry	C17
Table 3.1.3 Paper industry, printing and publishing	C21
Table 3.1.4 Fertilizer industry	C2412
Table 3.1.5 Organic Chemicals industry	C2411
Table 3.1.6 Anorganic Chemicals industry	C2411
Table 3.1.7 Other basic chemicals industry	C2420
Table 3.1.8 Chemical products industry	C2411
Table 3.1.9 Building materials industry	C26
Table 3.1.10 Iron and steel industry	C271
Table 3.1.11 Non-ferro metals industry	C272
Table 3.1.12 Metal products industry	C28
Table 3.1.13 Plastics, rubber	C25
Table 3.1.19 Non specified manufacturing	C3699
Table 2.2.2 Refineries	C2320

• Source of SSIS energy data

Survey on the production (conversion) and consumption of energy, Statistics Netherlands

• Publications

The data of the first survey are published in "Energy supply in the Netherlands" part 1, chapters 2, 3 (energy balances) and part 2, chapter 5, tables 5.3 through 5.6. Part 1 gives energy consumption figures sector by sector in a very detailed form (including transformation and production activity, and identifies non-energy use).

NEW ZEALAND

• General notes on collected data

Data are available from 1990 to 1999 in ISIC 3.

Electricity used in the manufacturing sector is reported for fiscal years running from April to March.

The updated "Own Use" data cover what is called "co-generation" or Combined Heat Power (CHP). A more detailed database on this from 1995 onwards is now available which provides comparable data for the period 1995-1999. Similar data is not available prior to 1995.

In C2320, Gas contains the loss of natural gas to synthetic petrol conversion. It is related to synthetic gasoline production since February 1997.

In C2411, Gas includes the loss of natural gas to AA methanol conversion.

The figures for activities that can not be correctly allocated to the appropriate industry were put in CERR1 in the database. These figures were submitted as "unallocated" by New Zealand Officials.

Several missing values for the sectors C2890 and C3310 are included in "CERR1" which is unallocated industry.

The data for 1990 to 1994, which were in ISIC Revision 2 in previous publication, are converted to ISIC Revision 3 by the Secretariat.

• Source of SSIS energy data

Statistics New Zealand

• Publications

Energy Data File, Ministry of Commerce: Energy consumption figures for 9 industries (including construction) are given in gross PJ in energy supply and demand balance tables.

NORWAY

• General notes on collected data

Data are available for 1992 in ISIC 2 and from 1993 to 1997 in ISIC 3.

Steam data are available after 1995.

Transformation is not included. Own use is included only for petroleum refineries.

• Source of SSIS energy data

Statistics Norway. The consumption figures for the most of the products are taken from NOS (official statistics of Norway) Industry/Manufacturing and Electricity statistics.

• Publications

Manufacturing Statistics, Statistics Norway.

Energy Statistics, Statistics Norway.

POLAND

- **General notes on collected data**

Data are available from 1994 to 1998 in ISIC 3.

Consumption refers to direct consumption and transformation input.

- **Source of SSIS energy data**

Central Statistical Office

- **Publications**

Gospodarka paliwowo-energetyczna

PORTUGAL

- **General notes on collected data**

Data are available for 1994 in ISIC 2.

Biomass and electricity in 1994: S3220 includes S3240, S3510 includes S3520 and S3560

- **Source of SSIS energy data**

Instituto Nacional de Estatística

SLOVAK REPUBLIC

- **General notes on collected data**

Data are available from 1994 to 1999 in ISIC 3.

Disaggregated sectors may not add up to aggregated sectors since some 3 or 4 digit sectors are included in 2 or 3 digit sector totals.

- **Source of SSIS energy data**

Annual Industrial Survey, Statistical Office of the Slovak Republic.

SWEDEN

- **General notes on collected data**

Data are available from 1991 to 1994 in ISIC 2 and from 1994 to 1998 in ISIC 3.

LPG: Ethane is not included.

Distillate oils: Only kerosene, motor gasoline, and diesel/gas oil are included in manufacturing statistics.

Refinery gas is not included in gas.

All fuels used in transformation (and also for own use) were included for electricity but not for other energy producing industries where only purchased fuels are included, e.g. refinery gases and coke are not included for refinery industries.

Only fuels used for road transport are included.

For natural gas it is likely that gross calorific values were used.

NACE 1592 and 1597 are included in ISIC 1552

- **Source of SSIS energy data**

Manufacturing 19XX, official statistics of Sweden, Statistics Sweden

- **Publications**

Industri 19XX, Del 1, Branschdata fördelade enligt Svensk standard for naringsgrensindelning (*Manufacturing Part 1: Data by industry*), Official Statistics of Sweden (SOS), Statistics Sweden: Energy consumption data by industry and fuel type are presented in quantities and purchase values.

SWITZERLAND

- **General notes on collected data**

Data are available from 1990 to 1995 in ISIC 2 and for 1999 in ISIC 3.

In 1994 and 1995, S3800-S3810 are allocated to S3820-S3829.

Since the Swiss EKV survey covers up to 70% of the total energy consumption in industry, there may be some big differences between the figures reported in SSIS and *Schweizerische Gesamtenergiestatistik*.

The industry survey has changed for 1999 data. So, some breaks may occur in the series. From 1999 onwards, only fuel consumption in 10 industry sectors is available:

C15 includes C16.

C17 includes C18, C19.

C21 includes C22.

C28 includes C30, C31, C32.

C36 includes C20, C25, C33-C37.

- **Source of SSIS energy data**

Union suisse des consommateurs d'énergie de l'industrie et des autres branches économiques.

- **Publications**

Schweizerische Gesamtenergiestatistik (yearly), Bundesamt f. Energiewirtschaft

Energieverbrauch in der schweizerischen Industrie, EKV (yearly, from 1978 to 1990)

TURKEY

- **General notes on collected data**

Data are available for 1992 and from 1995 to 1997 in ISIC 3.

The survey for the year 1992 covers the manufacturing establishments with 25+ employees. The survey from 1995 onwards, covers only establishments with energy consumption of 500+ tonnes oil equivalent, which represents 90% of the total manufacturing industry.

- **Source of SSIS energy data**

State Institute of Statistics

- **Publications**

Energy Consumption in Manufacturing Industry.

UNITED KINGDOM

- **General notes on collected data**

Data are available from 1990 to 1998 in ISIC 3.

Very detailed data have been provided for 1997 and 1998.

No breakdown of the biomass figures can yet be provided and the breakdown of electricity produced on-site is very limited.

The figure for total manufacturing includes the figure for activities that can not be correctly allocated to the appropriate industry (they are put in ERR1). The fuels used in transformation activity are put in ERR1 except for the sectors C1500, C2400 and C2700. Therefore in those sectors the sum of subsectoral data may not match the figures in the main sectors.

Fuels used in transformation activity in sector C1600 are included in C1500.

Fuels used in transformation activity in sector C2200 are included in C2100.

Fuels used in transformation activity in sector C2800-C3400 are included in C3500.

- **Source of SSIS energy data**

Department of Trade and Industry (DTI)

- **Publications**

Digest of United Kingdom Energy Statistics, DTI.

USA

- **General notes on collected data**

Estimates for some 4-digit ISIC categories are subject to error due to low sample coverage in some population subgroups.

The data are based on Table A4 (total inputs of energy for heat, power and electricity generation) of the US Manufacturing Energy Consumption Survey (MECS).

Sector S3300 includes SIC sector 2411.

Except for sectors S3411, S3530 and S3710 petroleum coke, blast furnace and coke oven gas are included in Biomass.

Biomass includes net steam as well.

Confidential qualifier “c” includes W (withheld to avoid disclosing data for individual establishments) and Q (withheld because relative standard error is greater than 50 percent) in MECS.

- **Source of SSIS energy data**

Energy Information Administration

- **Publications**

Manufacturing Energy Consumption Survey, Energy Information Administration.

Table 1. Availability of SSIS Energy Data by year and by ISIC Revision

	ISIC REVISION 2										ISIC REVISION 3									
	90	91	92	93	94	95	96	97	98	99	90	91	92	93	94	95	96	97	98	99
AUSTRALIA	..	✓	✓	✓	✓	✓	✓	✓	✓
AUSTRIA	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BELGIUM	✓
CANADA	✓	✓	✓	✓	✓	✓	✓	✓	✓	..
CZECH REP.	✓	✓	✓	✓	..	✓	✓	✓
DENMARK	✓	✓	..	✓	✓	✓	..	✓
FINLAND	✓	✓	✓	✓	✓	✓	✓	✓	✓
FRANCE	✓	✓	✓	✓	✓	✓	✓
GERMANY	..	✓	✓	✓	✓	✓	✓	✓
GREECE
HUNGARY	✓	✓	✓	✓	✓	✓	✓	✓	✓
ICELAND	✓	✓	✓	✓	✓	✓	✓	✓
IRELAND
ITALY
JAPAN	✓	✓	✓	✓	✓	✓	✓	✓	✓	..
KOREA	..	✓	✓	✓	✓	✓	✓	✓	✓
LUXEMBOURG	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MEXICO	✓	✓	✓	✓	✓	✓	✓	✓	✓
NETHERLANDS	✓	✓	✓
NEW ZEALAND	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NORWAY	✓	✓	✓	✓	✓	✓
POLAND	✓	✓	✓	✓	✓
PORTUGAL	✓
SLOVAK REP.	✓	✓	✓	✓	✓	✓	✓
SPAIN
SWEDEN	..	✓	✓	✓	✓	✓	..	✓	✓
SWITZERLAND	✓	✓	✓	✓	✓	✓	✓
TURKEY	✓	✓	✓	✓
UK	✓	✓	✓	✓	✓	✓	✓	✓	✓	..
USA	✓

OECD PUBLICATIONS, 2, rue André-Pascal, 75775 PARIS CEDEX 16
PRINTED IN FRANCE
(61 2001 03 1 P) ISBN 92-64-18647-6 – No. 51779 2001