



DIGEST OF SOUTH AFRICAN ENERGY STATISTICS

2005

Review:

**Dr. C. Cooper (University of Johannesburg)
Mr. J. Prinsloo (ESKOM)**

Editing:

Johan van Wyk, Janneke Weidema, Ntuthuzelo Fikela (Internal)

Whereas the greatest care has been taken in the compilation of the contents of this publication, the Energy Planning and Development Directorate does not hold itself responsible for any errors or omissions.

Published by:

Department of Minerals and Energy
Private Bag X59
Pretoria
0001

Tel: (012) 317-8000

Fax: (012) 322-8570

Website: www.dme.gov.za

E-mail: ntuthuzelo.fikela@dme.gov.za (Mr. Ntuthuzelo Fikela)

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ISBN: 0-9584376-4-5

FOREWORD

It gives me pleasure to introduce the third issue of the *Digest of South African Energy Statistics*.

The digest is published by the Directorate: Energy Planning and Development, formerly known as Database and Administration. The Directorate is responsible for the collection, analysis of energy and the compilation of Energy Balances.

However a number of challenges face the Department of Minerals and Energy in terms of the collection, verification and publication of energy statistics. These relate to the fact that the supply of energy data is voluntary, capacity constraints, different formats for collecting data etc. To address some of these issues the DME will be making the provision of energy data mandatory through the Energy Bill, developing a methodology manual for the collection of energy data and establishing a Task Team to review and verify the data.

The *Digest* is now published bi-annually instead of tri-annually, as was the case in the past. This is to ensure that readers get updated information in time. This age, our age is referred to as the information age. This means that without reliable and updated information we are unable to make informed and accurate decisions. It is for this reason that the Department of Minerals and Energy has deemed it necessary to increase the frequency of publication.

Energy is often referred to as one of the drivers of development, Therefore investors and policy makers need information on various aspects of energy in order to plan. This publication carries such information. We have tried and I hope managed to compile statistics of our various energy resources, energy supply as well as demand. It is my belief that we are in a small way contributing towards lowering the cost of doing business in the country, hence making South Africa an attractive destination for investment.

As a Department we seek to continually improve energy governance and provide the necessary infrastructure for the integrated energy planning. This *Digest* forms part of the effort and I hope it will become a standard work of reference among energy professionals in South Africa and abroad.

Finally, I would like to thank and congratulate all the staff in the Directorate: Energy Planning and Development for the hard and successful work that went into the compilation of this publication.

Mrs. LINDIWE HENDRICKS, MP
Minister: Minerals and Energy

PREFACE

In the past, the South African government severely restricted energy-related information and statistics through Acts that were passed during those days. These restrictions led to the unavailability of comprehensive energy information and lack of good energy data for development of energy policies responding to efficiency, environment, sustainability and other concerns.

The importance of good energy data for successful energy policy formulation, as well as for energy planning to both Department of Minerals and Energy and energy community is well documented and it is for this reason that, the White Paper on Energy Policy (1998) was developed and it states that “ *Government will ensure the necessary resources are made available to establish structures, systems and legislation to facilitate the specification, collection, storage, maintenance and supply of energy data, and energy-related data, according to the requirements of integrated energy planning and international standards.*” Also the draft Energy Bill (2005) has been developed to provide the government powers to collect appropriate energy statistics, subject to normal confidentiality provisions and also is going to make provision of data mandatory.

The Department of Minerals and Energy is regularly approached by international and regional bodies such as the IEA, UN, World Energy Council and SADC to provide inputs on energy statistics in their standard formats. Other multinationals and NGO's also regularly contact the Department of Minerals and Energy for energy statistics. In this regard the Director-General of the Department of Minerals and Energy and the Statistician-General of Statistics South Africa are in the process of signing a Memorandum of Understanding that will, inter alia, grant approval for the Department of Minerals and Energy's energy data to be regarded as “Official Statistics” in terms of Section 14(7) (b) of the Statistics Act (1999).

It is precisely at a time when more and more energy is being produced, energy dependence is increasing and when greenhouse gas emissions are high on the international agenda that it has become increasingly difficult to provide a timely and reliable picture of energy situation in many countries and therefore for the world. There are many reasons for this situation, amongst them is the challenge of data collection which is faced with problems of insufficient resources, evolving market, duplication of work, methodological and definitional differences.

The Department of Energy and Minerals recognizes that energy is a crucial element to economic development and also acknowledged the need for good quality energy data and for this reason it initiated the collection of energy data.

The first set of data up to 1997 was collected by the Institute for Energy Studies at the Rand Afrikaans University, Johannesburg. The second set of data from 1998 to 2000 was collected by Science Consultancy Enterprises. After that, data

collection was done by the Department itself. As in the past, data conforms to the standards for data collection laid down by the International Energy Agency. The data was collected with the assistance of representatives from energy industry, many of whom also gave freely of their advice and expertise. The publication is a high level summary of the outputs from the data collection exercise.

Any comments or suggestions for improvements to future editions will be welcomed.

DR ROD CROMPTON
Deputy Director-General: Hydrocarbons and Energy Planning
Department of Minerals and Energy

Contents

<u>Section</u>	<u>Page</u>
	Foreword
1.	Introduction 1
2.	Energy Balances 7
3.	National Energy Consumption 13
4.	Coal 21
5.	Oil 29
6.	Electricity 35
7.	Gas 41
8.	Renewables 45
9.	Prices 47
10.	Economic Data 51
11.	Useful Addresses 53
12.	Calorific Values and Conversion Factors 54

Introduction

The challenges presented by data collection are legend among statisticians. This publication has faced its own challenges in this regard. It has been necessary to meld together data collected by two different organizations and by the Department of Minerals and Energy itself during the period 1992 to 2002. Although all organizations used supply side figures (i.e. sales data) to measure energy consumption, they used slightly different data collection methodologies. They also used different assumptions when deciding how to allocate energy consumption to different sectors. This last is a problem particularly associated with using supply side data to measure energy consumption. The result is that for example certain of the time series might not be as smooth as expected. In particular, estimates for the use of biomass as a source of primary energy, can vary greatly, depending on assumptions made. These factors should be taken into account when interpreting the data in this publication.

Since the previous publication in 2002, updates and better quality energy data became available and these have been utilised in preparing this publication. Consequently there are differences in some figures between the earlier 2002 publication and this later one. We believe the more recent data is the more accurate.

Section 1

Overview

South Africa has a well-developed energy supply and production system. The country is well endowed with large resources of coal. Natural gas and crude oil production is very limited and consequently the bulk of our crude oil is imported. Uranium reserves are large. Renewable energy plays a limited but plays a significant role, particularly large hydroelectric power generation. However the country generally has a low rainfall, which limits the exploitation of this form of energy. South Africa's abundant sunshine is only beginning to be tapped in more remote areas for electricity generation for domestic and institutional application. Wind energy is a potential source of commercial energy in some parts, but like other renewable energy technologies it struggles to match the lower costs basis of conventional energy, in particular our cheap coal. With the setting of renewable energy targets and with carbon trading under the Kyoto protocol, the role of renewable energy is expected to expand.

Primary Energy Supply

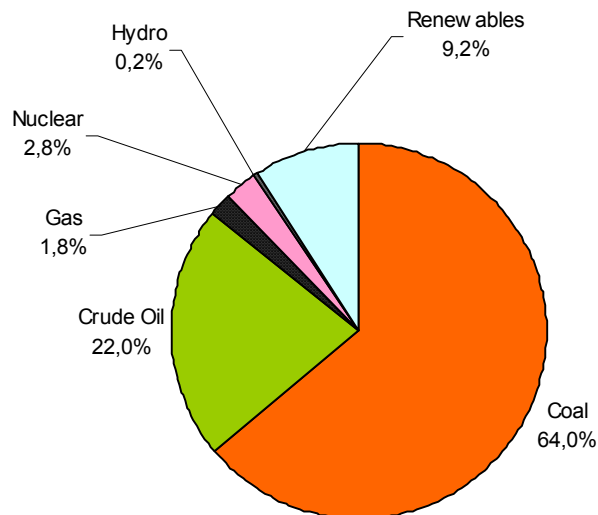
Electricity production costs, in South Africa based on our large coal reserves are among the cheapest in the world. This together with a natural resource based economy, resulted in the country becoming a large energy user with high energy

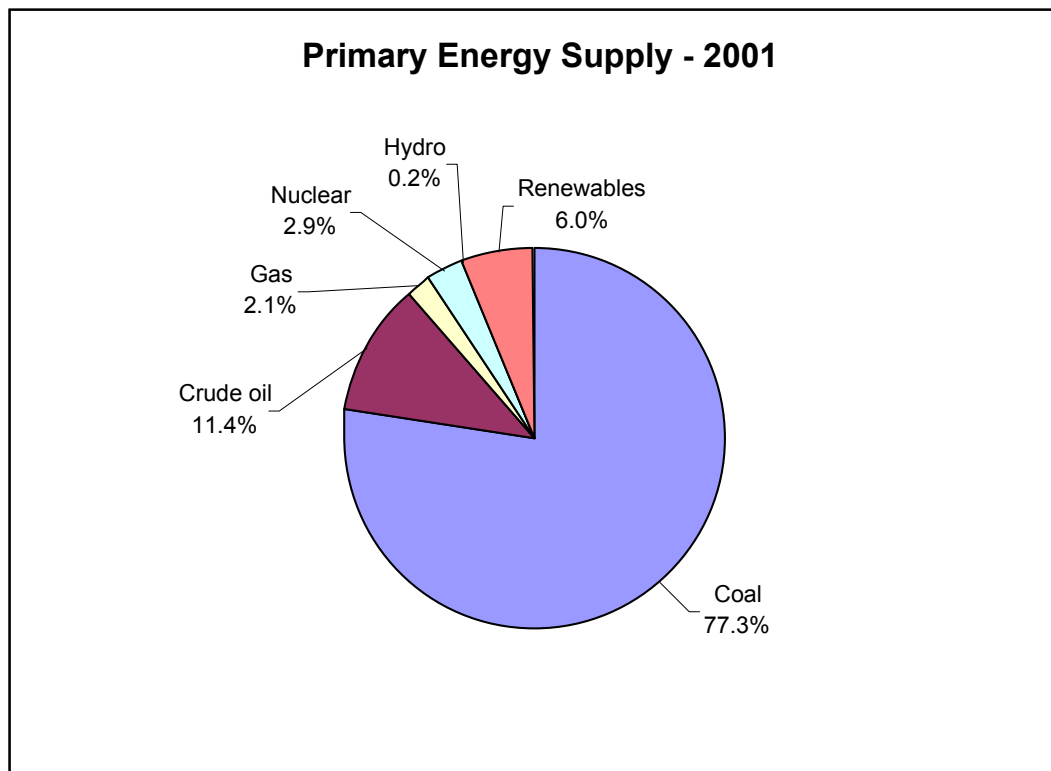
intensity. Recent data indicates that energy intensity may be declining as the economy is restructuring. The total primary energy supply increased from 3 936PJ in 1992 to 4 629PJ in 2002, an increase of 18%. In 2002 coal constituted 64% of the total primary energy supply, as depicted in the graph below.

Total Primary Energy Supply - TJ

	2001	%	2002	%
Coal	3 065 619	77,3%	2 961 026	64,0%
Crude Oil	452 895	11,4%	1 018 769	22,0%
Gas	84 478	2,1%	83 764	1,8%
Nuclear	116 935	2,9%	130 811	2,8%
Hydro	7 420	0,2%	8 485	0,2%
Renewables	237 400	6,0%	426 467	9,2%
TOTAL	3 964 746		4 629 322	

Primary Energy Supply - 2002





Total Primary Energy Supply - TJ

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Coal	2 990 691	3 028 745	3 117 230	3 243 737	3 299 787	3 370 254	3 268 198	3 413 499	3 425 725	3 065 619	2 961 026
Crude Oil	414 946	334 047	428 321	459 980	376 059	450 863	933 682	764 067	420 746	452 895	1 018 769
Gas	11 969	71 814	71 814	71 814	71 814	71 814	53 983	70 628	65 024	84 478	83 764
Nuclear	101 324	79 145	105 785	123 284	128 455	137 967	148 375	140 040	141 927	116 935	130 811
Hydro	2 707	526	3 866	1 904	4 748	7 531	5 742	2 614	4 835	7 420	8 485
Renewables	414 000	419 000	433 432	408 739	408 739	408 739	237 400	237 400	237 400	237 400	426 467
TOTAL	3 935 637	3 933 277	4 160 448	4 309 458	4 289 602	4 447 168	4 647 379	4 628 248	4 295 657	3 964 746	4 629 322

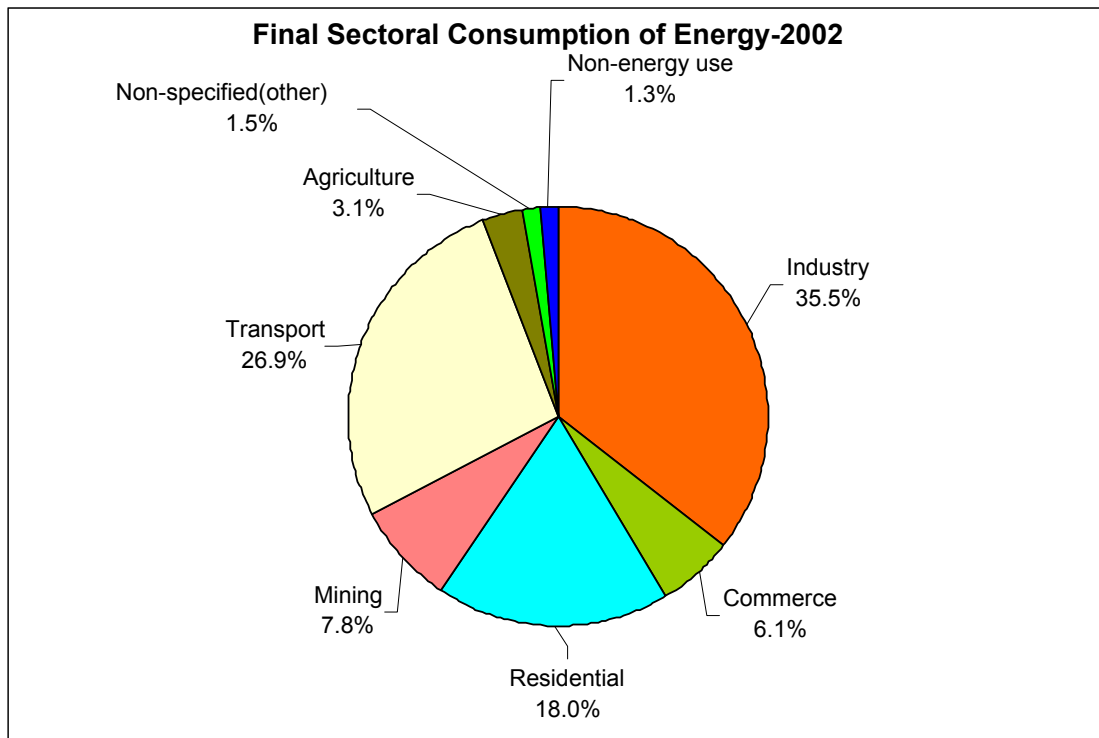
Final Sectoral Consumption

The three major energy-consuming sectors are industry, residential and transport. In 2002 they accounted together for 80,4% of final energy demand. The value for residential is boosted by the inclusion of estimated biomass consumption figures. The category "non-energy use" is for energy carriers such as petroleum product solvents, lubricants and bitumen, which are not utilised for their energy properties.

Final Sectoral Consumption of Energy-TJ

Sector	2001	%	2002	%
Industry	837,675	36.0%	839,654	35.5%
Commerce	134,447	5.8%	143,556	6.1%
Residential	419,903	18.0%	425,379	18.0%
Mining	183,744	7.9%	183,795	7.8%
Transport	620,916	26.7%	636,332	26.9%
Agriculture	70,003	3.0%	72,904	3.1%
Non-specified(other)	32,033	1.4%	34,583	1.5%
Non-energy use	29,721	1.3%	31,687	1.3%
Total	2,328,443		2,367,889	

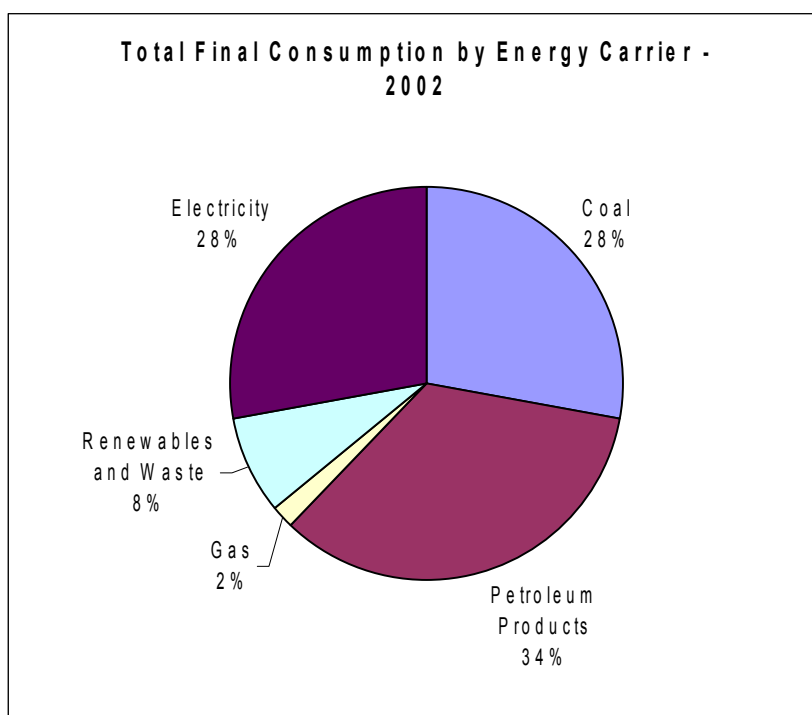
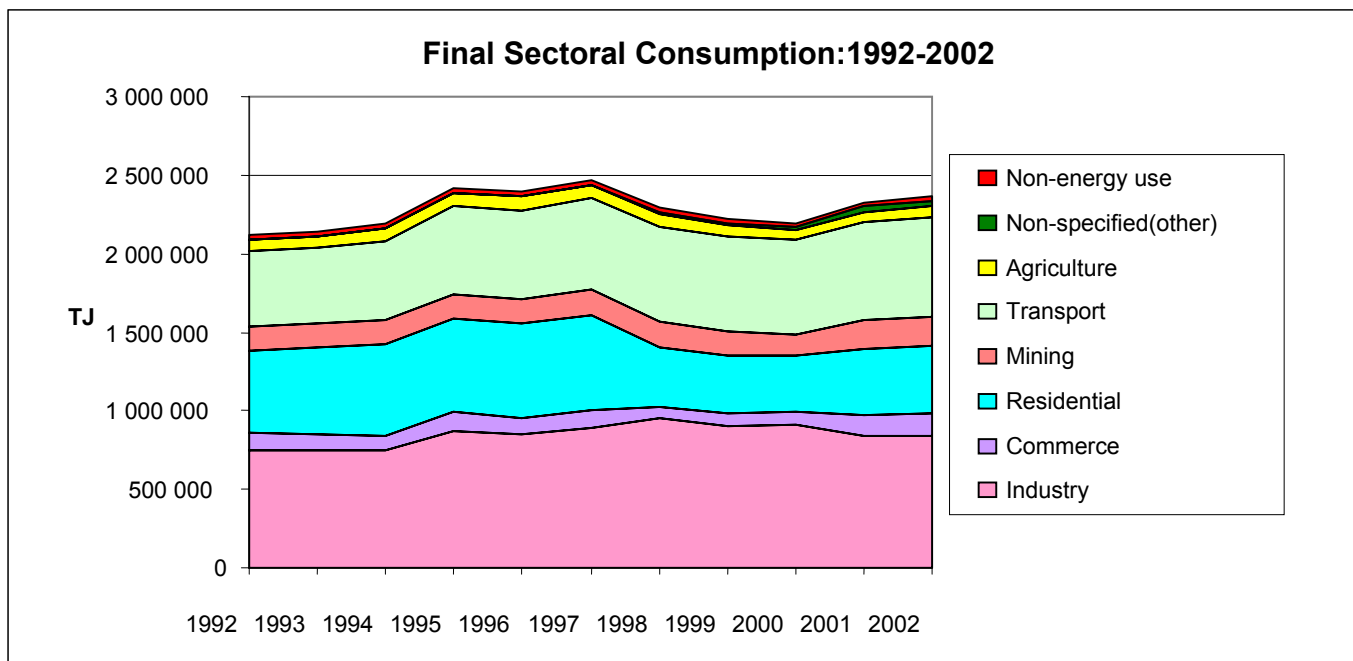
Source: National Energy Balances



Final Sectoral Consumption of Energy-TJ

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Industry	745 401	749 869	745 633	867 356	848 516	886 831	951 810	900 717	906 785	837 675	839 654
Commerce	111 089	102 935	97 082	124 281	107 321	118 429	76 022	85 140	82 975	134 447	143 556
Residential	530 249	553 865	584 484	593 359	596 938	603 557	376 504	369 078	360 467	419 903	425 379
Mining	153 207	144 908	145 981	154 043	159 369	164 098	166 934	145 386	130 759	183 744	183 795
Transport	475 345	484 636	502 798	563 367	564 195	583 569	599 766	605 790	603 985	620 916	636 332
Agriculture	77 708	74 892	83 446	85 380	87 661	84 456	79 387	74 832	64 109	70 003	72 904
Non-specified(other)	0	0	0	0	0	0	11 979	11 111	21 911	32 033	34 583
Non-energy use	28 938	26 983	29 109	28 357	31 600	29 828	26 100	24 740	22 352	29 721	31 687
Total	2 121 937	2 138 087	2 188 534	2 416 142	2 395 599	2 470 770	2 288 502	2 216 793	2 193 342	2 328 443	2 367 889

Source: National Energy balances



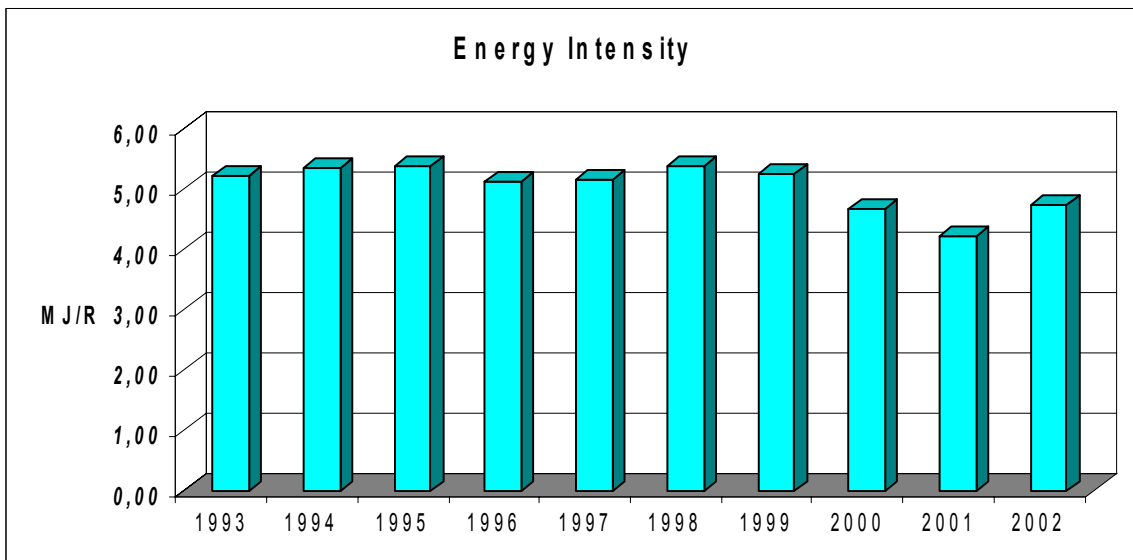
Energy Intensity

South Africa's economic growth as measured by the growth in Gross Domestic Product (GDP) was 29,9% for the period 1993 to 2002. The Total Primary Energy Supply for these years increased from 3 933PJ in 1993 to 4 629PJ in 2002, an increase of 17,7%. This resulted in the energy intensity for the individual years depicted in the following table and graph.

Year	GDP at market prices	Primary Energy Supply TJ	Intensity MJ/R
1993	755 009	3 924 315	5,20
1994	779 424	4 150 999	5,33
1995	803 710	4 299 195	5,35
1996	838 326	4 269 622	5,09
1997	860 516	4 423 365	5,14
1998	864 968	4 639 614	5,36
1999	885 365	4 636 914	5,24
2000	922 148	4 298 220	4,66
2001	947 373	3 972 681	4,19
2002	981 102	4 637 437	4,73

Sources: National Energy Balances

Stats SA Quarterly GDP by industry at constant 2000 prices (R million)



Section 2

Energy Balances

The energy balance is a useful way to present an overview of the energy flows for a specific time period. A balance shows, in a consistent accounting framework, the production, transformation and final consumption of all forms of energy for a given geographical area and a given period of time, with quantities expressed in terms of a single accounting unit for purposes of comparison and aggregation. The format enjoying international recognition is that developed by the International Energy Agency (IEA). Energy balances in this format for 2001 and 2002 for South Africa using the terajoule (TJ) as accounting unit are presented on the following pages.

Interested readers are referred to the IEA for details on the methodologies and conventions used in balance format (Internet site at: <http://www.iea.org>).

ENERGY BALANCE - 2002 (Aggregated)

Supply and Consumption (terajoules)	Coal	Crude Oil	Petroleum Products	Gas	Nuclear
Indigenous Production	4 873 932	10 589	-	83 764	130 811
Import	49 054	1 447 465	67 946	-	-
Export	-1 940 743	-4 520	-396 801	-	-
Intl. Marine Bunkers	-	-	-105 909	-	-
Stock Changes	-21 216	-	-	-	-
Total Primary Energy Supply	2 961 026	1 453 533	-434 765	83 764	130 811
Transfers	-	-	-	-	-
Statistical Differences	641 677	-	31 687	-	-
Public Electricity Plant	-1 938 344	-	-	-	-130 811
Autoproducer Electricity Plant	-51 311	-	-	-	-
Public CHP Plant	-	-	-	-	-
Autoproducer CHP Plant	-	-	-	-	-
Public Heat Plant	-	-	-	-	-
Autoproducer Heat Plant	-	-	-	-	-
Heat pumps	-	-	-	-	-
Electric boilers	-	-	-	-	-
Gas Works	-25 709	-	-	43 373	-
Oil Refineries	-	-1 139 587	1 214 014	-	-
Coal Transformation	-25 664	-	-	-	-
Liquefaction	-904 189	-313 947	-	-83 764	-
Non-specified (Transformation)	-	-	-	-	-
Own Use	-	-	-	-	-
Distribution Losses	-	-	-	-	-
Total Final Consumption	657 486	-	810 936	43 373	-
Industry Sector	519 943	-	43 632	43 048	-
Iron and Steel	196 486	-	-	11 050	-
Chemical and Petrochemical	136 059	-	-	13 448	-
<i>Memo: Feedst. Use In Petchem. Ind.</i>	<i>136 059</i>	-	-	-	-
Non-Ferrous Metals	-	-	-	2 457	-
Non-Metallic Minerals	29 560	-	-	6 187	-
Transport Equipment	-	-	-	401	-
Machinery	-	-	-	860	-
Mining and Quarrying	39 218	-	28 231	412	-
Food and Tobacco	-	-	-	1 362	-
Paper Pulp and Print	-	-	-	3 231	-
Wood and Wood Products	-	-	-	75	-
Construction	-	-	15 401	-	-
Textile and Leather	-	-	-	20	-
Non-specified (Industry)	118 621	-	-	3 547	-
Transport Sector	-	-	613 816	31	-
International Civil Aviation	-	-	37 538	-	-
Domestic Air Transport	-	-	30 782	31	-
Road	-	-	536 045	-	-
Rail	-	-	9 450	-	-
Pipeline Transport	-	-	-	-	-
Internal Navigation	-	-	-	-	-
Non-specified (Transport)	-	-	-	-	-
Other Sectors	137 544	-	121 801	293	-
Agriculture	2 455	-	53 730	-	-
Commerce and Public Services	45 524	-	32 162	251	-
Residential	89 564	-	35 909	-	-
Non-specified (Other)	-	-	-	42	-
Non-Energy Use	-	-	31 687	-	-
Memo: Non-Energy Use Ind/Transf/Ener	-	-	31 687	-	-
Memo: Non-Energy Use in Transport	-	-	-	-	-
Memo: Non-Energy Use in Oth. Sect	-	-	-	-	-
Elect. Output in GWh	190 019	-	-	-	11 991
Elect. Output-public elec. plant	181 651	-	-	-	11 991
Elect. Output-autoprod. elec. plant	8 368	-	-	-	-
Elect. Output-public CHP plant	-	-	-	-	-
Elect. Output-autoprod. CHP plant	-	-	-	-	-

ENERGY BALANCE - 2002 (Aggregated)

Supply and Consumption (terajoules)	Hydro	Geothermal Solar etc	Renewables & Waste	Electricity	Heat	Total
Indigenous Production	8 485	2 031	424 436	-	-	5 534 048
Import	-	-	-	34 186	-	1 598 650
Export	-	-	-	-26 071	-	-2 368 136
Intl. Marine Bunkers	-	-	-	-	-	-105 909
Stock Changes	-	-	-	-	-	-21 216
Total Primary Energy Supply	8 485	2 031	424 436	8 114	-	4 637 437
Transfers	-	-	-	-	-	-
Statistical Differences	-	-	-	15 166	-	688 531
Public Electricity Plant	-8 485	-2 031	-	707 628	-	-1 372 044
Autoproducer Electricity Plant	-	-	-	30 125	-	-21 186
Public CHP Plant	-	-	-	-	-	-
Autoproducer CHP Plant	-	-	-234 036	-	-	-234 036
Public Heat Plant	-	-	-	-	-	-
Autoproducer Heat Plant	-	-	-	-	-	-
Heat pumps	-	-	-	-	-	-
Electric boilers	-	-	-	-	-	-
Gas Works	-	-	-	-	-	17 664
Oil Refineries	-	-	-	-41 655	-	32 772
Coal Transformation	-	-	-	-	-	-25 664
Liquefaction	-	-	-	-	-	-1 301 900
Non-specified (Transformation)	-	-	-	-	-	-
Own Use	-	-	-	-3 933	-	-3 933
Distribution Losses	-	-	-	-49 752	-	-49 752
Total Final Consumption	-	-	190 400	665 694	-	2 367 890
Industry Sector	-	-	-	416 825	-	1 023 448
Iron and Steel	-	-	-	73 192	-	280 727
Chemical and Petrochemical	-	-	-	35 078	-	184 584
<i>Memo: Feedst. Use In Petchem. Ind.</i>	-	-	-	-	-	136 059
Non-Ferrous Metals	-	-	-	55 587	-	58 043
Non-Metallic Minerals	-	-	-	8 198	-	43 944
Transport Equipment	-	-	-	317	-	717
Machinery	-	-	-	159	-	1 019
Mining and Quarrying	-	-	-	115 933	-	183 795
Food and Tobacco	-	-	-	2 423	-	3 785
Paper Pulp and Print	-	-	-	5 606	-	8 837
Wood and Wood Products	-	-	-	1 040	-	1 115
Construction	-	-	-	415	-	15 816
Textile and Leather	-	-	-	1 881	-	1 901
Non-specified (Industry)	-	-	-	116 997	-	239 165
Transport Sector	-	-	-	22 485	-	636 332
International Civil Aviation	-	-	-	-	-	37 538
Domestic Air Transport	-	-	-	138	-	30 952
Road	-	-	-	83	-	536 128
Rail	-	-	-	11 890	-	21 340
Pipeline Transport	-	-	-	221	-	221
Internal Navigation	-	-	-	27	-	27
Non-specified (Transport)	-	-	-	10 126	-	10 126
Other Sectors	-	-	190 400	226 385	-	676 422
Agriculture	-	-	-	16 719	-	72 904
Commerce and Public Services	-	-	-	65 618	-	143 556
Residential	-	-	190 400	109 507	-	425 379
Non-specified (Other)	-	-	-	34 541	-	34 583
Non-Energy Use	-	-	-	-	-	31 687
<i>Memo: Non-Energy Use Ind/Transf/Ener</i>	-	-	-	-	-	31 687
<i>Memo: Non-Energy Use in Transport</i>	-	-	-	-	-	-
<i>Memo: Non-Energy Use in Oth. Sect</i>	-	-	-	-	-	-
Elect. Output in GWh	2 357	564	-	-	-	204 931
Elect. Output-public elec. plant	2 357	564	-	-	-	196 563
Elect. Output-autoprod. elec. plant	-	-	-	-	-	8 368
Elect. Output-public CHP plant	-	-	-	-	-	-
Elect. Output-autoprod. CHP plant	-	-	-	-	-	-

ENERGY BALANCE - 2001 (Aggregated)

Supply and Consumption (terajoules)	Coal	Crude Oil	Petroleum Products	Gas	Nuclear
Indigenous Production	4 929 202	11 231	-	84 478	116 935
Import	34 876	809 762	64 737	-	-
Export	-1 940 815	-7 861	-308 951	-	-
Intl. Marine Bunkers	-	-	-116 023	-	-
Stock Changes	42 357	-	-	-	-
Total Primary Energy Supply	3 065 619	813 132	-360 237	84 478	116 935
Transfers	-	-	-	-	-
Statistical Differences	431 862	-	29 721	-	-
Public Electricity Plant	-1 866 934	-	-	-	-116 935
Autoproducer Electricity Plant	-47 346	-	-	-	-
Public CHP Plant	-	-	-	-	-
Autoproducer CHP Plant	-	-	-	-	-
Public Heat Plant	-	-	-	-	-
Autoproducer Heat Plant	-	-	-	-	-
Heat pumps	-	-	-	-	-
Electric boilers	-	-	-	-	-
Gas Works	-22 913	-	-	41 552	-
Oil Refineries	-	-505 321	1 125 887	-	-
Coal Transformation	-7 616	-	-	-	-
Liquefaction	-892 413	-307 812	-	-84 478	-
Non-specified (Transformation)	-	-	-	-	-
Own Use	-	-	-	-	-
Distribution Losses	-	-	-	-	-
Total Final Consumption	660 259	-	795 371	41 552	-
Industry Sector	554 893	-	41 998	41 241	-
Iron and Steel	199 695	-	-	10 586	-
Chemical and Petrochemical	188 258	-	-	12 883	-
<i>Memo: Feedst. Use In Petchem. Ind.</i>	<i>140 876</i>	-	-	-	-
Non-Ferrous Metals	-	-	-	2 354	-
Non-Metallic Minerals	30 139	-	-	5 927	-
Transport Equipment	-	-	-	384	-
Machinery	-	-	-	824	-
Mining and Quarrying	42 194	-	27 068	395	-
Food and Tobacco	-	-	-	1 305	-
Paper Pulp and Print	-	-	-	3 096	-
Wood and Wood Products	-	-	-	71	-
Construction	-	-	14 930	-	-
Textile and Leather	-	-	-	19	-
Non-specified (Industry)	94 606	-	-	3 398	-
Transport Sector	70	-	600 792	30	-
International Civil Aviation	-	-	37 840	-	-
Domestic Air Transport	-	-	28 978	30	-
Road	-	-	525 813	-	-
Rail	-	-	8 160	-	-
Pipeline Transport	-	-	-	-	-
Internal Navigation	-	-	-	-	-
Non-specified (Transport)	70	-	-	-	-
Other Sectors	105 297	-	122 860	281	-
Agriculture	2 742	-	52 229	-	-
Commerce and Public Services	35 471	-	32 853	241	-
Residential	67 083	-	37 779	-	-
Non-specified (Other)	-	-	-	40	-
Non-Energy Use	-	-	29 721	-	-
Memo: Non-Energy Use Ind/Transf/Ener	-	-	29 721	-	-
Memo: Non-Energy Use in Transport	-	-	-	-	-
Memo: Non-Energy Use in Oth. Sect	-	-	-	-	-
Elect. Output in GWh	183 542	-	-	-	10 719
Elect. Output-public elec. plant	175 223	-	-	-	10 719
Elect. Output-autoprod. elec. plant	8 319	-	-	-	-
Elect. Output-public CHP plant	-	-	-	-	-
Elect. Output-autoprod. CHP plant	-	-	-	-	-

ENERGY BALANCE - 2001 (Aggregated)

Supply and Consumption (terajoules)	Hydro	Geothermal Solar etc	Renewables & Waste	Electricity	Heat	Total
Indigenous Production	7 420	-	237 400	-	-	5 386 665
Import	-	-	-	33 120	-	942 495
Export	-	-	-	-25 186	-	-2 282 813
Intl. Marine Bunkers	-	-	-	-	-	-116 023
Stock Changes	-	-	-	-	-	42 357
Total Primary Energy Supply	7 420	-	237 400	7 934	-	3 972 681
Transfers	-	-	-	-	-	-
Statistical Differences	-	-	-	30 246	-	491 829
Public Electricity Plant	-7 420	-	-	676 811	-	-1 314 478
Autoproducer Electricity Plant	-	-	-	29 948	-	-17 398
Public CHP Plant	-	-	-	-	-	-
Autoproducer CHP Plant	-	-	-47 000	-	-	-47 000
Public Heat Plant	-	-	-	-	-	-
Autoproducer Heat Plant	-	-	-	-	-	-
Heat pumps	-	-	-	-	-	-
Electric boilers	-	-	-	-	-	-
Gas Works	-	-	-	-	-	18 639
Oil Refineries	-	-	-	-41 688	-	578 879
Coal Transformation	-	-	-	-	-	-7 616
Liquefaction	-	-	-	-	-	-1 284 702
Non-specified (Transformation)	-	-	-	-	-	-
Own Use	-	-	-	-3 887	-	-3 887
Distribution Losses	-	-	-	-58 504	-	-58 504
Total Final Consumption	-	-	190 400	640 860	-	2 328 443
Industry Sector	-	-	-	383 287	-	1 021 419
Iron and Steel	-	-	-	66 796	-	277 078
Chemical and Petrochemical	-	-	-	33 859	-	235 000
<i>Memo: Feedst. Use In Petchem. Ind.</i>	-	-	-	-	-	140 876
Non-Ferrous Metals	-	-	-	54 621	-	56 974
Non-Metallic Minerals	-	-	-	7 339	-	43 406
Transport Equipment	-	-	-	298	-	682
Machinery	-	-	-	186	-	1 010
Mining and Quarrying	-	-	-	114 087	-	183 744
Food and Tobacco	-	-	-	2 419	-	3 724
Paper Pulp and Print	-	-	-	5 739	-	8 835
Wood and Wood Products	-	-	-	939	-	1 011
Construction	-	-	-	114	-	15 044
Textile and Leather	-	-	-	1 755	-	1 774
Non-specified (Industry)	-	-	-	95 135	-	193 139
Transport Sector	-	-	-	20 025	-	620 916
International Civil Aviation	-	-	-	-	-	37 840
Domestic Air Transport	-	-	-	133	-	29 141
Road	-	-	-	79	-	525 892
Rail	-	-	-	12 535	-	20 695
Pipeline Transport	-	-	-	182	-	182
Internal Navigation	-	-	-	28	-	28
Non-specified (Transport)	-	-	-	7 068	-	7 137
Other Sectors	-	-	190 400	237 548	-	656 386
Agriculture	-	-	-	15 031	-	70 003
Commerce and Public Services	-	-	-	65 882	-	134 447
Residential	-	-	190 400	124 641	-	419 903
Non-specified (Other)	-	-	-	31 993	-	32 033
Non-Energy Use	-	-	-	-	-	29 721
Memo: Non-Energy Use Ind/Transf/Ener	-	-	-	-	-	29 721
Memo: Non-Energy Use in Transport	-	-	-	-	-	-
Memo: Non-Energy Use in Oth. Sect	-	-	-	-	-	-
Elect. Output in GWh	2 061	-	-	-	-	196 322
Elect. Output-public elec. plant	2 061	-	-	-	-	188 003
Elect. Output-autoprod. elec. plant	-	-	-	-	-	8 319
Elect. Output-public CHP plant	-	-	-	-	-	-
Elect. Output-autoprod. CHP plant	-	-	-	-	-	-

Notes

Section 3

National Energy Consumption

The Energy Balances on the previous pages combine in one document all the various fuels as measured in energy units (terajoules). However, it is also of value to have these in the units that the various fuels are normally measured. The following tables provide this information for 2001 and 2002.

ENERGY BALANCE - 2002 (Disaggregated, Natural Units)										
Supply & Consumption	Hard Coal	Coking Coal	Bituminous Coal	Coke oven coke	Gasworks Gas	Coke oven Gas	Blast Furnace Gas	Solid Biomass	Natural Gas	Crude + NGLs + Feedstocks
	tons	tons	tons	tons	TJ	TJ	TJ	TJ	TJ	tons
Indigenous Production	220 212 491	1 304 965	218 907 526	1 604 441	43 373	0	31 137	424 436	83 764	235 309
From Other Sources	0	0	0	0	0	0	0	0	0	0
Import	1 582 379	1 582 379	0	0	0	0	0	0	0	33 930 260
Export	-69 230 939	-759 046	-68 471 893	0	0	0	0	0	0	-105 962
Intl. Marine Bunkers	0	0	0	0	0	0	0	0	0	0
Stock Changes	-960 885	0	-960 885	0	0	0	0	0	0	0
Domestic Supply	151 603 046	2 128 298	149 474 748	1 604 441	43 373	0	31 137	424 436	83 764	34 059 607
Transfers	0	0	0	0	0	0	0	0	0	0
Statistical Differences	-10 197 029	-1 190 323	-9 006 706	0	0	0	0	0	0	0
Transformation Sector	138 119 384	2 926 177	135 193 207	389 019	0	0	0	234 036	83 764	34 059 607
Public Electricity Plant	90 619 158	0	90 619 158	0	0	0	0	0	0	0
Autoproducer Electricity Plant	2 107 236	0	2 107 236	0	0	0	0	0	0	0
Public CHP Plant	0	0	0	0	0	0	0	0	0	0
Autoproducer CHP Plant	0	0	0	0	0	0	0	234 036	0	0
Public Heat Plant	0	0	0	0	0	0	0	0	0	0
Autoproducer Heat Plant	0	0	0	0	0	0	0	0	0	0
Heat pumps	0	0	0	0	0	0	0	0	0	0
Electric Boilers	0	0	0	0	0	0	0	0	0	0
Patent Fuel Plants	0	0	0	0	0	0	0	0	0	0
Coke Ovens	2 926 177	2 926 177	0	0	0	0	0	0	0	0
Gas Works	952 178	0	952 178	0	0	0	0	0	0	0
For Blast Furnace Gas	0	0	0	389 019	0	0	0	0	0	0
Petrochemical Industry	0	0	0	0	0	0	0	0	0	0
For BKB	0	0	0	0	0	0	0	0	0	0
Oil Refineries	0	0	0	0	0	0	0	0	0	38 766 077
Liquefaction	41 514 635	0	41 514 635	0	0	0	0	0	83 764	-4 706 470
Non-specified (Transformation)	0	0	0	0	0	0	0	0	0	0
Energy Sector	0	0	0	0	0	0	0	0	0	0
Coal Mines	0	0	0	0	0	0	0	0	0	0
Oil and Gas Extraction	0	0	0	0	0	0	0	0	0	0
Patent Fuel Plants	0	0	0	0	0	0	0	0	0	0
Coke Ovens	0	0	0	0	0	0	0	0	0	0
Gas Works	0	0	0	0	0	0	0	0	0	0
BKB	0	0	0	0	0	0	0	0	0	0
Oil Refineries	0	0	0	0	0	0	0	0	0	0
Own use in Elec., CHP and Heat plant	0	0	0	0	0	0	0	0	0	0
Used for Pump Storage	0	0	0	0	0	0	0	0	0	0
Nuclear Industry	0	0	0	0	0	0	0	0	0	0
Non-specified (Energy)	0	0	0	0	0	0	0	0	0	0
Distribution Losses	0	0	0	0	0	0	0	0	0	0
Final Consumption	23 680 691	392 444	23 288 247	1 215 422	43 373	0	31 137	190 400	0	0
Industry Sector	18 564 166	335 538	18 228 628	1 215 422	43 048	0	31 137	0	0	0
Iron and Steel	4 728 079	197 461	4 530 618	1 215 422	11 050	0	31 137	0	0	0
Chemical and Petrochemical	6 960 961	51 838	6 909 123	0	13 448	0	0	0	0	0
Non-Ferrous Metals	0	0	0	0	2 457	0	0	0	0	0
Non-Metallic Minerals	1 079 390	76 417	1 002 973	0	6 187	0	0	0	0	0
Transport Equipment	0	0	0	0	481	0	0	0	0	0
Machinery	0	0	0	0	860	0	0	0	0	0
Mining and Quarrying	1 508 362	178	1 508 184	0	412	0	0	0	0	0
Food and Tobacco	0	0	0	0	1 362	0	0	0	0	0
Paper Pulp and Print	0	0	0	0	3 231	0	0	0	0	0
Wood and Wood Products	0	0	0	0	75	0	0	0	0	0
Construction	0	0	0	0	7	0	0	0	0	0
Textile and Leather	0	0	0	0	20	0	0	0	0	0
Non-specified (Industry)	4 287 374	9 644	4 277 730	0	3 547	0	0	0	0	0
Transport Sector	0	0	0	0	31	0	0	0	0	0
International Civil Aviation	0	0	0	0	0	0	0	0	0	0
Domestic Air Transport	0	0	0	0	31	0	0	0	0	0
Road	0	0	0	0	0	0	0	0	0	0
Rail	0	0	0	0	0	0	0	0	0	0
Pipeline Transport	0	0	0	0	0	0	0	0	0	0
Internal Navigation	0	0	0	0	0	0	0	0	0	0
Non-specified (Transport)	0	0	0	0	0	0	0	0	0	0
Other Sectors	5 116 525	56 906	5 059 619	0	293	0	0	190 400	0	0
Agriculture	90 405	0	90 405	0	0	0	0	0	0	0
Commerce and Public Services	1 693 822	18 969	1 674 853	0	251	0	0	0	0	0
Residential	3 332 298	37 937	3 294 361	0	0	0	0	190 400	0	0
Non-specified (Other)	0	0	0	0	42	0	0	0	0	0
Non-Energy Use	0	0	0	0	0	0	0	0	0	0
Memo:Non-Energy Use Ind/Transf/Ener	0	0	0	0	0	0	0	0	0	0
Memo:Non-Energy Use in Transport	0	0	0	0	0	0	0	0	0	0
Memo:Non-Energy Use in Oth.Sect.	0	0	0	0	0	0	0	0	0	0
Memo:Feedst.Use in Petchem. Ind.	6 960 961	51 838	6 909 123	0	0	0	0	0	0	0
Elect. Output in GWh	190 019	0	190 019	0	0	0	0	0	0	0
Elect. Output-public elec. plant	181 651	0	181 651	0	0	0	0	0	0	0
Elect. Output-autoprod. elec. plant	8 368	0	8 368	0	0	0	0	0	0	0
Elect. Output-public CHP plant	0	0	0	0	0	0	0	0	0	0
Elect. Output-autoprod. CHP plant	0	0	0	0	0	0	0	0	0	0
Heat Output-public CHP plant	0	0	0	0	0	0	0	0	0	0
Heat Output-autoproducer CHP plant	0	0	0	0	0	0	0	0	0	0
Heat Output-public heat plant	0	0	0	0	0	0	0	0	0	0
Heat Output-autoprod. heat plant	0	0	0	0	0	0	0	0	0	0

Data Source: Department of Minerals and Energy (Version 1)
Energy Balance Format: International Energy Agency

ENERGY BALANCE - 2002 (Disaggregated, Natural Units) - Continued										
Supply & Consumption	Crude Oil	Natural Gas	Non-Conventional	LPG	Petrol	Avgas	Jet Fuel	Other	Diesel	Residual
	tons	Liquids tons	Crude tons	kl	kl	kl	kl	Kerosene kl	kl	kl
Indigenous Production	0	235 309	0	585 225	11 196 257	209 569	2 067 974	794 791	8 815 388	8 167 481
From Other Sources	0	0	0	0	0	0	0	0	0	0
Import	33 930 260	0	0	338	283 843	3	453 549	16	567 643	83 670
Export	-105 962	0	0	0	-1 144 696	-184 718	-554 231	-48 637	-2 311 307	-5 390 476
Intl. Marine Bunkers	0	0	0	0	0	0	0	0	-241 180	-2 325 011
Stock Changes	0	0	0	0	0	0	0	0	0	0
Domestic Supply	33 824 298	235 309	0	585 562	10 335 404	24 854	1 967 292	746 169	6 830 544	535 664
Transfers	0	0	0	0	0	0	0	0	0	0
Statistical Differences	0	0	0	0	0	0	0	0	0	0
Transformation Sector	33 824 298	235 309	0	0	0	0	0	0	0	0
Public Electricity Plant	0	0	0	0	0	0	0	0	0	0
Autoproducer Electricity Plant	0	0	0	0	0	0	0	0	0	0
Public CHP Plant	0	0	0	0	0	0	0	0	0	0
Autoproducer CHP Plant	0	0	0	0	0	0	0	0	0	0
Public Heat Plant	0	0	0	0	0	0	0	0	0	0
Autoproducer Heat Plant	0	0	0	0	0	0	0	0	0	0
Heat pumps	0	0	0	0	0	0	0	0	0	0
Electric Boilers	0	0	0	0	0	0	0	0	0	0
Patent Fuel Plants	0	0	0	0	0	0	0	0	0	0
Coke Ovens	0	0	0	0	0	0	0	0	0	0
Gas Works	0	0	0	0	0	0	0	0	0	0
For Blast Furnace Gas	0	0	0	0	0	0	0	0	0	0
Petrochemical Industry	0	0	0	0	0	0	0	0	0	0
For BKB	0	0	0	0	0	0	0	0	0	0
Oil Refineries	33 824 298	235 309	4 706 470	0	0	0	0	0	0	0
Liquefaction	0	0	-4 706 470	0	0	0	0	0	0	0
Non-specified (Transformation)	0	0	0	0	0	0	0	0	0	0
Energy Sector	0	0	0	0	0	0	0	0	0	0
Coal Mines	0	0	0	0	0	0	0	0	0	0
Oil and Gas Extraction	0	0	0	0	0	0	0	0	0	0
Patent Fuel Plants	0	0	0	0	0	0	0	0	0	0
Coke Ovens	0	0	0	0	0	0	0	0	0	0
Gas Works	0	0	0	0	0	0	0	0	0	0
BKB	0	0	0	0	0	0	0	0	0	0
Oil Refineries	0	0	0	0	0	0	0	0	0	0
Own use in Elec., CHP and Heat plant	0	0	0	0	0	0	0	0	0	0
Used for Pump Storage	0	0	0	0	0	0	0	0	0	0
Nuclear Industry	0	0	0	0	0	0	0	0	0	0
Non-specified (Energy)	0	0	0	0	0	0	0	0	0	0
Distribution Losses	0	0	0	0	0	0	0	0	0	0
Final Consumption	0	0	0	585 562	10 335 404	24 854	1 967 292	746 169	6 830 544	535 664
Industry Sector	0	0	0	11 287	22 093	0	0	18 706	876 209	5 191
Iron and Steel	0	0	0	0	0	0	0	0	0	0
Chemical and Petrochemical	0	0	0	0	0	0	0	0	0	0
Non-Ferrous Metals	0	0	0	0	0	0	0	0	0	0
Non-Metallic Minerals	0	0	0	0	0	0	0	0	0	0
Transport Equipment	0	0	0	0	0	0	0	0	0	0
Machinery	0	0	0	0	0	0	0	0	0	0
Mining and Quarrying	0	0	0	9 042	18 743	0	0	15 202	656 106	3 304
Food and Tobacco	0	0	0	0	0	0	0	0	0	0
Paper Pulp and Print	0	0	0	0	0	0	0	0	0	0
Wood and Wood Products	0	0	0	0	0	0	0	0	0	0
Construction	0	0	0	2 245	3 349	0	0	3 504	220 103	1 886
Textile and Leather	0	0	0	0	0	0	0	0	0	0
Non-specified (Industry)	0	0	0	0	0	0	0	0	0	0
Transport Sector	0	0	0	40	10 184 416	24 854	1 967 292	3 529	4 819 220	2 223
International Civil Aviation	0	0	0	0	0	0	1 094 416	0	0	0
Domestic Air Transport	0	0	0	0	0	24 854	872 877	0	0	0
Road	0	0	0	40	10 182 703	0	0	3 372	4 576 371	2 223
Rail	0	0	0	0	1 713	0	0	157	242 849	0
Pipeline Transport	0	0	0	0	0	0	0	0	0	0
Internal Navigation	0	0	0	0	0	0	0	0	0	0
Non-specified (Transport)	0	0	0	0	0	0	0	0	0	0
Other Sectors	0	0	0	574 236	128 895	0	0	723 935	1 135 115	528 251
Agriculture	0	0	0	431	128 895	0	0	86 161	1 135 115	35 871
Commerce and Public Services	0	0	0	107 883	0	0	0	6 612	0	489 762
Residential	0	0	0	465 922	0	0	0	631 162	0	2 618
Non-specified (Other)	0	0	0	0	0	0	0	0	0	0
Non-Energy Use	0	0	0	0	0	0	0	0	0	0
Memo:Non-Energy Use Ind/Transf/Ener	0	0	0	0	0	0	0	0	0	0
Memo:Non-Energy Use in Transport	0	0	0	0	0	0	0	0	0	0
Memo:Non-Energy Use in Oth. Sect.	0	0	0	0	0	0	0	0	0	0
Memo:Feedst. Use in Petchern. Ind.	0	0	0	0	0	0	0	0	0	0
Elect. Output in GWh	0	0	0	0	0	0	0	0	0	0
Elect. Output-public elec. plant	0	0	0	0	0	0	0	0	0	0
Elect. Output-autoprod. elec. plant	0	0	0	0	0	0	0	0	0	0
Elect. Output-public CHP plant	0	0	0	0	0	0	0	0	0	0
Elect. Output-autoprod. CHP plant	0	0	0	0	0	0	0	0	0	0
Heat Output-public CHP plant	0	0	0	0	0	0	0	0	0	0
Heat Output-autoproducer CHP plant	0	0	0	0	0	0	0	0	0	0
Heat Output-public heat plant	0	0	0	0	0	0	0	0	0	0
Heat Output-autoprod. heat plant	0	0	0	0	0	0	0	0	0	0

Data Source: Department of Minerals and Energy (Version 1)
Energy Balance Format: International Energy Agency

ENERGY BALANCE - 2002 (Disaggregated, Natural Units) - Concluded										
Supply & Consumption	White Spirit	Lubricants	Bitumen	Paraffin Wax	Other Petroleum products	Nuclear	Hydro	Solar	Wind	Electricity
	kl	tons	tons	tons	tons	GWh	GWh	GWh	GWh	MWh
Indigenous Production	85 972	411 963	277 704	12 597	11 998	0	0	0	0	206 669 368
From Other Sources	0	0	0	0	0	0	0	0	0	0
Import	0	0	0	0	0	0	0	0	0	9 496 000
Export	0	0	0	0	0	0	0	0	0	-7 242 000
Intl. Marine Bunkers	0	0	0	0	0	0	0	0	0	0
Stock Changes	0	0	0	0	0	0	0	0	0	0
Domestic Supply	85 972	411 963	277 704	12 597	11 998	0	0	0	0	208 923 368
Transfers	0	0	0	0	0	0	0	0	0	0
Statistical Differences	0	0	0	0	0	0	0	0	0	-4 212 908
Transformation Sector	0	0	0	0	0	0	0	0	0	0
Public Electricity Plant	0	0	0	0	0	0	0	0	0	0
Autoproducer Electricity Plant	0	0	0	0	0	0	0	0	0	0
Public CHP Plant	0	0	0	0	0	0	0	0	0	0
Autoproducer CHP Plant	0	0	0	0	0	0	0	0	0	0
Public Heat Plant	0	0	0	0	0	0	0	0	0	0
Autoproducer Heat Plant	0	0	0	0	0	0	0	0	0	0
Heat pumps	0	0	0	0	0	0	0	0	0	0
Electric Boilers	0	0	0	0	0	0	0	0	0	0
Patent Fuel Plants	0	0	0	0	0	0	0	0	0	0
Coke Ovens	0	0	0	0	0	0	0	0	0	0
Gas Works	0	0	0	0	0	0	0	0	0	0
For Blast Furnace Gas	0	0	0	0	0	0	0	0	0	0
Petrochemical Industry	0	0	0	0	0	0	0	0	0	0
For BKB	0	0	0	0	0	0	0	0	0	0
Oil Refineries	0	0	0	0	0	0	0	0	0	0
Liquefaction	0	0	0	0	0	0	0	0	0	0
Non-specified (Transformation)	0	0	0	0	0	0	0	0	0	0
Energy Sector	0	0	0	0	0	0	0	0	0	14 401 226
Coal Mines	0	0	0	0	0	0	0	0	0	0
Oil and Gas Extraction	0	0	0	0	0	0	0	0	0	0
Patent Fuel Plants	0	0	0	0	0	0	0	0	0	0
Coke Ovens	0	0	0	0	0	0	0	0	0	0
Gas Works	0	0	0	0	0	0	0	0	0	0
BKB	0	0	0	0	0	0	0	0	0	0
Oil Refineries	0	0	0	0	0	0	0	0	0	11 570 810
Own use in Elec., CHP and Heat plant	0	0	0	0	0	0	0	0	0	2 830 416
Used for Pump Storage	0	0	0	0	0	0	0	0	0	0
Nuclear Industry	0	0	0	0	0	0	0	0	0	0
Non-specified (Energy)	0	0	0	0	0	0	0	0	0	0
Distribution Losses	0	0	0	0	0	0	0	0	0	13 820 000
Final Consumption	85 972	411 963	277 704	12 597	11 998	0	0	0	0	184 915 050
Industry Sector	848	47 150	157 500	560	2	0	0	0	0	115 784 730
Iron and Steel	0	0	0	0	0	0	0	0	0	20 330 990
Chemical and Petrochemical	0	0	0	0	0	0	0	0	0	9 743 910
Non-Ferrous Metals	0	0	0	0	0	0	0	0	0	15 440 740
Non-Metallic Minerals	0	0	0	0	0	0	0	0	0	2 277 090
Transport Equipment	0	0	0	0	0	0	0	0	0	88 020
Machinery	0	0	0	0	0	0	0	0	0	44 140
Mining and Quarrying	776	39 806	0	492	1	0	0	0	0	32 203 580
Food and Tobacco	0	0	0	0	0	0	0	0	0	672 970
Paper Pulp and Print	0	0	0	0	0	0	0	0	0	1 557 300
Wood and Wood Products	0	0	0	0	0	0	0	0	0	288 890
Construction	71	7 344	157 500	68	1	0	0	0	0	115 390
Textile and Leather	0	0	0	0	0	0	0	0	0	522 580
Non-specified (Industry)	0	0	0	0	0	0	0	0	0	32 499 130
Transport Sector	183	331 955	0	0	1	0	0	0	0	6 245 730
International Civil Aviation	0	0	0	0	0	0	0	0	0	0
Domestic Air Transport	0	0	0	0	0	0	0	0	0	38 290
Road	123	328 708	0	0	0	0	0	0	0	23 030
Rail	60	3 247	0	0	0	0	0	0	0	3 302 770
Pipeline Transport	0	0	0	0	0	0	0	0	0	61 430
Internal Navigation	0	0	0	0	0	0	0	0	0	7 430
Non-specified (Transport)	0	0	0	0	0	0	0	0	0	2 812 780
Other Sectors	84 941	32 858	120 204	12 037	11 995	0	0	0	0	62 884 590
Agriculture	3 651	30 439	300	0	2	0	0	0	0	4 644 040
Commerce and Public Services	81 289	2 364	119 803	12 037	11 993	0	0	0	0	18 227 270
Residential	1	65	102	0	0	0	0	0	0	30 418 480
Non-specified (Other)	0	0	0	0	0	0	0	0	0	9 594 800
Non-Energy Use	85 972	411 963	277 704	12 597	11 998	0	0	0	0	0
Memo:Non-Energy Use Ind/Transf/Ener	85 972	411 963	277 704	12 597	11 998	0	0	0	0	0
Memo:Non-Energy Use in Transport	0	0	0	0	0	0	0	0	0	0
Memo:Non-Energy Use in Oth.Sect.	0	0	0	0	0	0	0	0	0	0
Memo:Feedst.Use in Petchem. Ind.	0	0	0	0	0	0	0	0	0	0
Elect.Output in GWh	0	0	0	0	0	11 991	4 095	532	32	206 669
Elect.Output-public elec. plant	0	0	0	0	0	11 991	4 095	532	32	198 301
Elect.Output-autoprod. elec. plant	0	0	0	0	0	0	0	0	0	8 368
Elect.Output-public CHP plant	0	0	0	0	0	0	0	0	0	0
Elect.Output-autoprod. CHP plant	0	0	0	0	0	0	0	0	0	0
Heat Output-public CHP plant	0	0	0	0	0	0	0	0	0	0
Heat Output-autoproducer CHP plant	0	0	0	0	0	0	0	0	0	0
Heat Output-public heat plant	0	0	0	0	0	0	0	0	0	0
Heat Output-autoprod. heat plant	0	0	0	0	0	0	0	0	0	0

Data Source: Department of Minerals and Energy (Version 1)
Energy Balance Format: International Energy Agency

ENERGY BALANCE - 2001 (Disaggregated, Natural Units)										
Supply & Consumption	Hard Coal	Coking Coal	Bituminous Coal	Coke oven coke	Gasworks Gas	Coke oven Gas	Blast Furnace Gas	Solid Biomass	Natural Gas	Crude + NGLs + Feedstocks
	tons	tons	tons	tons	TJ	TJ	TJ	TJ	TJ	tons
Indigenous Production	223 560 276	1 455 190	222 105 086	1 606 783	41 552	14 867	28 459	237 400	84 478	249 575
From Other Sources	0	0	0	0	0	0	0	0	0	0
Import	1 125 020	1 125 020	0	0	0	0	0	0	0	18 981 768
Export	-69 210 852	-970 493	-68 240 359	0	0	0	0	0	0	-184 263
Intl. Marine Bunkers	0	0	0	0	0	0	0	0	0	0
Stock Changes	1 926 189	0	1 926 189	0	0	0	0	0	0	0
Domestic Supply	157 400 633	1 609 717	155 790 916	1 606 783	41 552	14 867	28 459	237 400	84 478	19 047 080
Transfers	0	0	0	0	0	0	0	0	0	0
Statistical Differences	1 370 436	-1 492 569	2 863 005	0	0	0	0	0	0	0
Transformation Sector	134 550 780	2 745 527	131 805 253	382 082	0	0	0	47 000	84 478	19 047 080
Public Electricity Plant	87 362 397	0	87 362 397	0	0	0	0	0	0	0
Autoproducer Electricity Plant	1 912 187	0	1 912 187	0	0	0	0	0	0	0
Public CHP Plant	0	0	0	0	0	0	0	0	0	0
Autoproducer CHP Plant	0	0	0	0	0	0	0	47 000	0	0
Public Heat Plant	0	0	0	0	0	0	0	0	0	0
Autoproducer Heat Plant	0	0	0	0	0	0	0	0	0	0
Heat pumps	0	0	0	0	0	0	0	0	0	0
Electric Boilers	0	0	0	0	0	0	0	0	0	0
Patent Fuel Plants	0	0	0	0	0	0	0	0	0	0
Coke Ovens	2 745 527	2 745 527	0	0	0	0	0	0	0	0
Gas Works	848 623	0	848 623	0	0	0	0	0	0	0
For Blast Furnace Gas	0	0	0	382 082	0	0	0	0	0	0
Petrochemical Industry	0	0	0	0	0	0	0	0	0	0
For BKB	0	0	0	0	0	0	0	0	0	0
Oil Refineries	0	0	0	0	0	0	0	0	0	23 661 580
Liquefaction	41 682 046	0	41 682 046	0	0	0	0	0	84 478	-4 614 500
Non-specified (Transformation)	0	0	0	0	0	0	0	0	0	0
Energy Sector	0	0	0	0	0	0	0	0	0	0
Coal Mines	0	0	0	0	0	0	0	0	0	0
Oil and Gas Extraction	0	0	0	0	0	0	0	0	0	0
Patent Fuel Plants	0	0	0	0	0	0	0	0	0	0
Coke Ovens	0	0	0	0	0	0	0	0	0	0
Gas Works	0	0	0	0	0	0	0	0	0	0
BKB	0	0	0	0	0	0	0	0	0	0
Oil Refineries	0	0	0	0	0	0	0	0	0	0
Own use in Elec., CHP and Heat plant	0	0	0	0	0	0	0	0	0	0
Used for Pump Storage	0	0	0	0	0	0	0	0	0	0
Nuclear Industry	0	0	0	0	0	0	0	0	0	0
Non-specified (Energy)	0	0	0	0	0	0	0	0	0	0
Distribution Losses	0	0	0	0	0	0	0	0	0	0
Final Consumption	21 479 417	356 799	21 122 658	1 224 701	41 552	14 867	28 459	190 400	0	0
Industry Sector	17 574 288	297 404	17 276 884	1 224 701	41 241	14 867	28 459	0	0	0
Iron and Steel	4 372 966	20 656	4 352 310	1 224 701	10 586	14 867	28 459	0	0	0
Chemical and Petrochemical	7 212 954	0	7 212 954	0	12 883	0	0	0	0	0
Non-Ferrous Metals	0	0	0	0	2 354	0	0	0	0	0
Non-Metallic Minerals	1 072 899	276 748	796 151	0	5 927	0	0	0	0	0
Transport Equipment	0	0	0	0	384	0	0	0	0	0
Machinery	0	0	0	0	824	0	0	0	0	0
Mining and Quarrying	1 528 228	0	1 528 228	0	395	0	0	0	0	0
Food and Tobacco	0	0	0	0	1 305	0	0	0	0	0
Paper Pulp and Print	0	0	0	0	3 096	0	0	0	0	0
Wood and Wood Products	0	0	0	0	71	0	0	0	0	0
Construction	0	0	0	0	0	0	0	0	0	0
Textile and Leather	0	0	0	0	19	0	0	0	0	0
Non-specified (Industry)	3 387 241	0	3 387 241	0	3 398	0	0	0	0	0
Transport Sector	2 492	0	2 492	0	30	0	0	0	0	0
International Civil Aviation	0	0	0	0	0	0	0	0	0	0
Domestic Air Transport	0	0	0	0	30	0	0	0	0	0
Road	0	0	0	0	0	0	0	0	0	0
Rail	0	0	0	0	0	0	0	0	0	0
Pipeline Transport	0	0	0	0	0	0	0	0	0	0
Internal Navigation	0	0	0	0	0	0	0	0	0	0
Non-specified (Transport)	2 492	0	2 492	0	0	0	0	0	0	0
Other Sectors	3 902 637	59 355	3 843 282	0	281	0	0	190 400	0	0
Agriculture	100 634	0	100 634	0	0	0	0	0	0	0
Commerce and Public Services	1 315 140	19 785	1 295 355	0	241	0	0	0	0	0
Residential	2 486 863	39 570	2 447 293	0	0	0	0	190 400	0	0
Non-specified (Other)	0	0	0	0	40	0	0	0	0	0
Non-Energy Use	0	0	0	0	0	0	0	0	0	0
Memo:Non-Energy Use Ind/Transf/Ener	0	0	0	0	0	0	0	0	0	0
Memo:Non-Energy Use in Transport	0	0	0	0	0	0	0	0	0	0
Memo:Non-Energy Use in Oth. Sect.	0	0	0	0	0	0	0	0	0	0
Memo:Feedst. Use in Petchem. Ind.	7 212 954	44 374	7 168 580	0	0	0	0	0	0	0
Elect. Output in GWh	183 542	0	183 542	0	0	0	0	0	0	0
Elect. Output-public elec. plant	175 223	0	175 223	0	0	0	0	0	0	0
Elect. Output-autoprod. elec. plant	8 319	0	8 319	0	0	0	0	0	0	0
Elect. Output-public CHP plant	0	0	0	0	0	0	0	0	0	0
Elect. Output-autoprod. CHP plant	0	0	0	0	0	0	0	0	0	0
Heat Output-public CHP plant	0	0	0	0	0	0	0	0	0	0
Heat Output-autoproducer CHP plant	0	0	0	0	0	0	0	0	0	0
Heat Output-public heat plant	0	0	0	0	0	0	0	0	0	0
Heat Output-autoprod. heat plant	0	0	0	0	0	0	0	0	0	0

Data Source: Department of Minerals and Energy (Version 3)
Energy Balance Format: International Energy Agency

ENERGY BALANCE - 2001 (Disaggregated, Natural Units) - Continued										
Supply & Consumption	Crude Oil	Natural Gas	Non-Conventional	LPG	Petrol	Avgas	Jet Fuel	Other	Diesel	Residual
	tons	Liquids	Crude	kl	kl	kl	kl	Kerosene	kl	Fuel
		tons	tons							
Indigenous Production	0	249 575	0	599 508	11 740 861	222 426	2 071 056	807 601	9 116 141	5 221 037
From Other Sources	0	0	0	0	0	0	0	0	0	0
Import	18 981 768	0	0	0	354 669	0	190 058	0	781 413	18 042
Export	-184 263	0	0	0	-1 761 203	-196 459	-338 717	-21 120	-3 099 197	-2 172 371
Intl. Marine Bunkers	0	0	0	0	0	0	0	0	-312 341	-2 502 963
Stock Changes	0	0	0	0	0	0	0	0	0	0
Domestic Supply	18 797 505	249 575	0	599 508	10 334 327	25 967	1 922 397	786 481	6 486 015	563 745
Transfers	0	0	0	0	0	0	0	0	0	0
Statistical Differences	0	0	0	0	0	0	0	0	0	0
Transformation Sector	18 797 505	249 575	0	0	0	0	0	0	0	0
Public Electricity Plant	0	0	0	0	0	0	0	0	0	0
Autoproducer Electricity Plant	0	0	0	0	0	0	0	0	0	0
Public CHP Plant	0	0	0	0	0	0	0	0	0	0
Autoproducer CHP Plant	0	0	0	0	0	0	0	0	0	0
Public Heat Plant	0	0	0	0	0	0	0	0	0	0
Autoproducer Heat Plant	0	0	0	0	0	0	0	0	0	0
Heat pumps	0	0	0	0	0	0	0	0	0	0
Electric Boilers	0	0	0	0	0	0	0	0	0	0
Patent Fuel Plants	0	0	0	0	0	0	0	0	0	0
Coke Ovens	0	0	0	0	0	0	0	0	0	0
Gas Works	0	0	0	0	0	0	0	0	0	0
For Blast Furnace Gas	0	0	0	0	0	0	0	0	0	0
Petrochemical Industry	0	0	0	0	0	0	0	0	0	0
For BKB	0	0	0	0	0	0	0	0	0	0
Oil Refineries	18 797 505	249 575	4 614 500	0	0	0	0	0	0	0
Liquefaction	0	0	-4 614 500	0	0	0	0	0	0	0
Non-specified (Transformation)	0	0	0	0	0	0	0	0	0	0
Energy Sector	0	0	0	0	0	0	0	0	0	0
Coal Mines	0	0	0	0	0	0	0	0	0	0
Oil and Gas Extraction	0	0	0	0	0	0	0	0	0	0
Patent Fuel Plants	0	0	0	0	0	0	0	0	0	0
Coke Ovens	0	0	0	0	0	0	0	0	0	0
Gas Works	0	0	0	0	0	0	0	0	0	0
BKB	0	0	0	0	0	0	0	0	0	0
Oil Refineries	0	0	0	0	0	0	0	0	0	0
Own use in Elec., CHP and Heat plant	0	0	0	0	0	0	0	0	0	0
Used for Pump Storage	0	0	0	0	0	0	0	0	0	0
Nuclear Industry	0	0	0	0	0	0	0	0	0	0
Non-specified (Energy)	0	0	0	0	0	0	0	0	0	0
Distribution Losses	0	0	0	0	0	0	0	0	0	0
Final Consumption	0	0	0	599 508	10 334 327	25 967	1 922 397	786 481	6 486 015	563 745
Industry Sector	0	0	0	9 720	24 612	0	0	17 896	843 432	6 767
Iron and Steel	0	0	0	0	0	0	0	0	0	0
Chemical and Petrochemical	0	0	0	0	0	0	0	0	0	0
Non-Ferrous Metals	0	0	0	0	0	0	0	0	0	0
Non-Metallic Minerals	0	0	0	0	0	0	0	0	0	0
Transport Equipment	0	0	0	0	0	0	0	0	0	0
Machinery	0	0	0	0	0	0	0	0	0	0
Mining and Quarrying	0	0	0	7 268	20 769	0	0	13 786	591 391	4 483
Food and Tobacco	0	0	0	0	0	0	0	0	0	0
Paper Pulp and Print	0	0	0	0	0	0	0	0	0	0
Wood and Wood Products	0	0	0	0	0	0	0	0	0	0
Construction	0	0	0	2 452	3 843	0	0	4 111	252 041	2 283
Textile and Leather	0	0	0	0	0	0	0	0	0	0
Non-specified (Industry)	0	0	0	0	0	0	0	0	0	0
Transport Sector	0	0	0	249	10 199 018	25 967	1 922 397	4 937	4 527 041	411
International Civil Aviation	0	0	0	0	0	0	1 103 220	0	0	0
Domestic Air Transport	0	0	0	0	0	25 967	819 177	0	0	0
Road	0	0	0	249	10 197 289	0	0	4 299	4 319 312	411
Rail	0	0	0	0	1 730	0	0	638	207 729	0
Pipeline Transport	0	0	0	0	0	0	0	0	0	0
Internal Navigation	0	0	0	0	0	0	0	0	0	0
Non-specified (Transport)	0	0	0	0	0	0	0	0	0	0
Other Sectors	0	0	0	589 538	110 696	0	0	763 648	1 115 542	556 568
Agriculture	0	0	0	4 899	110 696	0	0	81 516	1 115 542	37 653
Commerce and Public Services	0	0	0	108 534	0	0	0	4 711	0	518 915
Residential	0	0	0	476 105	0	0	0	677 420	0	0
Non-specified (Other)	0	0	0	0	0	0	0	0	0	0
Non-Energy Use	0	0	0	0	0	0	0	0	0	0
Memo:Non-Energy Use Ind/Transf/Ener	0	0	0	0	0	0	0	0	0	0
Memo:Non-Energy Use in Transport	0	0	0	0	0	0	0	0	0	0
Memo:Non-Energy Use in Oth. Sect.	0	0	0	0	0	0	0	0	0	0
Memo:Feedst. Use in Petchem. Ind.	0	0	0	0	0	0	0	0	0	0
Elect. Output in GWh	0	0	0	0	0	0	0	0	0	0
Elect. Output-public elec. plant	0	0	0	0	0	0	0	0	0	0
Elect. Output-autoprod. elec. plant	0	0	0	0	0	0	0	0	0	0
Elect. Output-public CHP plant	0	0	0	0	0	0	0	0	0	0
Elect. Output-autoprod. CHP plant	0	0	0	0	0	0	0	0	0	0
Heat Output-public CHP plant	0	0	0	0	0	0	0	0	0	0
Heat Output-autoproducer CHP plant	0	0	0	0	0	0	0	0	0	0
Heat Output-public heat plant	0	0	0	0	0	0	0	0	0	0
Heat Output-autoprod. heat plant	0	0	0	0	0	0	0	0	0	0

Data Source: Department of Minerals and Energy (Version 3)
Energy Balance Format: International Energy Agency

ENERGY BALANCE - 2001 (Disaggregated, Natural Units) - Concluded										
Supply & Consumption	White Spirit	Lubricants	Bitumen	Paraffin Wax	Other Petroleum products	Nuclear	Hydro	Solar	Wind	Electricity
	kl	tons	tons	tons	tons	GWh	GWh	GWh	GWh	MWh
Indigenous Production	100 623	375 436	255 469	7 812	12 571	0	0	0	0	197 908 772
From Other Sources	0	0	0	0	0	0	0	0	0	0
Import	0	0	0	0	0	0	0	0	0	9 200 000
Export	0	0	0	0	0	0	0	0	0	-6 996 000
Intl. Marine Bunkers	0	0	0	0	0	0	0	0	0	0
Stock Changes	0	0	0	0	0	0	0	0	0	0
Domestic Supply	100 623	375 436	255 469	7 812	12 571	0	0	0	0	200 112 772
Transfers	0	0	0	0	0	0	0	0	0	0
Statistical Differences	0	0	0	0	0	0	0	0	0	-8 401 617
Transformation Sector	0	0	0	0	0	0	0	0	0	0
Public Electricity Plant	0	0	0	0	0	0	0	0	0	0
Autoproducer Electricity Plant	0	0	0	0	0	0	0	0	0	0
Public CHP Plant	0	0	0	0	0	0	0	0	0	0
Autoproducer CHP Plant	0	0	0	0	0	0	0	0	0	0
Public Heat Plant	0	0	0	0	0	0	0	0	0	0
Autoproducer Heat Plant	0	0	0	0	0	0	0	0	0	0
Heat pumps	0	0	0	0	0	0	0	0	0	0
Electric Boilers	0	0	0	0	0	0	0	0	0	0
Patent Fuel Plants	0	0	0	0	0	0	0	0	0	0
Coke Ovens	0	0	0	0	0	0	0	0	0	0
Gas Works	0	0	0	0	0	0	0	0	0	0
For Blast Furnace Gas	0	0	0	0	0	0	0	0	0	0
Petrochemical Industry	0	0	0	0	0	0	0	0	0	0
For BKB	0	0	0	0	0	0	0	0	0	0
Oil Refineries	0	0	0	0	0	0	0	0	0	0
Liquefaction	0	0	0	0	0	0	0	0	0	0
Non-specified (Transformation)	0	0	0	0	0	0	0	0	0	0
Energy Sector	0	0	0	0	0	0	0	0	0	14 246 631
Coal Mines	0	0	0	0	0	0	0	0	0	0
Oil and Gas Extraction	0	0	0	0	0	0	0	0	0	0
Patent Fuel Plants	0	0	0	0	0	0	0	0	0	0
Coke Ovens	0	0	0	0	0	0	0	0	0	0
Gas Works	0	0	0	0	0	0	0	0	0	0
BKB	0	0	0	0	0	0	0	0	0	0
Oil Refineries	0	0	0	0	0	0	0	0	0	11 579 901
Own use in Elec., CHP and Heat plant	0	0	0	0	0	0	0	0	0	2 666 730
Used for Pump Storage	0	0	0	0	0	0	0	0	0	0
Nuclear Industry	0	0	0	0	0	0	0	0	0	0
Non-specified (Energy)	0	0	0	0	0	0	0	0	0	0
Distribution Losses	0	0	0	0	0	0	0	0	0	16 251 000
Final Consumption	100 623	375 436	255 469	7 812	12 571	0	0	0	0	178 016 758
Industry Sector	958	44 102	149 353	73	7	0	0	0	0	106 468 730
Iron and Steel	0	0	0	0	0	0	0	0	0	18 554 490
Chemical and Petrochemical	0	0	0	0	0	0	0	0	0	9 405 170
Non-Ferrous Metals	0	0	0	0	0	0	0	0	0	15 172 420
Non-Metallic Minerals	0	0	0	0	0	0	0	0	0	2 038 700
Transport Equipment	0	0	0	0	0	0	0	0	0	82 730
Machinery	0	0	0	0	0	0	0	0	0	51 730
Mining and Quarrying	873	37 770	34 350	22	7	0	0	0	0	31 690 720
Food and Tobacco	0	0	0	0	0	0	0	0	0	671 890
Paper Pulp and Print	0	0	0	0	0	0	0	0	0	1 594 170
Wood and Wood Products	0	0	0	0	0	0	0	0	0	260 950
Construction	85	6 332	115 002	51	1	0	0	0	0	31 800
Textile and Leather	0	0	0	0	0	0	0	0	0	487 510
Non-specified (Industry)	0	0	0	0	0	0	0	0	0	26 426 450
Transport Sector	181	300 816	9 448	0	2	0	0	0	0	5 562 490
International Civil Aviation	0	0	0	0	0	0	0	0	0	0
Domestic Air Transport	0	0	0	0	0	0	0	0	0	37 000
Road	101	296 845	9 448	0	2	0	0	0	0	22 070
Rail	81	3 971	0	0	0	0	0	0	0	3 481 850
Pipeline Transport	0	0	0	0	0	0	0	0	0	50 570
Internal Navigation	0	0	0	0	0	0	0	0	0	7 740
Non-specified (Transport)	0	0	0	0	0	0	0	0	0	1 963 260
Other Sectors	99 483	30 519	96 668	7 739	12 562	0	0	0	0	65 985 538
Agriculture	2 783	27 762	-1	0	3	0	0	0	0	4 175 359
Commerce and Public Services	96 674	2 730	96 669	7 739	12 569	0	0	0	0	18 300 661
Residential	26	27	0	0	0	0	0	0	0	34 622 587
Non-specified (Other)	0	0	0	0	0	0	0	0	0	8 886 931
Non-Energy Use	100 623	375 436	255 469	7 812	12 571	0	0	0	0	0
Memo:Non-Energy Use Ind/Transf/Ener	100 623	375 436	255 469	7 812	12 571	0	0	0	0	0
Memo:Non-Energy Use in Transport	0	0	0	0	0	0	0	0	0	0
Memo:Non-Energy Use in Oth.Sect.	0	0	0	0	0	0	0	0	0	0
Memo:Feedst. Use in Petchem. Ind.	0	0	0	0	0	0	0	0	0	0
Elect. Output in GWh	0	0	0	0	0	10 719	3 648	0	0	197 909
Elect. Output-public elec. plant	0	0	0	0	0	10 719	3 648	0	0	189 590
Elect. Output-autoprod. elec. plant	0	0	0	0	0	0	0	0	0	8 319
Elect. Output-public CHP plant	0	0	0	0	0	0	0	0	0	0
Elect. Output-autoprod. CHP plant	0	0	0	0	0	0	0	0	0	0
Heat Output-public CHP plant	0	0	0	0	0	0	0	0	0	0
Heat Output-autoproducer CHP plant	0	0	0	0	0	0	0	0	0	0
Heat Output-public heat plant	0	0	0	0	0	0	0	0	0	0
Heat Output-autoprod. heat plant	0	0	0	0	0	0	0	0	0	0

Data Source: Department of Minerals and Energy (Version 3)
Energy Balance Format: International Energy Agency

Notes

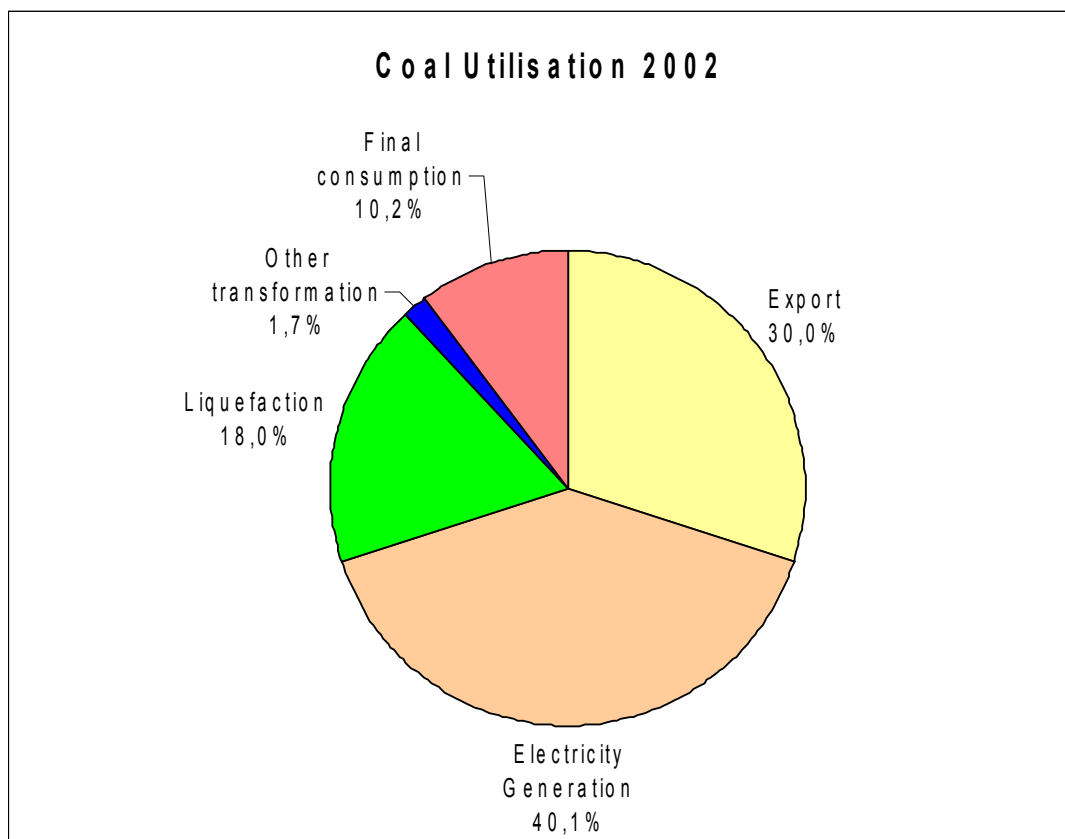
Section 4

Coal

South Africa has large coal reserves, estimated to be about 55 367 Mt in 2001 (BP Statistical Review of World Energy), which is 5,6% of total world reserves. Much of the coal is mined in open cast mines and is low in sulphur (less than 1%) and high in ash (up to 40%). Most of this coal is used for the generation of electricity, and in the petrochemical industry transformed into liquid fuels. Over 90% of South Africa's electricity comes from coal fired power stations.

Coal Utilisation- Kt				
	2001	%	2002	%
Export	69 211	30,7%	69 231	30,0%
Electricity Generation	89 275	39,6%	92 726	40,1%
Liquefaction	41 682	18,5%	41 515	18,0%
Other transformation	3 594	1,6%	3 878	1,7%
Final consumption	21 479	9,5%	23 681	10,2%
Total	225 241		231 031	

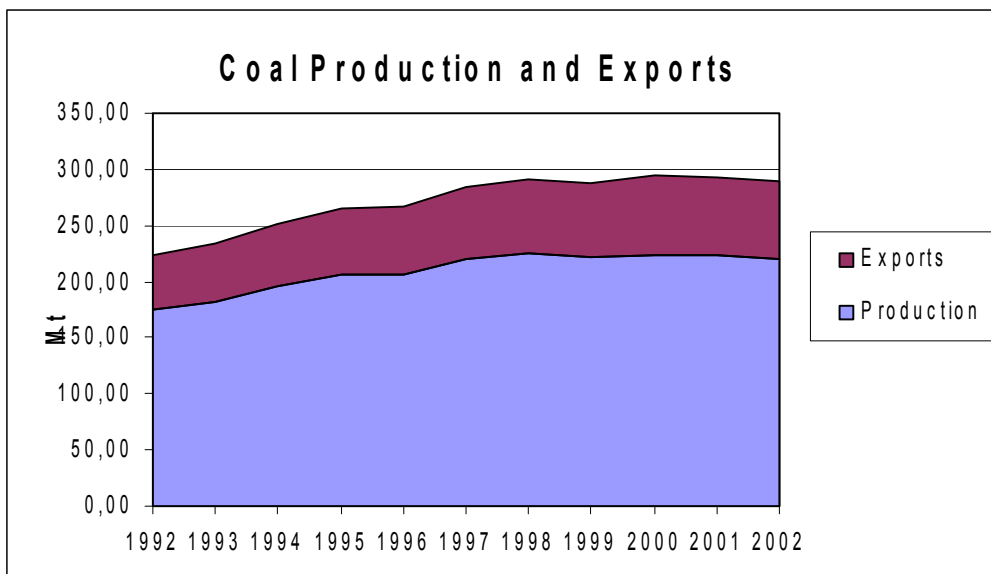
Source: National Energy Balances



Production and Exports of Coal-Mt

Year	Bituminous		Anthracite		Total	
	Production	Exports	Production	Exports	Production	Exports
1992	171,10	47,38	3,32	2,26	174,42	49,64
1993	179,03	50,10	3,25	2,09	182,28	52,19
1994	193,52	52,79	2,22	2,04	195,75	54,84
1995	204,07	57,66	2,14	2,02	206,21	59,68
1996	203,90	58,02	2,47	2,20	206,36	60,22
1997	217,87	63,15	2,00	1,65	219,87	64,80
1998	222,79	64,76	2,04	1,38	224,83	66,13
1999	220,40	63,80	1,87	1,11	222,27	64,91
2000	222,52	68,78	1,62	1,12	224,14	69,91
2001	222,11	68,24	1,46	0,97	223,56	69,21
2002	218,91	68,47	1,30	0,76	220,21	69,23

Sources: Mineral Bureau

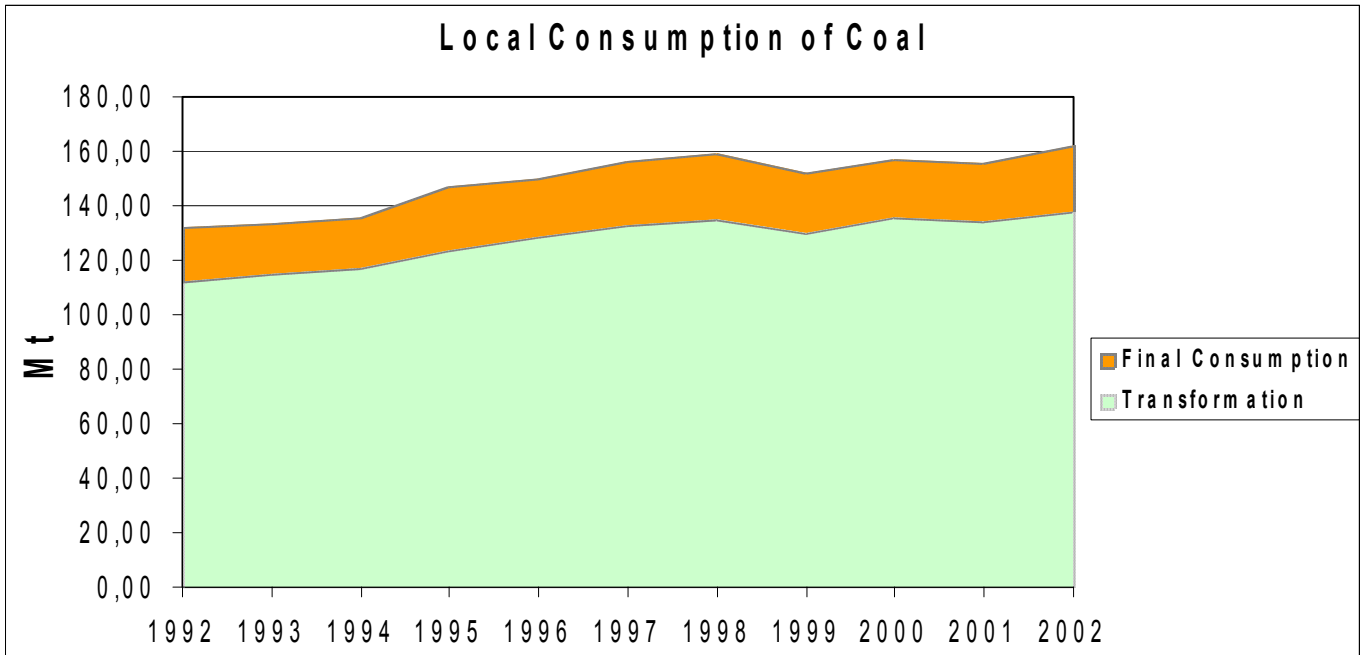


Primary Supply of Coal-Mt

Year	Available	Import	Statistical Differences	Stockpiling	Transformation	Energy Sector	Final Consumption
1992	134,45	0,00	2,49	0,00	112,27	0,00	19,68
1993	136,50	0,00	2,82	0,00	115,15	0,00	18,53
1994	140,97	0,00	5,43	0,00	116,84	0,00	18,70
1995	146,53	0,36	0,00	0,31	123,58	0,00	23,63
1996	146,14	0,43	-0,77	2,84	128,36	0,00	21,81
1997	155,87	0,43	-2,33	-2,45	132,85	0,00	23,33
1998	161,68	1,17	-8,51	-12,22	135,31	0,00	23,82
1999	148,20	0,86	-4,54	-1,68	130,21	0,00	21,72
2000	154,29	1,11	-0,14	1,74	135,53	0,00	21,74
2001	154,35	1,13	1,37	1,93	134,55	0,00	21,48
2002	150,98	1,58	-10,20	-0,96	138,12	0,00	23,68

Source: National Energy Balances

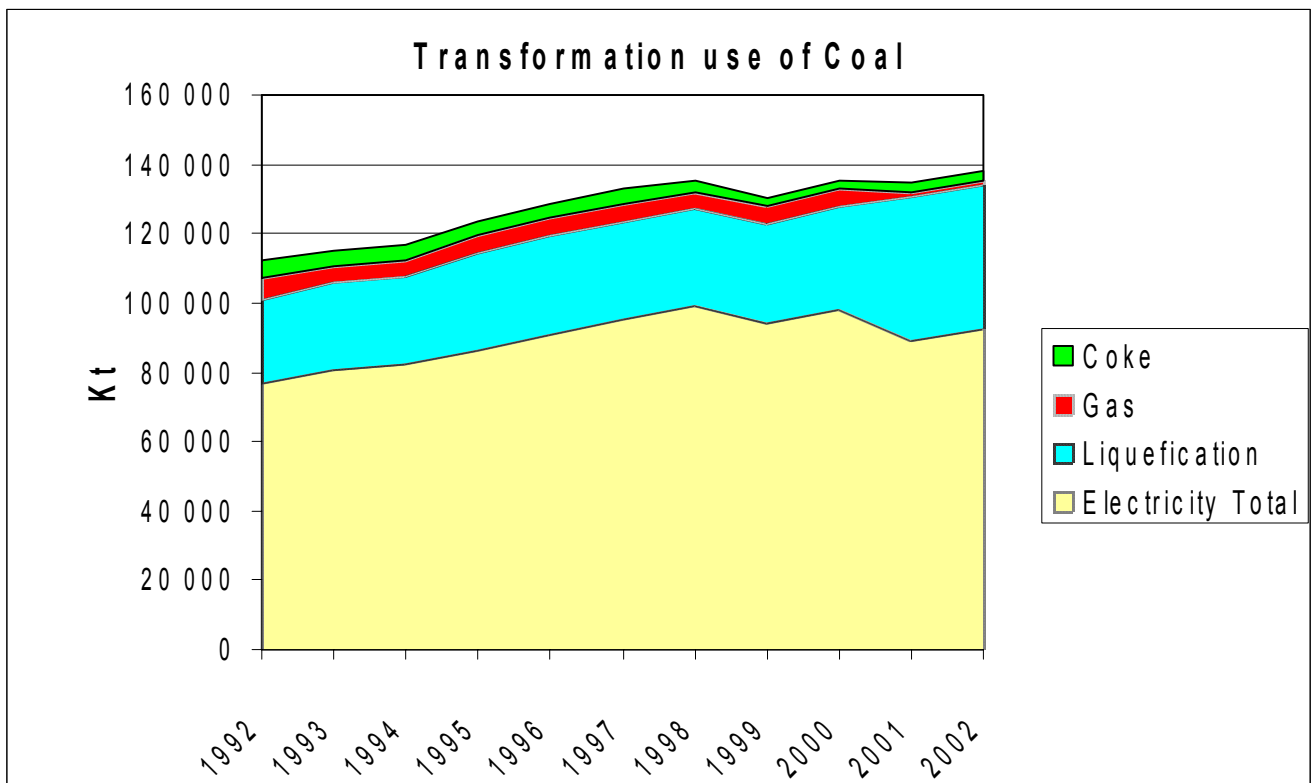
Available=final consumption + energy sector + transformation - stockpiling (stock changes) + statistical differences - imports



Transformation Sector Coal Use-Kt

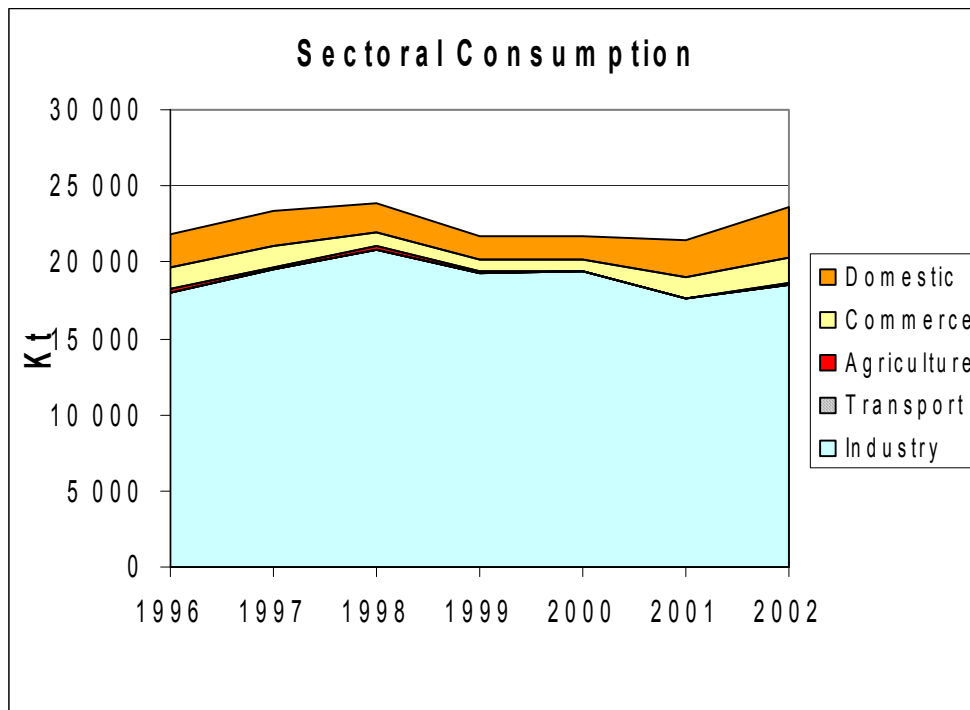
Year	Electricity		Electricity Total	Liquefaction	Gas	Coke	Total
	Eskom	Other electricity					
1992	72 919	3 917	76 836	24 457	6 112	4 866	112 271
1993	77 294	3 407	80 701	25 317	4 433	4 702	115 154
1994	79 140	3 424	82 564	25 506	4 483	4 283	116 836
1995	82 603	3 833	86 436	28 051	4 868	4 220	123 576
1996	87 214	3 679	90 893	28 526	4 982	3 958	128 359
1997	91 870	3 781	95 651	27 766	5 363	4 072	132 853
1998	95 556	4 075	99 631	27 541	4 799	3 337	135 309
1999	90 057	4 208	94 265	28 557	4 938	2 446	130 207
2000	93 845	4 298	98 143	29 878	4 941	2 569	135 532
2001	87 362	1 912	89 275	41 682	849	2 746	134 551
2002	90 619	2 107	92 726	41 515	952	2 926	138 119

Source: National Energy Balances



Final Demand for Coal by Sector- Kt						
Year	Industry	Transport	Agriculture	Commerce	Domestic	Total
1996	18 039	23	242	1 302	2 200	21 807
1997	19 479	2	241	1 356	2 250	23 327
1998	20 814	23	182	935	1 870	23 824
1999	19 289	0	100	777	1 553	21 718
2000	19 364	0	69	770	1 541	21 744
2001	17 574	2	101	1 315	2 487	21 479
2002	18 564	0	90	1 694	3 332	23 681

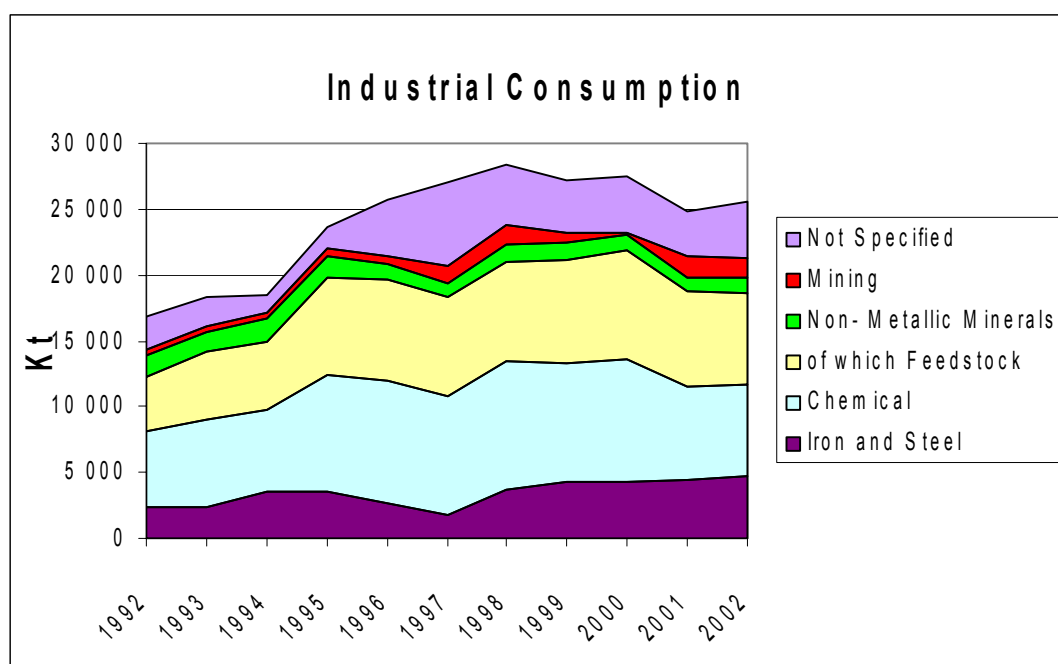
Source: National Energy Balances



Industrial Sector Use of Coal-kt

Year	Iron and Steel	Chemical	of which Feedstock	Non-Metallic Minerals	Mining	Not Specified	Total
1992	2 294	5 809	4 148	1 597	506	2 530	12 736
1993	2 433	6 540	5 165	1 470	470	2 257	13 171
1994	3 487	6 294	5 203	1 723	388	1 430	13 323
1995	3 507	8 929	7 349	1 607	603	1 708	16 354
1996	2 709	9 290	7 625	1 206	555	4 280	18 039
1997	1 758	8 973	7 617	1 072	1 248	6 428	19 479
1998	3 747	9 702	7 555	1 259	1 517	4 589	20 814
1999	4 332	8 974	7 834	1 298	751	3 934	19 289
2000	4 277	9 376	8 196	1 248	145	4 318	19 364
2001	4 373	7 213	7 213	1 073	1 528	3 387	17 574
2002	4 728	6 961	6 961	1 079	1 508	4 287	18 564

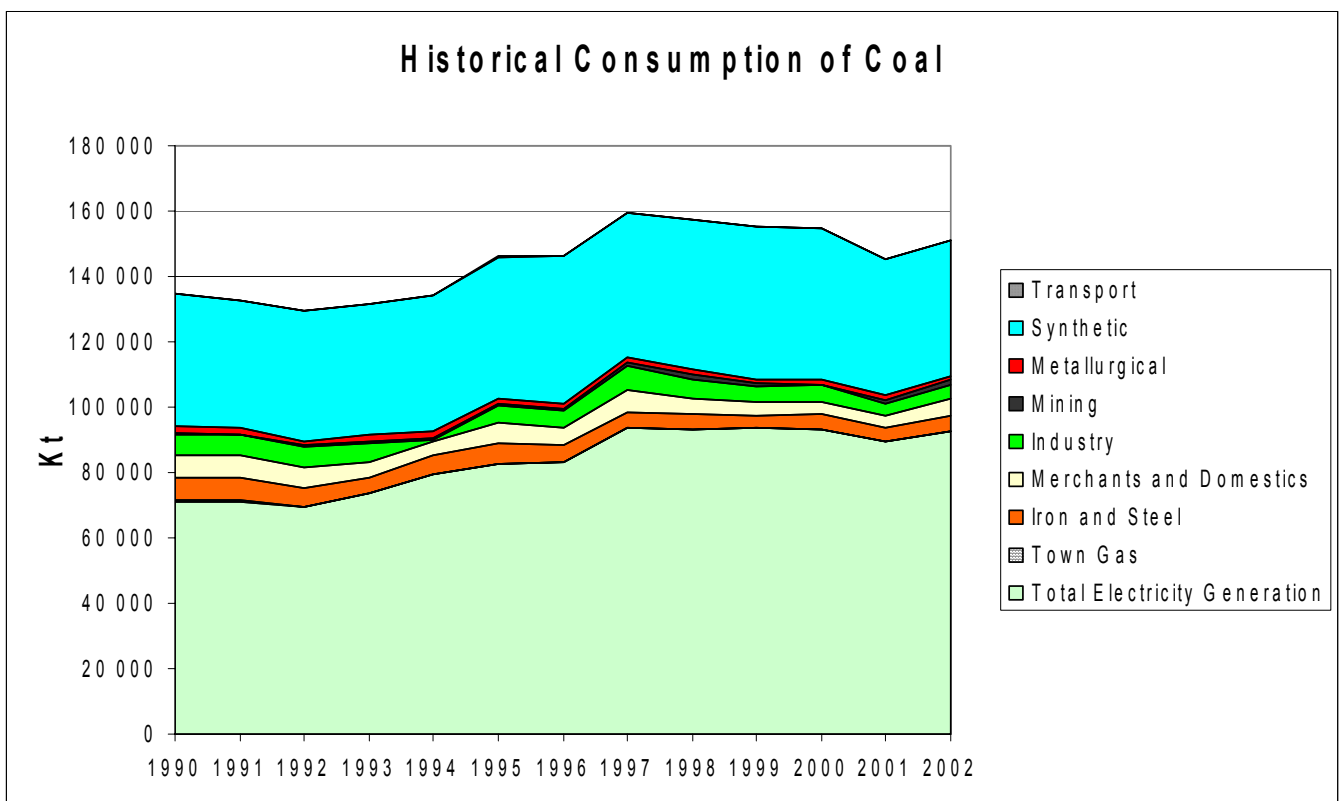
Source: National Energy Balances



Historical Consumption of Coal

Year	Electricity Generation		Merchants and Industry										Total Inland Consumption
	Eskom	Other	Total Electricity Generation	Town Gas	Iron and Steel	Domestics	Industry	Mining	Metallurgical	Synthetic	Transport		
1990	69 075	2 176	71 251	116	6 953	6 953	6 174	452	2 533	40 287	69	134 797	
1991	69 248	2 039	71 287	49	6 826	7 095	6 075	422	1 696	39 120	36	132 604	
1992	67 389	1 882	69 271	45	5 791	6 451	6 177	506	1 370	39 960	9	129 580	
1993	72 206	1 389	73 595	45	4 937	4 823	5 457	470	2 142	40 249	94	131 812	
1994	76 998	2 249	79 247	62	5 767	4 415	517	388	2 003	41 734	42	134 174	
1995	80 629	2 193	82 821	60	5 822	6 674	5 172	603	1 509	43 356	54	146 071	
1996	81 274	2 100	83 374	10	4 877	5 269	5 557	506	1 313	45 640	17	146 554	
1997	91 272	2 264	93 535		4 725	6 787	7 325	1 257	1 719	44 329	2	159 679	
1998	91 049	2 213	93 262	37	4 350	4 749	6 272	1 517	1 620	45 544	23	157 374	
1999	91 768	1 719	93 487	0,4	3 678	4 268	5 076	764	1 406	46 559		155 238	
2000	91 811	1 556	93 367	0	4 465	3 920	5 175	145	1 272	46 335		154 680	
2001	87 362	1 912	89 274	0	4 373	3 802	3 387	1 528	1 073	41 682	2	145 122	
2002	90 619	2 107	92 726	0	4 728	5 026	4 287	1 508	1 079	41 515		150 870	

Source: Minerals Bureau

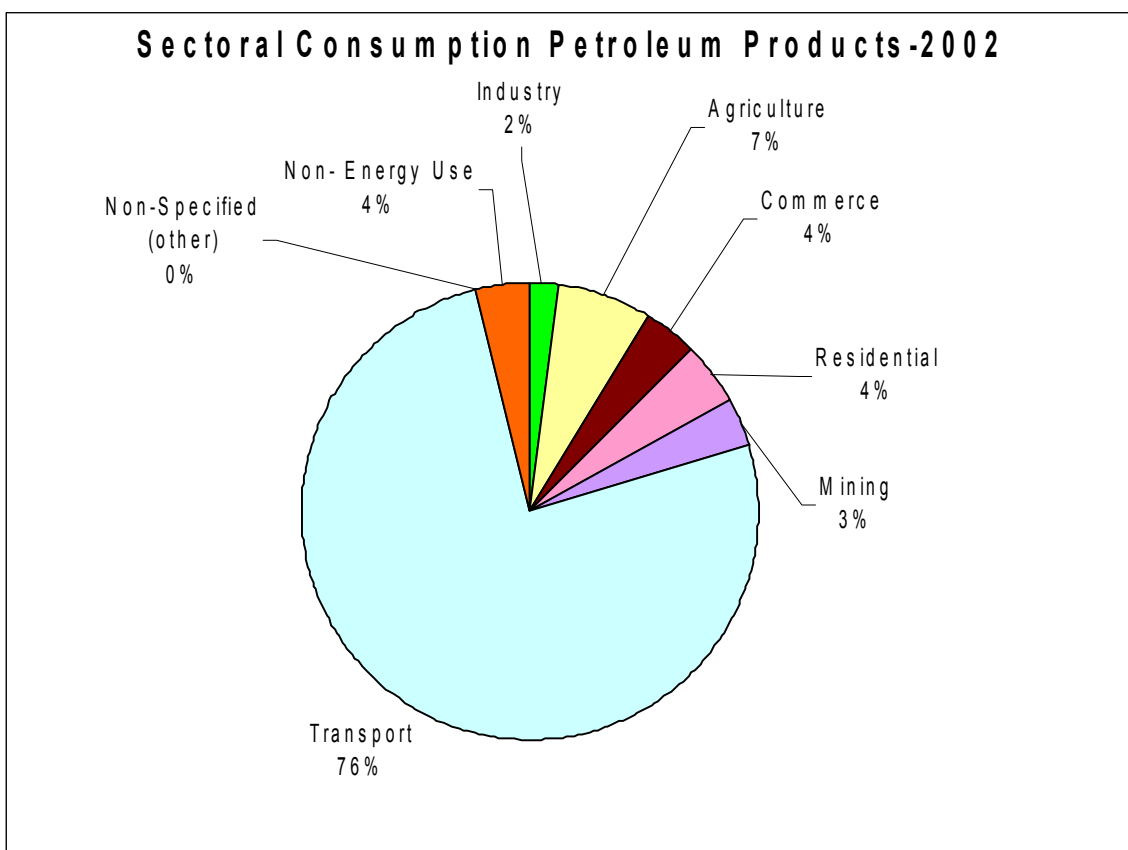


Notes

Section 5

Oil

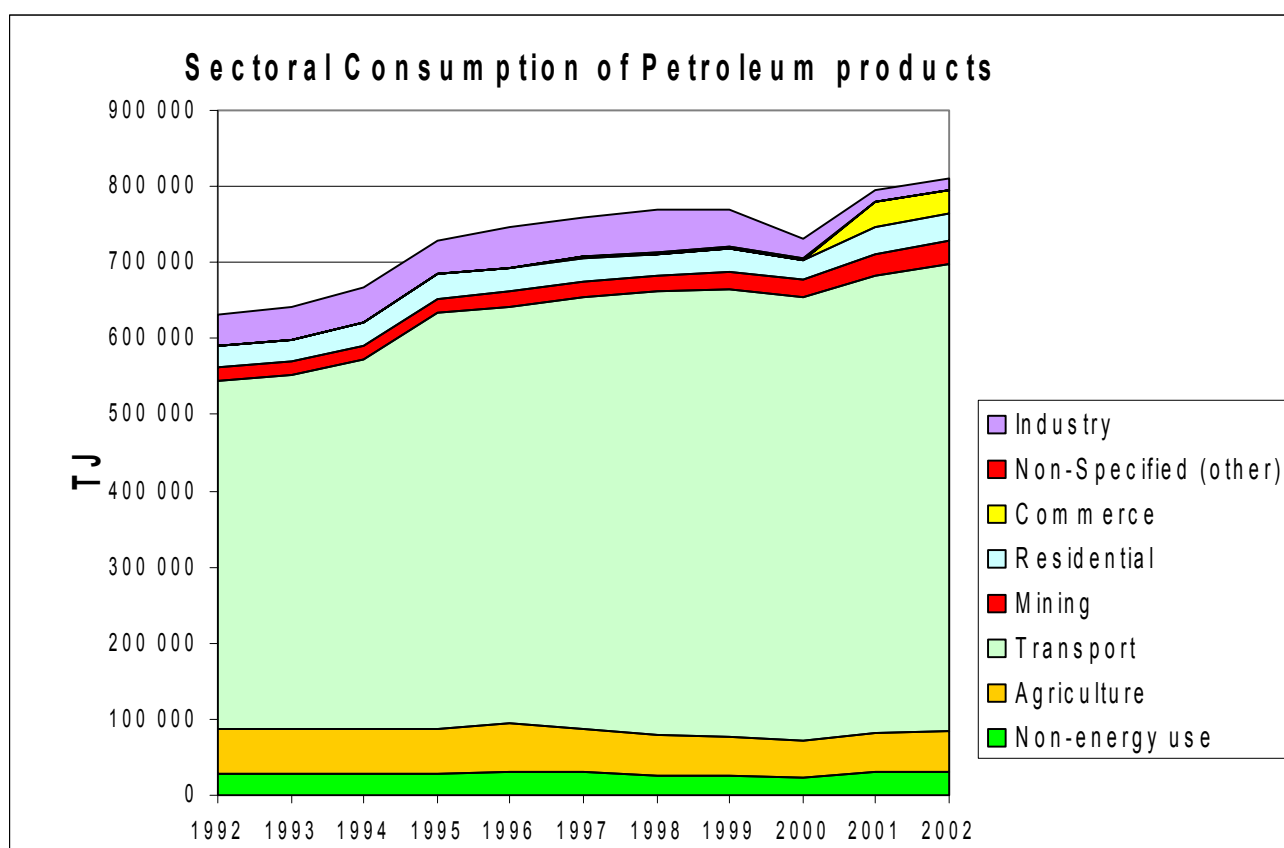
South Africa relies heavily on imported crude oil for its liquid fuel demands, supplemented by Sasol's process of liquefaction from coal to liquid fuels. There are limited reserves of oil and gas off the coast of Mossel Bay, which are exploited by PetroSA. Petrol and diesel are the two major liquid fuels used, and in 2002 accounted for about 49% of the domestic supply of petroleum products. The transport sector in turn accounts for about 76% of the consumption of petroleum products.



Sectoral Consumption of Petroleum Products-TJ

Year	Non-energy use						Non-Specified (other)		Industry
	use	Agriculture	Transport	Mining	Residential	Commerce	(other)		
1992	28 938	57 421	458 436	16 812	28 832	132	150	41 091	
1993	26 983	58 770	467 640	16 446	29 470	142	0	42 979	
1994	29 109	57 811	485 877	17 477	30 800	503	0	46 277	
1995	28 357	58 301	546 417	17 862	33 625	182	0	44 984	
1996	31 600	62 750	548 162	18 677	30 682	148	0	55 123	
1997	29 828	57 655	567 087	20 453	31 820	1 226	0	52 142	
1998	26 100	54 215	582 419	20 342	27 033	369	3 403	55 609	
1999	24 740	51 413	589 823	20 822	30 506	206	4 231	48 313	
2000	22 352	48 009	584 476	21 927	25 214	151	2 477	26 834	
2001	29 721	52 229	600 792	27 068	37 779	32 852	0	14 930	
2002	31 687	53 730	613 816	28 231	35 909	32 162	0	15 401	

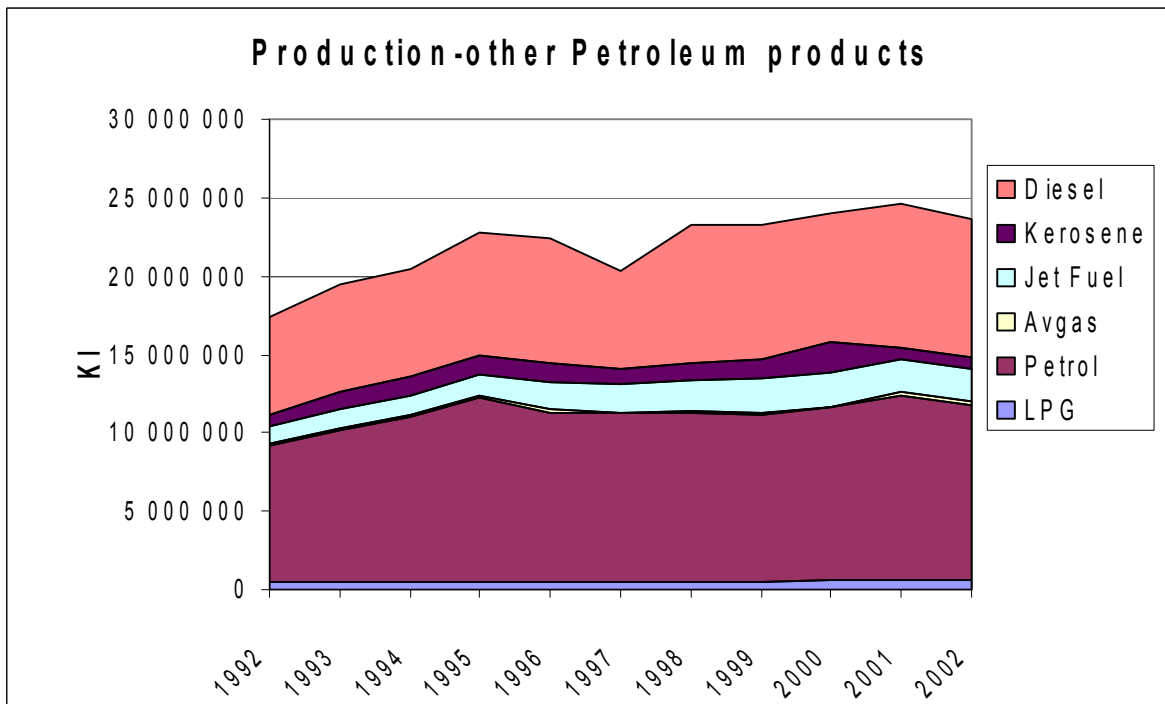
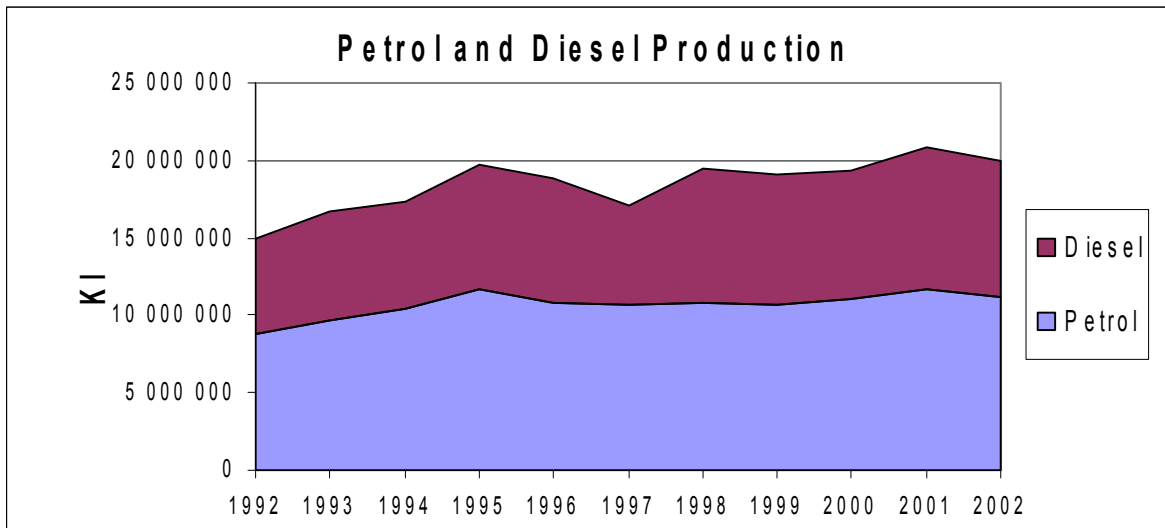
Source: National Energy Balances



Production of Petroleum Products - kl

Year	LPG	Petrol	Avgas	Jet Fuel	Kerosene	Diesel
1992	461 976	8 742 512	66 737	1 077 224	833 312	6 182 916
1993	468 484	9 708 816	146 286	1 211 295	1 036 677	6 943 737
1994	494 119	10 467 381	163 469	1 192 533	1 253 296	6 839 224
1995	492 393	11 736 662	116 155	1 392 420	1 148 516	7 928 506
1996	472 645	10 844 193	146 724	1 805 984	1 136 998	7 961 507
1997	527 374	10 712 798	28 496	1 776 386	982 939	6 334 935
1998	524 159	10 744 141	66 580	1 993 629	1 178 454	8 762 426
1999	535 935	10 651 184	89 235	2 201 708	1 266 576	8 493 178
2000	569 849	11 036 056	65 142	2 224 226	1 863 738	8 265 373
2001	599 508	11 740 861	222 426	2 071 056	807 601	9 116 140
2002	585 225	11 196 257	209 569	2 067 974	794 791	8 815 388

Source: National Energy Balances

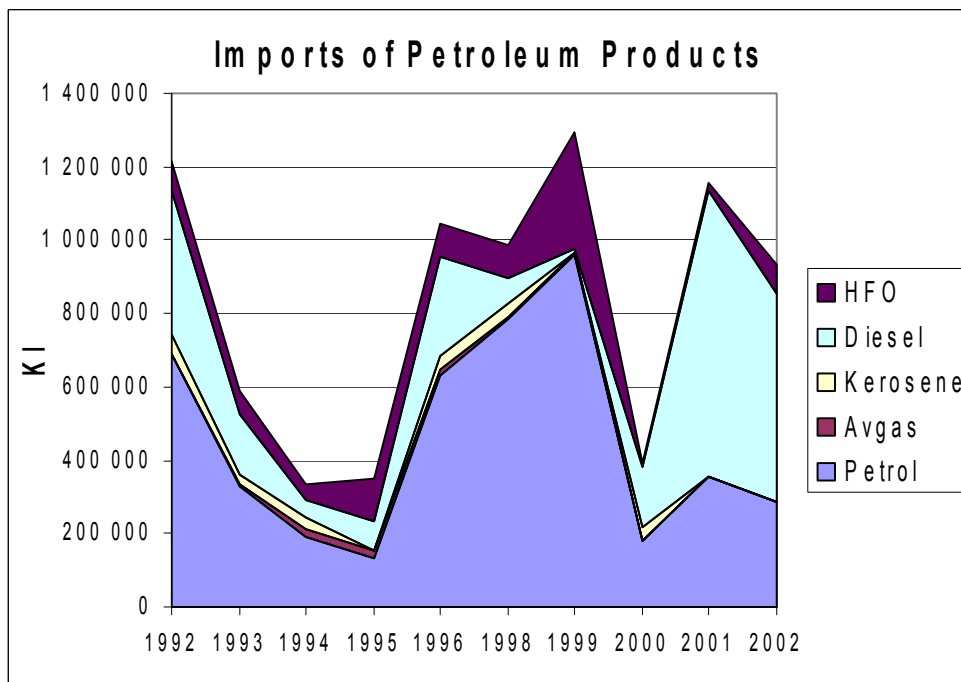


Imports of Petroleum Products -kl

Year	Petrol	Avgas	Kerosene	Diesel	HFO
1992	688 804	2 024	50 717	390 711	83 249
1993	328 878	4 251	25 366	168 419	61 051
1994	191 442	18 976	31 602	51 319	40 444
1995	134 752	21 127	0	75 568	120 397
1996	630 213	18 591	37 375	267 283	93 062
1998	786 598	4 788	37 132	70 217	90 040
1999	962 332	2 833	48	12 302	315 776
2000	179 442	119	40 043	159 847	15 542
2001	354 669	0	0	781 413	18 042
2002	283 843	3	16	567 643	83 670

Source: National Energy Balances

Note: No import data available for 1997

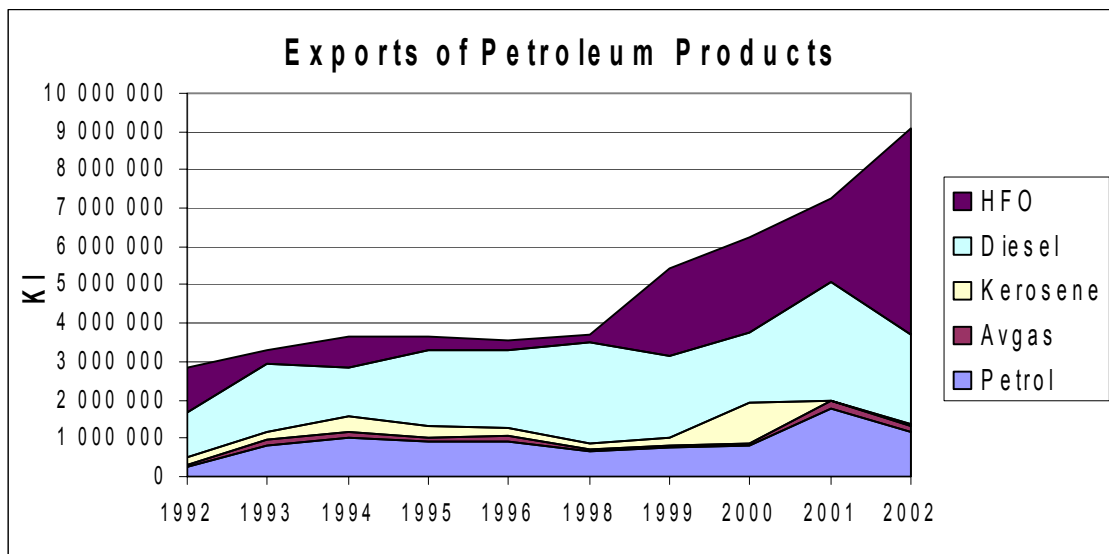


Exports of Petroleum Products - kl

Year	Petrol	Avgas	Kerosene	Diesel	HFO
1992	260 880	41 497	183 532	1 177 748	1 172 333
1993	835 627	125 712	207 950	1 780 123	338 276
1994	1 029 258	156 052	382 172	1 259 269	811 151
1995	927 061	111 221	285 306	1 998 842	331 962
1996	907 651	140 158	242 353	2 007 313	231 470
1998	647 536	44 882	154 160	2 641 754	214 853
1999	764 900	65 321	205 935	2 120 916	2 281 742
2000	828 333	40 623	1 047 957	1 847 896	2 497 699
2001	1 761 203	196 459	21 120	3 099 197	2 172 371
2002	1 144 695	184 718	48 637	2 311 307	5 390 476

Source: National Energy Balances

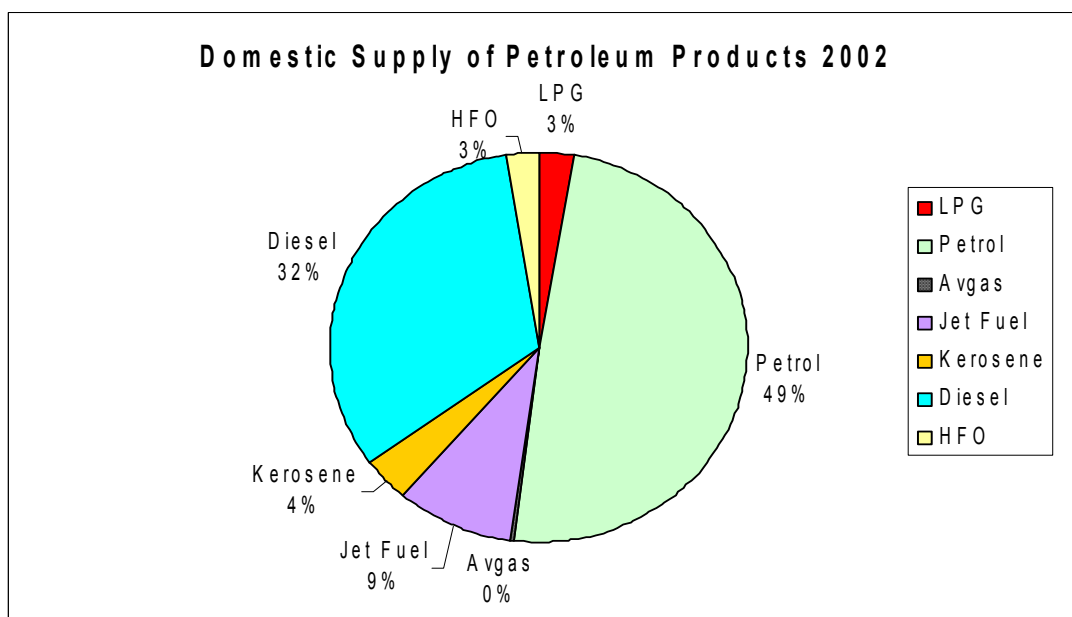
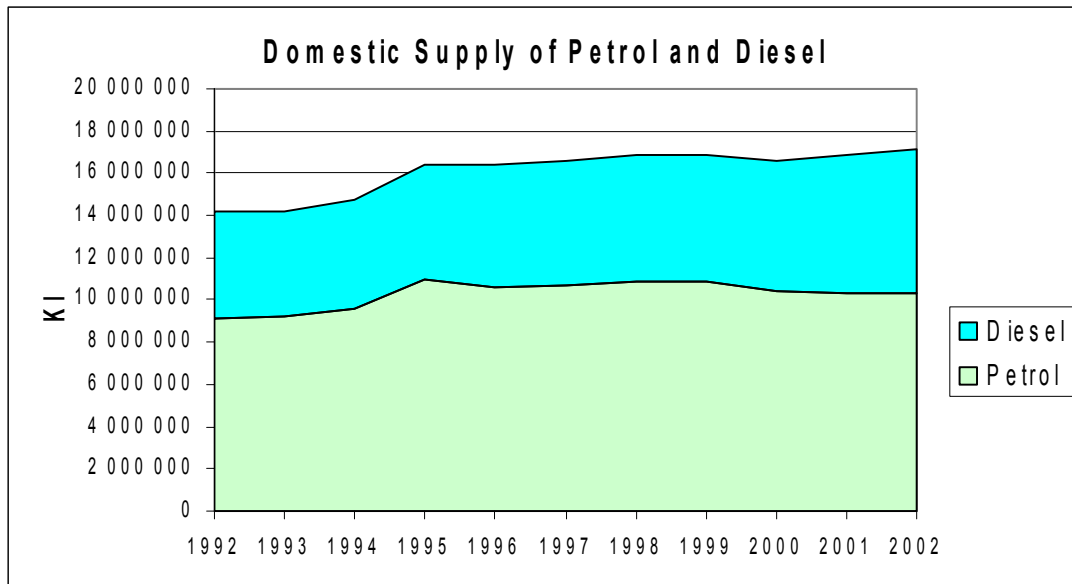
Notes : No export data available for 1997



Domestic Supply of Petroleum Products-kl

Year	LPG	Petrol	Avgas	Jet Fuel	Kerosene	Diesel	HFO
1992	461 976	9 170 436	27 264	999 950	764 887	4 985 184	560 109
1993	468 484	9 202 067	24 825	1 211 295	854 093	4 976 806	591 845
1994	494 119	9 629 565	26 393	1 192 533	902 726	5 139 875	644 561
1995	492 393	10 944 353	26 062	1 392 420	863 210	5 482 687	615 939
1996	472 645	10 566 755	25 157	1 601 006	932 020	5 809 638	719 725
1997	527 374	10 712 798	28 496	1 776 386	982 939	5 912 661	634 300
1998	524 159	10 883 203	26 486	1 876 601	1 061 426	5 959 204	615 536
1999	535 935	10 848 616	26 747	1 995 820	1 060 688	5 984 367	561 728
2000	569 849	10 387 164	24 638	1 975 064	855 824	6 230 110	24 527
2001	599 508	10 334 327	25 967	1 922 397	786 481	6 486 015	563 745
2002	585 562	10 355 404	24 854	1 967 292	746 169	6 830 544	535 664

Sources: National Energy Balances



Section 6

Electricity

More than 90% of South Africa's electricity is produced by Eskom, the national utility. The availability of cheap coal enabled them to produce among the cheapest electricity in the world. Some large industries and some municipalities also produce their own electricity.

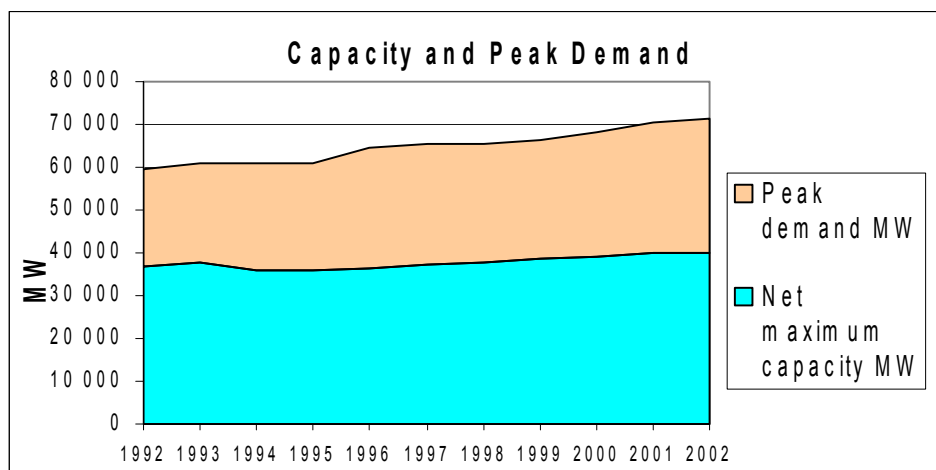
Following coal as the major energy source for the generation of electricity, nuclear energy account for about 6% of generated electricity. Hydro, pumped storage and biomass make up the rest.

There has been a continuous drive to connect more households to the grid, as can be seen from the table below.

Electricity Capacity and Demand

Year	Net maximum capacity MW	Peak demand MW	New connections
1992	36 846	22 640	232 555
1993	37 636	23 169	331 909
1994	35 926	24 798	435 756
1995	35 951	25 133	478 767
1996	36 563	27 967	453 995
1997	37 175	28 329	499 311
1998	37 848	27 803	427 426
1999	38 517	27 813	443 290
2000	39 186	29 188	397 019
2001	39 810	30 599	336 918
2002	39 810	31 621	338 572

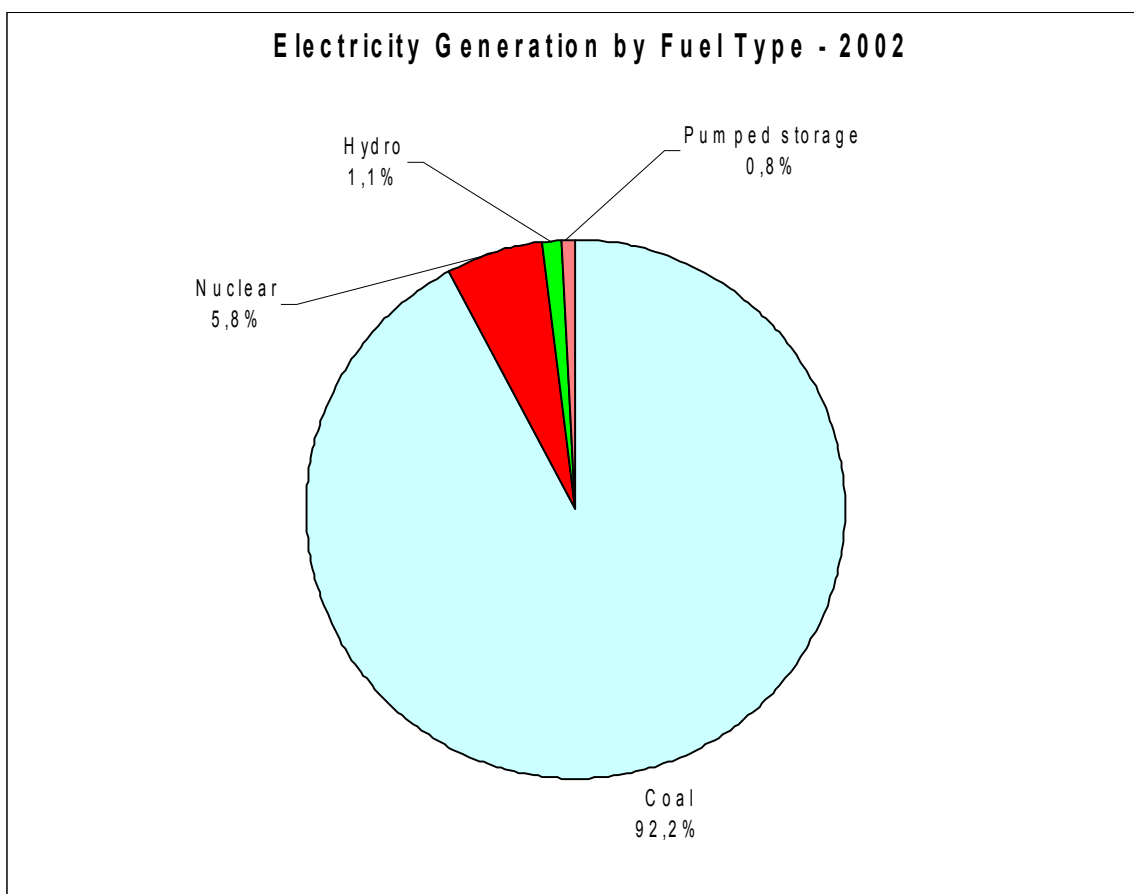
Sources: Integrated National Electrification Planning Manual
Eskom Annual Reports (2003)
NER Electricity supply Statistics 2001 & 2002



Electricity - Generation by Fuel Type - GWh

Year	Coal	Nuclear	Hydro	Pumped storage	Imports	Exports
1992	156 443	9 288	752	1 333	334	1 814
1993	165 835	7 255	146	1 345	100	2 589
1994	170 164	9 697	1 074	1 517	54	2 679
1995	174 721	11 301	529	1 274	149	3 000
1996	184 952	11 775	1 319	2 220	29	5 579
1997	192 705	12 647	2 092	2 608	5	6 617
1998	187 758	13 601	1 595	2 420	2 375	4 532
1999	186 859	12 837	726	2 590	6 673	4 266
2000	193 419	13 010	1 343	2 591	4 719	4 007
2001	183 541	10 719	2 061	1 587	9 200	6 996
2002	190 019	11 991	2 357	1 738	9 496	7 242

Sources: National Energy Balances and Eskom Annual Report - 2003

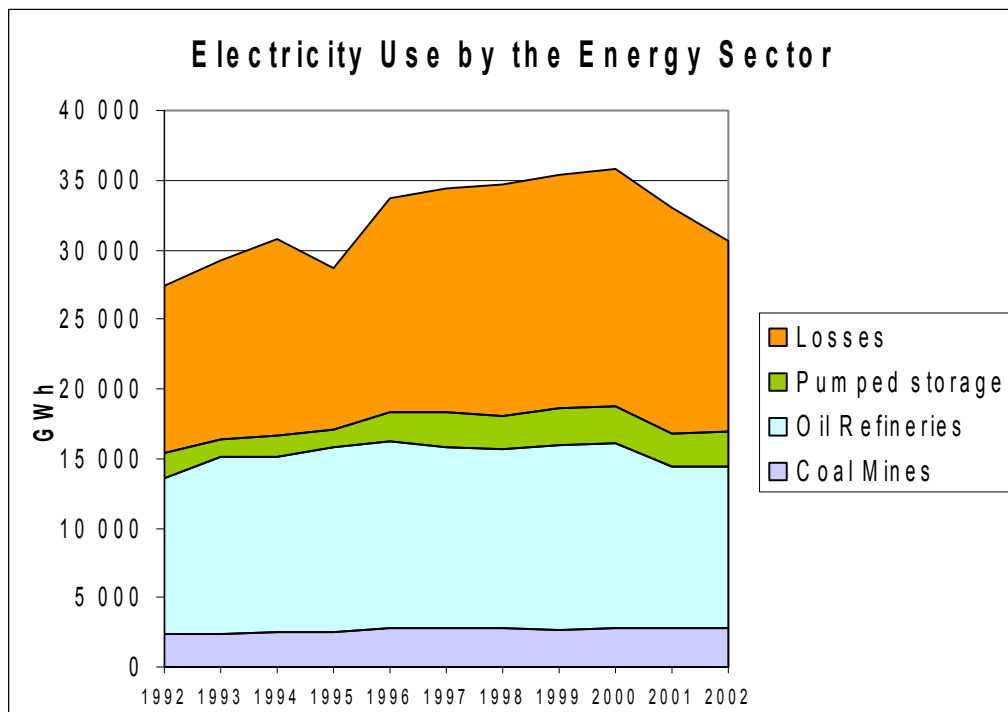


Electricity Use by the Energy Sector - GWh

Year	Coal Mines	Oil Refineries	Pumped storage	Losses
1992	2 349	11 206	1 826	12 033
1993	2 414	12 653	1 345	12 759
1994	2 526	12 630	1 517	14 031
1995	2 566	13 232	1 274	11 532
1996	2 732	13 423	2 220	15 294
1997	2 848	12 908	2 608	16 094
1998	2 836	12 832	2 420	16 534
1999	2 725	13 283	2 590	16 812
2000	2 761	13 331	2 591	17 053
2001	2 803	11 580	2 357	16 251
2002	2 815	11 571	2 479	13 820

Source: Eskom Annual Report 2003

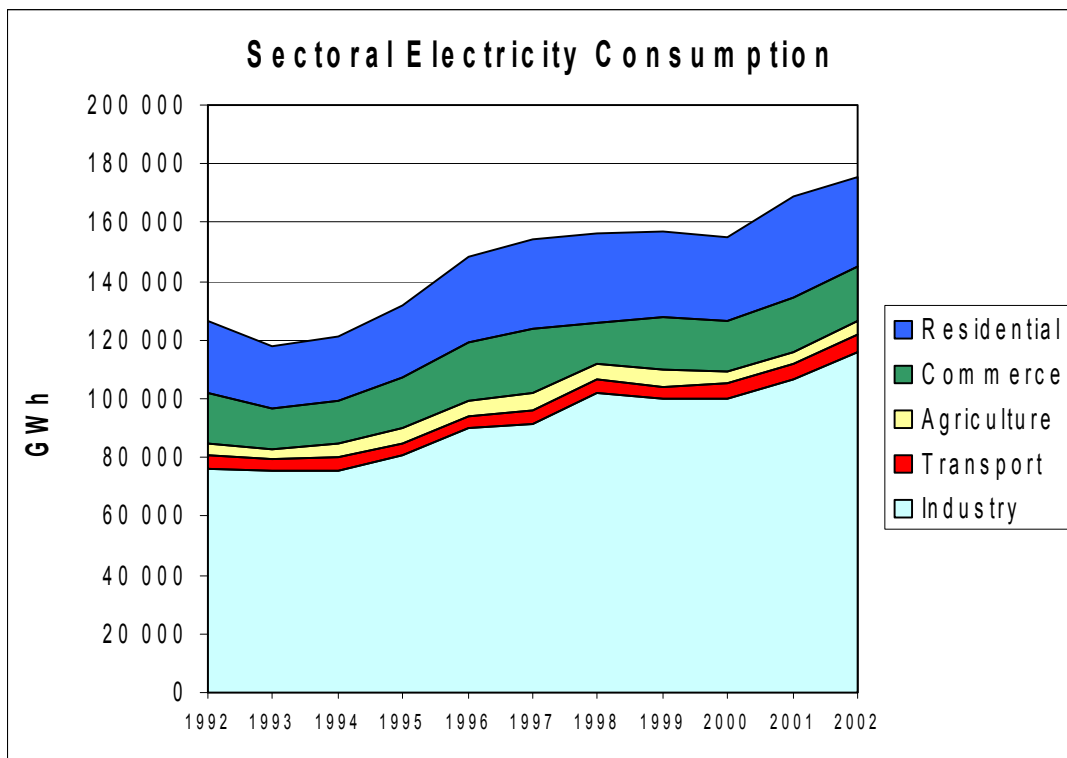
Source: National Energy Balances



Final Consumption of Electricity - GWh

Year	Industry	Transport	Agriculture	Commerce	Residential
1992	76 084	4 629	4 038	17 484	24 253
1993	75 707	4 017	3 108	13 586	21 542
1994	75 682	4 389	4 880	14 058	22 115
1995	80 657	4 297	5 301	17 307	24 369
1996	89 904	4 274	5 103	19 768	29 552
1997	91 460	4 563	5 640	22 170	30 722
1998	101 867	4 639	5 627	13 974	30 163
1999	99 673	4 429	5 755	17 709	29 511
2000	99 703	5 411	3 954	17 164	28 680
2001	106 469	5 562	4 175	18 301	34 623
2002	115 785	6 246	4 644	18 227	30 418

Source: National Energy Balance



Electricity - Industrial Consumption - GWh

Year	Iron and steel	Chemicals	Non-ferrous metals	Non-metallic minerals	Transport equipment	Machinery
1992	11 402	3 179	6 147	986	4	95
1993	12 606	3 017	6 234	963	4	109
1994	14 604	3 150	5 945	1 051	6	100
1995	16 251	3 603	6 956	1 190	9	104
1996	15 630	2 524	13 046	1 143	9	115
1997	17 875	2 432	14 584	1 188	11	127
1998	18 865	2 630	14 769	1 155	15	37
1999	19 527	2 500	14 907	1 119	15	42
2000	20 913	2 640	15 038	1 154	69	53
2001	18 554	9 405	15 172	2 039	83	52
2002	20 331	9 744	15 441	2 277	88	44

Source: National Energy Balance

Electricity - Industrial Consumption - GWh

Year	Mining	Food & Tobacco	Paper & Pulp	Wood & wood products	Construction	Textiles	Industry not specified
1992	33 962	375	939	491	20	372	18 113
1993	32 026	369	870	486	11	389	18 622
1994	32 668	411	843	505	15	414	15 969
1995	33 176	454	975	534	14	475	16 916
1996	34 831	503	969	590	16	491	20 037
1997	30 390	539	1 029	596	17	514	22 158
1998	29 204	578	1 039	623	20	373	32 588
1999	28 877	581	1 089	592	35	414	29 975
2000	29 038	639	1 494	412	34	376	27 842
2001	31 691	672	1 594	261	32	488	26 426
2002	32 204	673	1 557	289	115	523	32 499

Source: National Energy Balances

Notes

Section 7

Gas

Limited natural gas reserves exist around the South African coast. PetroSA exploits the reserves off the coast of Mossel Bay, where it is converted at the Mossgas plant into liquid fuels.

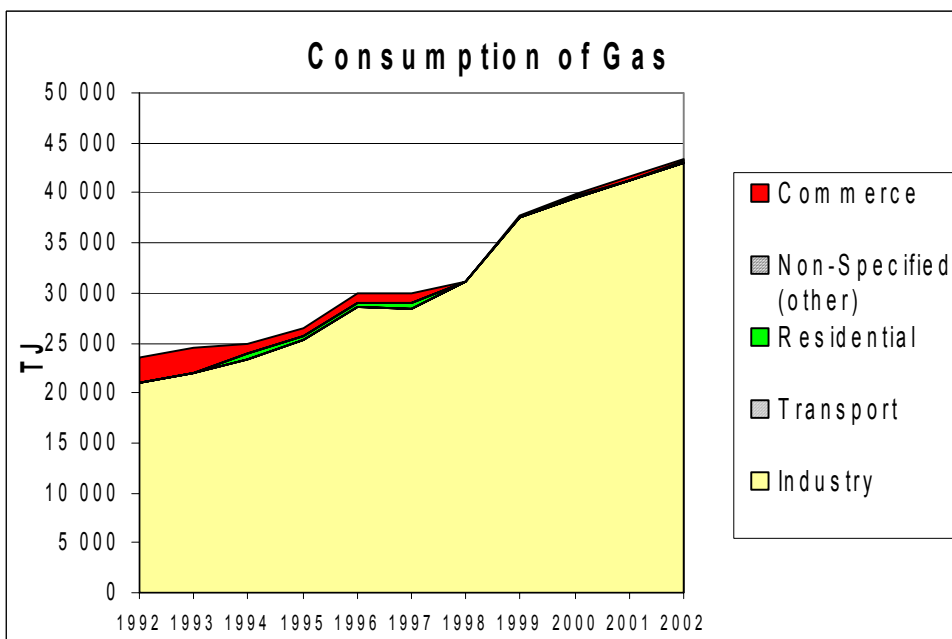
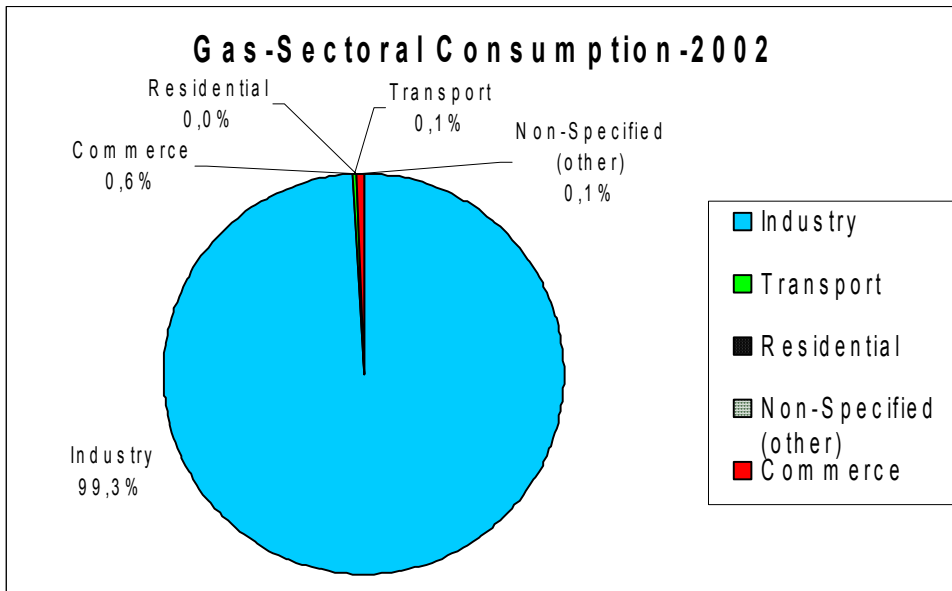
Sasol produces gas from coal, and built a gas pipeline to import gas from Mozambique. Prospects to import gas from Namibia to South Africa are also being researched.

Even though the consumption of gas has increased in recent years, the importance of gas in the South African energy economy is still small compared to other countries. Industry remains the largest customer by far.

Gas-Sectoral Consumption-TJ

Year	Industry	Transport	Residential	Non-Specified (other)	Commerce	Total
1992	21 010	5	0	0	2 521	23 536
1993	21 955	4	0	0	2 509	24 468
1994	23 318	0	518	0	1 048	24 884
1995	25 223	8	466	0	832	26 530
1996	28 588	14	470	0	839	29 912
1997	28 468	12	512	0	902	29 895
1998	31 071	13	0	0	107	31 191
1999	37 466	25	0	50	216	37 757
2000	39 532	29	0	38	231	39 830
2001	41 241	30	0	40	241	41 552
2002	43 048	31	0	42	251	43 372

Source: National Energy Balances



Digest Page 43
Gas-Industrial Consumption TJ

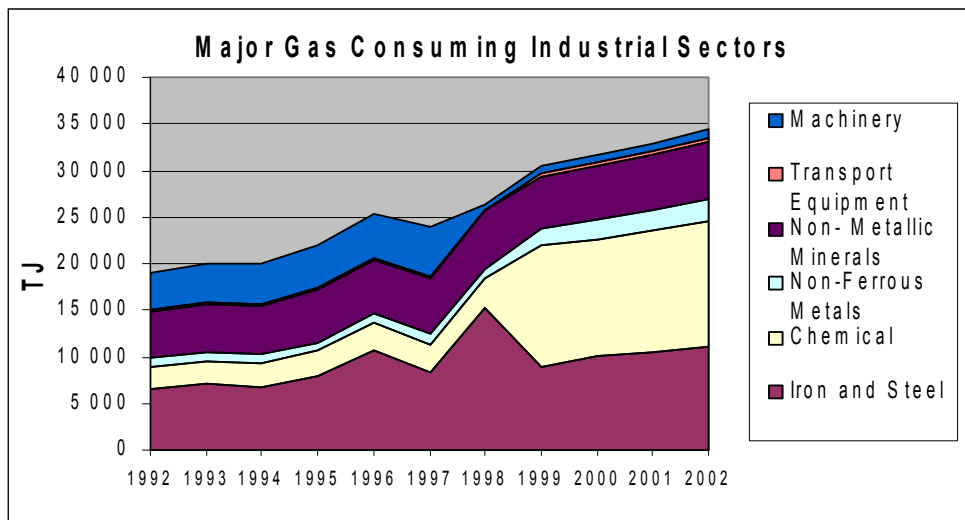
Year	Iron and Steel	Chemical	Non-Ferrous Metals	Non-Metallic Minerals	Transport Equipment	Machinery
1992	6 474	2 508	951	4 865	155	4 054
1993	7 092	2 455	1 002	5 077	154	4 153
1994	6 830	2 523	862	5 300	142	4 327
1995	7 960	2 642	805	5 861	168	4 573
1996	10 748	2 866	972	5 740	201	4 734
1997	8 372	2 948	1 230	5 918	174	5 414
1998	15 329	3 051	957	6 314	106	604
1999	8 965	12 929	1 886	5 511	357	752
2000	10 147	12 349	2 256	5 682	368	789
2001	10 586	12 883	2 354	5 927	384	824
2002	11 050	13 448	2 457	6 187	401	860

Source: National Energy Balances

Gas-Industry Consumption-TJ

Year	Mining	Food	Paper	Wood	Textiles	Industries not Specified
1992	461	785	335	264	15	143
1993	466	774	372	237	18	154
1994	430	840	399	248	19	1 397
1995	478	806	368	280	20	1 263
1996	325	949	388	271	101	1 293
1997	549	1 181	393	879	20	1 391
1998	498	1 154	371	170	18	2 501
1999	341	1 212	2 715	63	17	2 719
2000	378	1 251	2 967	68	18	3 257
2001	395	1 305	3 096	71	19	3 398
2002	412	1 362	3 231	75	20	3 547

Source: National Energy Balances



Notes

Section 8

Renewables

The country is well endowed with solar resources, offering great potential for the development of renewable energy sources. The data quality for some of these annual renewable energy consumptions is poor and the data presented below are estimates since the accuracy cannot always be verified.

1.	Estimated Fuelwood Consumption (households)	52 889 GWh ^(a)
2.	Commercially exploitable Bagasse, Wood & Sawmill Waste and Pulp:	65 010 GWh ^(b)
3.	Wind Energy:	32 GWh
4.	Solar Energy:	<u>532</u> GWh
TOTAL ESTIMATED ANNUAL CONSUMPTION:		118 463 GWh

^(a) Where estimated fuel consumption is about 11 200 000 tons (190 400 TJ)

^(b) and commercially exploitable Bagasse, Wood and Sawmill Waste and Pulp comprise of 6588000 tons of Biomass Bagasse (46 139 TJ) and 23 496 tons equivalent to (187 893 TJ) of field residue, bagasse, softwood, hardwood, chips, dust, bark, black liquor and sludge.

Notes

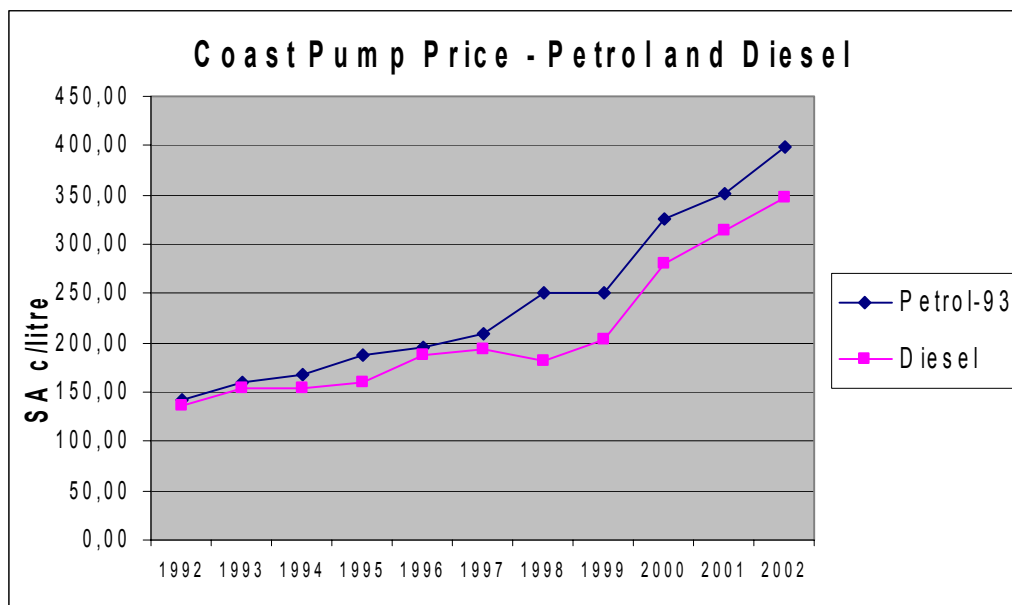
Section 9

Prices

The price data given here have been extracted from a far more extensive DME price report.

	Petrol-93	Diesel
1992	141,75	137,00
1993	160,42	154,67
1994	167,42	154,80
1995	188,08	159,09
1996	194,42	187,67
1997	209,75	194,33
1998	250,50	181,25
1999	250,83	203,96
2000	326,00	280,40
2001	350,33	313,80
2002	399,00	347,81

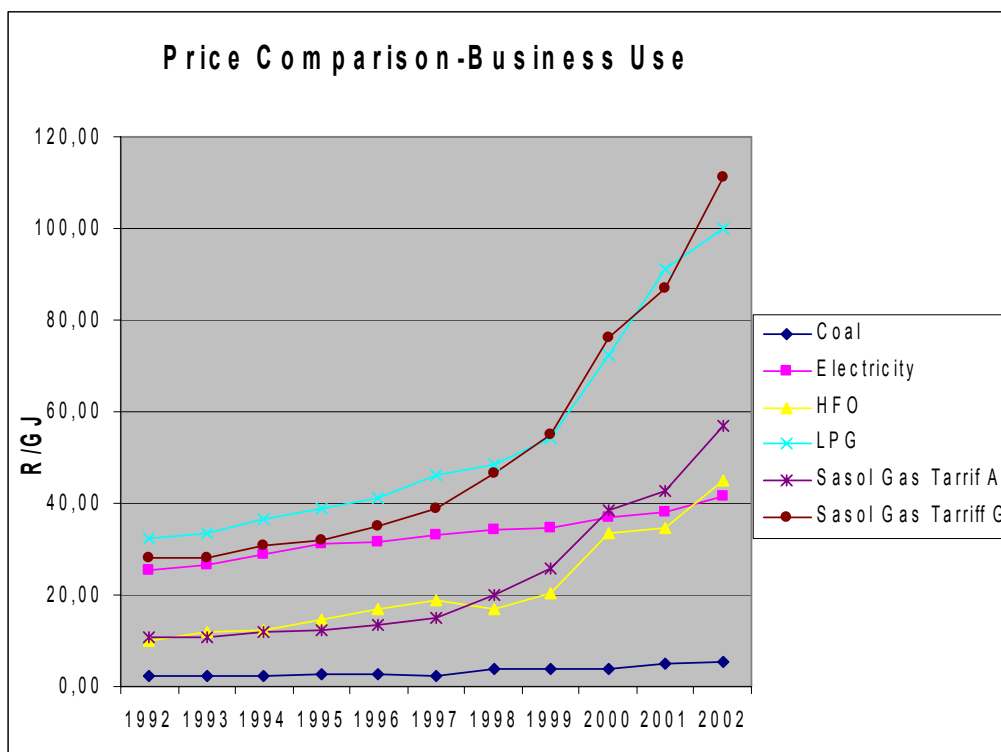
Source: Petroleum Products Price Report



Price Comparison-Business Use- R/GJ

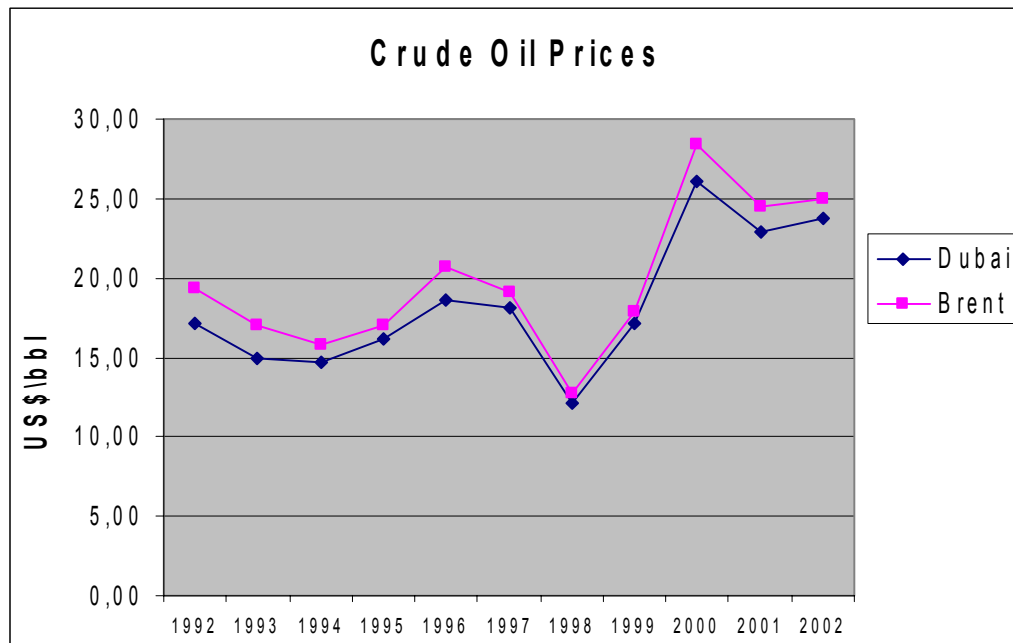
Year	Coal	Electricity	HFO	LPG	Sasol Gas	
					Tarrif A	Tarriff G
1992	2,27	25,44	10,19	32,23	10,71	28,22
1993	2,21	26,64	12,03	33,60	10,89	28,22
1994	2,33	28,67	12,15	36,46	11,91	30,86
1995	2,55	30,97	14,66	38,98	12,35	31,99
1996	2,69	31,39	17,03	41,33	13,46	34,88
1997	2,49	32,92	18,83	46,11	15,01	38,90
1998	3,71	34,14	17,11	48,55	19,85	46,47
1999	3,96	34,56	20,51	54,38	25,73	54,84
2000	4,03	36,75	33,46	72,29	38,60	76,22
2001	4,89	38,22	34,70	91,12	42,84	86,82
2002	5,45	41,61	44,96	100,14	56,95	111,01

Sources: Petroleum Products Price Report
 Minerals Bureau Coal Price Report (Bituminous - Industries)
 Eskom Annual Reports



Crude Oil-US\$/bbl		
Year	Dubai	Brent
1992	17,19	19,31
1993	14,91	17,00
1994	14,74	15,80
1995	16,11	17,03
1996	18,56	20,69
1997	18,17	19,13
1998	12,16	12,73
1999	17,19	17,87
2000	26,14	28,45
2001	22,92	24,46
2002	23,80	25,00

Source: Petroleum Products Price Report



Notes

Section 10

Economic data

Year	Gross Domestic Product (at constant 2000 market prices; Rm)	Consumer Price Index (2000 = 100)	Production Price Index (2000 = 100)	Exchange rate - R/\$	Gold price - US\$/oz	Gold price - R/oz
1993	755 009	61,2	61,6	3,27	359,70	1 176,73
1994	779 424	66,6	66,7	3,55	384,05	1 363,43
1995	803 710	72,4	73,0	3,63	384,17	1 393,48
1996	838 326	77,7	78,1	4,30	387,71	1 664,02
1997	860 516	84,4	83,6	4,61	331,11	1 523,48
1998	864 968	90,2	86,6	5,53	294,14	1 622,92
1999	885 365	94,9	91,6	6,11	278,92	1 702,71
2000	922 148	100,0	100,0	6,94	279,13	1 932,51
2001	947 373	105,7	108,4	8,60	271,08	2 338,18
2002	981 102	115,4	123,8	10,52	310,16	3 242,30

Sources: The South African Reserve Bank website - www.resbank.co.za & Stats SA website - www.statssa.gov.za

Notes

Section 11

Useful Addresses

Department of Minerals and Energy
Private Bag X59
Pretoria, 0001
Tel: (012) 317 8000

Eskom
P O Box 1091
Johannesburg, 2001
Tel: (011) 800 8111

National Electricity Regulator
P O Box 40343
Arcadia, 0007
(012) 401 4600

Central Energy Fund
P O Box 786141
Sandton, 2199
Tel: (011) 880 9727

SAPIA
P O Box 7082
Roggebaai, 8012
Tel: (021) 419 8054

PetroSA
Private Bag X1
Waterfront, 8002
Tel: (021) 938 3644

Sasol Oil
P O Box 4211
Randburg, 2125
Tel: (011) 889 7600

Sasol Gas
P O Box 4211
Randburg, 2125
Tel: (011) 889 7600

Energy Research Centre
University of Cape Town
Private Bag
Rondebosch, 7701
Tel: (021) 650 3230

CSIR
P O Box 395
Pretoria, 0001
(012) 841 2911

Nuclear Energy Corporation of SA
(NECSA)
P O Box 582
Pretoria, 0001
Tel: (012) 305 4911

Council for Geoscience
Private Bag X 112
Pretoria, 0001
Tel: (012) 841 1911

Chamber of Mines SA
P O Box 61809
Marshalltown, 2107
Tel: (011) 498 7100

Institute for Energy Studies
Rand Afrikaans University
P O Box 524
Auckland Park, 2006
Tel: (011) 489 2547

South African National Energy
Association
Suite 121, Postnet RAU
Private Bag X12
Melville 2109
Tel:(011)4892547

Section 12

CALORIFIC VALUES

Fuel	Calorific Value	Units	Density
Electricity	3,6	MJ/kWh	
Natural Gas	41,0	MJ/m ³	
LPG (Liquefied Petroleum Gas)	26,7	MJ/l	0,541
Petrol	34,2	MJ/l	0,723
Avgas	33,9	MJ/l	0,730
Illuminating Paraffin	37,0	MJ/l	0,788
Power Paraffin	37,5	MJ/l	0,813
Jet Fuel	34,3	MJ/l	0,793
Diesel	38,1	MJ/l	0,839
HFO (Heavy Furnace Oil)	41,6	MJ/l	0,984
Coal (Eskom - average 1994)	20,1	MJ/kg	
Coal (General purpose)	24,3	MJ/kg	
Coal (Coking)	30,1	MJ/kg	
Coke	27,9	MJ/kg	
Coke oven gas	17,3	MJ/m ³	
Blast furnace gas	3,1	MJ/m ³	
Refinery gas (estimate)	20,0	MJ/m ³	
Bagasse (wet)	7,0	MJ/kg	
Bagasse fibre (dry)	14,0	MJ/kg	
Biomass (wood dry typical)	17,0	MJ/kg	
Coal gas (Sasol)	18,0	MJ/m ³	
Coal gas (Sasol - methane rich)	38,0	MJ/m ³	

