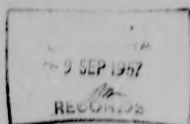


COMMONWEALTH BUREAU OF CENSUS AND STATISTICS, CANBERRA,
AUSTRALIA.

MANUFACTURING INDUSTRIES. 1955-56.



No. 31. ELECTRIC LIGHT AND POWER WORKS.



PREPARED UNDER INSTRUCTIONS FROM
THE RIGHT HONORABLE THE TREASURER,
BY
S. R. CARVER,
ACTING COMMONWEALTH STATISTICIAN.

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PREFACE

1. GENERAL: The Bulletins in the series for 1955-56 are listed on the back of the cover of this Bulletin and incorporate the same range of industries as the 1954-55 series.

Where a number of industries are combined in one Bulletin the introductory paragraph on Page 3 specifies the industries so included.

2. CLASSIFICATION OF FACTORIES: For purposes of industry classification, factories in Australia are classified according to the nature of their product. Where two or more distinct types of industrial activity are carried on in one establishment, a separate return is obtained, wherever practicable, for each activity in order to allow classification on this basis. In cases where this is not practicable, factories are classified according to predominant activity and these cases are encountered most frequently in the Metal Trades, (e.g. General Engineering firms also producing Agricultural Implements or Stoves, etc.), and to a lesser degree in factories concerned with Skins, Leather, Clothing and Wood products.

Each of the summaries in the "Manufacturing Industries" series relates, generally, to the operations of factories classified to the industry specified. Figures shown in the quantity tables herein represent total recorded production of the articles listed and include quantities produced, as subsidiary production in industries otherwise classified.

3. BASIS OF THE STATISTICS: The scope of the factory statistics is fully explained in the annual Secondary Industries Bulletin.

Briefly, a "factory" is defined as an establishment in which four or more persons are employed or where power (other than manual) is used in any manufacturing process. It should be noted that details relating to small establishments not classified for statistical purposes as factories are not included in the figures shown herein.

All persons employed in the manufacturing activities of the factory are counted as factory employees. The figures relating to employment, therefore, exclude all those engaged in selling and distribution, such as salesmen, travellers, collectors, carters engaged solely on outward delivery of manufactured goods, and retailing storemen. The figures, however, do include proprietors who work in their own businesses as well as "out-workers".

The value of materials used includes the value, in the usual sense, of the materials used, stores used, containers, tools replaced and materials used in repairs to plant. In general, it does not include the value of customers' articles or materials repaired, assembled or treated by the factory.

The value of output is the selling value, at the factory, (exclusive of all delivery costs and charges and excise duties, but inclusive of bounty and subsidy payments to the manufacturer of the finished article) of all goods made during the year. In addition it includes the value of other work done, such as repair work, assembling and making-up for customers.

The value of production is the value added to raw materials by the process of manufacture. It is calculated by deducting from the value of factory output the value (at the factory) of the materials used, containers and packing, power, fuel and light used, tools replaced and materials used in repairs to plant (but not depreciation charges). The value of production is the source from which such items as wages, interest, depreciation, profits, taxation, advertising and other sundry charges are met. As full details of costs of production are not collected, the amount of profit resulting from factory operations cannot be ascertained from the figures contained herein.

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ACTING COMMONWEALTH STATISTICIAN

CANBERRA, A.C.T.

MANUFACTURING INDUSTRIES, AUSTRALIA, 1955-56ELECTRIC LIGHT AND POWER WORKS

1. SUMMARY OF STATISTICS: The following table furnishes a summary of the principal statistics of the establishments generating electricity in Australia in the form of,
 (A) a comparative summary for the years 1938-39, 1945-46 and 1953-54 to 1955-56 and,
 (B) a dissection by Ownership for 1955-56.

TABLE 1 : ELECTRIC LIGHT AND POWER WORKS : AUSTRALIA

Particulars	Factories (1)	Persons Employed (a) (2)	Salaries and Wages Paid (b) (3)	Power, Fuel and Light, etc. Used (c) (4)	Value of Materials etc. Used (d) (5)	Value of Production (e) (6)	Value of Output (7)
	Number	Number	£'000	£'000	£'000	£'000	£'000

(A) Comparative Summary

Year 1938-39	395	6,498	1,877	3,239	519	8,725	12,483
" 1945-46	372	7,071	2,588	6,399	1,029	12,718	20,146
" 1953-54	351	11,395	10,308	35,083	4,800	30,098	69,981
" 1954-55	351	11,927	11,457	36,548	4,171	37,567	78,286
" 1955-56	332	12,111	12,497	37,479	4,090	43,219	84,788

(B) Dissection by Type of Ownership : 1955-56

Type of Ownership							
Government	64	8,352	8,810	25,257	1,448	34,551	61,256
Local Authority	157	2,549	2,329	7,202	1,657	5,073	13,992
Companies	111	1,210	1,358	4,960	985	3,595	9,540

- (a) Average over whole year; includes Working Proprietors.
 (b) Excludes amounts drawn by Working Proprietors.
 (c) Includes Water and Lubricating Oil.
 (d) Includes value of tools replaced and repairs to plant.
 (e) Value of Production equals column (7) less total of columns (4) and (5).

In the following table, particulars are given for each State during the year 1955-56.

TABLE 2 : ELECTRIC LIGHT AND POWER WORKS : STATES, 1955-56

Particulars	N.S.W.	Vic.	Q'ld.	S.A.	W.A.	Tas.	Australia
	No.	No.	No.	No.	No.	No.	No.
Factories	78	57	57	42	90	8	332
Persons Employed							
Males	5,311	2,980	1,511	(a)	929	(a)	11,997
Females	37	27	2	(a)	20	(a)	114
Total:	5,348	3,007	1,513	(a)	949	(a)	12,111
Salaries and Wages	£'000	£'000	£'000		£'000		£'000
Paid	5,622	3,315	1,287	(a)	1,000	(a)	12,497
Value of -							
Power, Fuel and							
Light, etc. Used	15,477	9,737	5,405	(a)	3,302	(a)	37,479
Materials, etc. Used	1,693	341	1,416	(a)	368	(a)	4,090
Production	20,707	11,397	2,982	(a)	2,664	(a)	43,219
Output	37,877	21,475	9,803	(a)	6,334	(a)	84,788
Land and Buildings (b)	18,336	12,845	7,592	(a)	1,838	(a)	73,608
Plant and Machinery (b)	46,338	49,071	24,658	(a)	10,469	(a)	158,377

- (a) Not available for publication, included with total for Australia.
 (b) Depreciated or book values at end of year.

See also notes to Table 1 above.

2. AVERAGE SALARIES, OUTPUT AND PRODUCTION: Particulars of the average salary and wage paid, together with the average values per employee of output and production are shown in the following table for the years 1938-39, 1945-46 and 1953-54 to 1955-56.

TABLE 3 : ELECTRIC LIGHT AND POWER WORKS, AVERAGE SALARIES AND WAGES PAID, OUTPUT, ETC. PER EMPLOYEE : AUSTRALIA

Year	Salaries and Wages per Employee (a)	Value of Output per Person Engaged (b)	Value of Production per Person Engaged (b)	Ratio of Salaries and Wages to Value of Production
	£	£	£	%
1938-39	293	1,921	1,341	21.54
1945-46	370	2,849	1,799	20.35
1953-54	910	6,141	2,641	34.25
1954-55	966	6,564	3,150	30.50
1955-56	1,037	7,001	3,569	28.92

(a) Excludes Working Proprietors and amounts drawn by them.

(b) Includes Working Proprietors.

3. ELECTRICITY GENERATED: In the next two tables details are given of the electricity generated in Australia during 1955-56 according to ownership of Generating Stations and in total for each State during the years 1938-39, 1945-46 and 1953-54 to 1955-56.

TABLE 4 : ELECTRICITY GENERATED : AUSTRALIA, 1955-56
('000 kWh.)

Particulars	Government	Local Authorities	Companies	Total
Electric Light and Power Works -				
(i) Sold or used outside Generating Station	10,602,473	1,784,643	1,400,119	13,787,235
(ii) Used in Generating Station	700,671	92,241	71,455	864,367
(iii) Lost	1,086,922	282,344	33,682	1,402,948
Total Sold, Used or Lost (a):	12,390,066	2,159,228	1,505,256	16,054,550
Electricity Generated in Other Works (b)				615,830
Total Generated:				(a) 16,670,380

(a) Net after adjustment for inter-station transfers and sales.

(b) In factories not classified as Electric Light and Power Works and used mainly within these works.

(c) Of this amount Hydro-Electric generation represented 2,812,000 thousand kWh. and Thermal generation 13,858,380 thousand kWh.

TABLE 5 : TOTAL ELECTRICITY GENERATED, AUSTRALIA

(Million kWh.)

Year	N.S.W.	Vic.	Q'ld.	S.A.	W.A.	Tas.	Aust.
1938-39	1,948	1,223	387	256	307	567	4,688
1945-46	2,832	1,904	613	402	339	820	6,910
1953-54	5,450	3,693	1,511	955	627	1,471	13,707
1954-55	5,951	4,152	1,658	1,119	703	1,589	15,172
1955-56	6,505	4,628	1,786	1,204	753	1,794	16,670
1956-57(a)	6,993	4,991	2,032	1,356	789	2,216	18,377

(a) Preliminary, subject to revision.

4. **EMPLOYMENT:** The number of employees, shown in Tables 1, 2 and 7 has been adjusted to represent the average employment over the whole year in those cases where short time was worked. In the following table, the factories have been classified for the years 1938-39, 1945-46 and 1953-54 to 1955-56 according to the average number employed during the actual period worked.

TABLE 6 : ELECTRIC LIGHT AND POWER WORKS : FACTORIES CLASSIFIED ACCORDING TO PERSONS EMPLOYED : AUSTRALIA

Number of Persons Employed in each Factory	1938-39		1945-46		1953-54		1954-55		1955-56	
	No. of Fac- tories	No. Em- ployed	No. of Fac- tories	No. Em- ployed	No. of Fac- tories	No. Em- ployed	No. of Fac- tories	No. Em- ployed	No. of Fac- tories	No. Em- ployed
Under 4	203	383	184	335	167	262	163	262	160	251
4	44	176	36	144	20	80	21	84	14	56
5 to 10	82	513	87	547	78	534	77	520	68	457
11 to 20	28	415	20	285	31	433	35	508	30	436
21 to 50	20	675	19	529	24	871	18	602	23	722
51 to 100	9	671	13	924	14	977	18	1,312	15	1,078
101 to 200	9	3,685	5	770	4	625	6	860	7	939
201 to 300			4	1,085	2	479	2	489	4	889
301 and over			4	2,456	11	7,220	11	7,322	11	7,306
TOTAL:	395	6,518	372	7,075	351	11,481	351	11,959	332	12,134
Average Number Employed per Factory	17		19		33		34		37	

Further details of employment are furnished in the two tables which follow. In Table 7 the numbers of males employed are shown for the years 1938-39, 1945-46 and 1953-54 to 1955-56 according to the nature of their employment. Because of the change in classification of occupational status adopted in 1945-46, group comparison between 1938-39 and the later years shown is not possible.

**TABLE 7 : ELECTRIC LIGHT AND POWER WORKS : PERSONS EMPLOYED : MALES
CLASSIFIED ACCORDING TO OCCUPATIONAL STATUS : AUSTRALIA**

Occupational Status	1938-39	1945-46	1953-54	1954-55	1955-56
<u>Males</u>					
Working Proprietors	84	80	70	68	55
Managerial and Clerical Staff, including Salaried Managers and Working Directors	6,144	465	706	720	732
Chemists, Draftsmen and other Laboratory and Research Staff		78	151	180	161
Foremen and Overseers		334	746	753	764
Workers in Factory (Skilled and Unskilled)		5,997	9,568	10,026	10,198
Carters (excl. Delivery only) Messengers and Persons working regularly at Home	107	48	68	85	87
(Males:	6,335	7,002	11,309	11,832	11,997
Female (a):	163	69	86	95	114
PERSONS:	6,498	7,071	11,395	11,927	12,111

(a) Mainly Clerical Staff.

In the following table the number of persons employed in June for each of the years 1939, 1946 and 1954 to 1956 are shown according to age and sex distribution.

**TABLE 8 : ELECTRIC LIGHT AND POWER WORKS : DISTRIBUTION OF EMPLOYERS
ACCORDING TO AGE AND SEX : AUSTRALIA
(Excluding Working Proprietors)**

June	Under 16 Years	16 Years	17 Years	18 Years	19 Years	20 Years	Total 16 to 20 Years	21 Years and over	Total All Ages
<u>MALES</u>									
1939 (a)	15	(b)	(b)	(b)	(b)	(b)	351	5,890	6,256
1946 (a)	21	57	70	94	81	66	368	6,935	7,324
1954 (o)	20	34	63	77	102	73	349	11,201	11,570
1955 (o)	18	47	66	70	85	98	366	11,645	12,029
1956 (o)	21	75	87	71	88	80	401	11,745	12,167
<u>FEMALES</u>									
1939 (a)	1	(b)	(b)	(b)	(b)	(b)	58	91	150
1946 (a)	-	3	4	5	4	5	21	41	62
1954 (o)	1	3	1	5	7	5	21	65	87
1955 (o)	-	2	6	7	6	4	25	72	97
1956 (o)	-	4	5	2	1	4	16	100	116

(a) Pay-day nearest 15th June.
(b) Details not collected.
(o) On last pay-day in June.

5. POWER EQUIPMENT: Statistics of the power equipment of stations are given in the next table for the years 1954-55 and 1955-56. Particulars refer to the rated horsepower of Prime Movers installed, and the kilowatt capacity and the equivalent in terms of horsepower, in various types of Generators installed.

The terms "Total Installed" and "Effective Capacity" so far as they relate to Generators, are defined as follows:-

Total Installed is the kilowatt capacity of all serviceable generators installed, including spares and standby.

Effective Capacity is the kilowatt capacity of all generators which can be linked up at any one time.

The definitions apply to all generating stations including hydro electric plants, except that the effective capacity of the latter is based on the quantity of water available under average conditions.

TABLE 9 : ELECTRIC LIGHT AND POWER WORKS : CAPACITY OF ENGINES AND GENERATORS : AUSTRALIA

Particulars	Steam Engines		Internal Combustion Engines			Water	Total
	Recip- rocat- ing	Turbine	Gas	Petrol or other Light Oils	Heavy Oils		
1954-55							
	Rated H.P.	Rated H.P.	Rated H.P.	Rated H.P.	Rated H.P.	Rated H.P.	Rated H.P.
<u>Engines Installed -</u>							
<u>Total Installed</u>	7,226	4,255,372	14,524	11,383	347,235	793,738	5,429,478
	kW.	kW.	kW.	kW.	kW.	kW.	kW.
<u>Generators Installed -</u>							
<u>Kilowatt Capacity -</u>							
<u>Total Installed</u>	5,085	3,126,212	10,188	8,092	231,756	572,505	3,953,838
<u>Effective Capacity</u>	4,725	2,874,229	8,188	6,007	212,526	566,375	3,672,050
	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.
<u>Horsepower Equivalent -</u>							
<u>Total Installed</u>	6,816	4,190,625	13,657	10,847	310,664	767,432	5,300,041
<u>Effective Capacity</u>	6,333	3,852,846	10,976	8,052	284,887	759,214	4,922,308
1955-56							
	Rated H.P.	Rated H.P.	Rated H.P.	Rated H.P.	Rated H.P.	Rated H.P.	Rated H.P.
<u>Engines Installed -</u>							
<u>Total Installed</u>	5,540	4,461,798	9,201	12,112	334,437	900,013	5,723,101
	kW.	kW.	kW.	kW.	kW.	kW.	kW.
<u>Generators Installed -</u>							
<u>Kilowatt Capacity -</u>							
<u>Total Installed</u>	4,062	3,247,097	5,895	8,394	226,747	647,855	4,140,050
<u>Effective Capacity</u>	3,674	2,985,789	4,420	6,579	208,820	646,035	3,855,317
	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.
<u>Horsepower Equivalent -</u>							
<u>Total Installed</u>	5,445	4,352,668	7,902	11,252	303,950	868,437	5,549,654
<u>Effective Capacity</u>	4,924	4,002,391	5,925	8,819	279,919	865,997	5,167,975

6. POWER, FUEL AND LIGHT, ETC. USED: Details of the quantities and values of the various items of power, fuel and light, etc. used during the years 1938-39, 1954-55 and 1955-56 are shown in the following table.

TABLE 10 : ELECTRIC LIGHT AND POWER WORKS : POWER, FUEL AND LIGHT, ETC. USED:
AUSTRALIA

Particulars	Unit of Qty.	Quantity			Value (£)		
		1938-39	1954-55	1955-56	1938-39	1954-55	1955-56
Power, Fuel and Light							
Coal - Black	ton	1,927,240	5,915,872	5,922,388	2,035,953	24,915,327	23,884,017
Brown	"	2,178,610	5,898,793	6,517,006	311,856	3,864,048	4,353,208
Brown Coal							
Briquettes	"	(a)	384,816	331,578	(a)	1,637,261	1,545,389
Coke	"	18,536	15,047	21,855	10,726	92,452	61,323
Wood	"	206,516	38,976	35,830	168,591	95,723	86,781
Fuel Oil	gal.	17,329,303	76,326,253	114,257,572	497,958	5,194,909	6,578,112
Tar (fuel)	"	(b)	171,641	257,917	(c)	2,925	4,265
Gas	-	(d)	(d)	(d)	75,682	127,563	231,873
Other (Charcoal, etc.)	-	(d)	(d)	(d)	9,144	71,251	177,297
Water and Lubricating Oil Used	-	(d)	(d)	(d)	129,318	545,211	556,744
TOTAL:		(d)	(d)	(d)	3,239,228	36,547,670	37,479,009

- (a) Included with Brown Coal.
 (b) Not available.
 (c) Included with "Other (Charcoal, etc.)".
 (d) Value only available.

7. VALUE OF LAND AND BUILDINGS, PLANT AND MACHINERY: Particulars of the book values of premises occupied and plant installed at the 30th June for the years 1938-39, 1945-46 and 1953-54 to 1955-56 are shown in the next table. Details of the values of additions and replacements made and depreciation allowed during the same period are also shown. It should be noted that the amounts shown are those recorded by factories which were operating during each year and that changes in their number, as well as other factors, affect comparison from year to year. These data exclude the value of premises and plant connected with the distribution of electricity.

TABLE 11 : ELECTRIC LIGHT AND POWER WORKS : VALUE OF LAND AND BUILDINGS, PLANT AND MACHINERY : AUSTRALIA
(£)

Year	Book Value as at 30th June (a)		Additions and Replacements made during year		Depreciation allowed during year	
	Land and Buildings	Plant and Machinery	Land and Buildings	Plant and Machinery	Land and Buildings	Plant and Machinery
1938-39	8,388,057	27,751,494	685,815	4,002,306	202,274	925,801
1945-46	9,234,673	32,130,749	381,879	3,888,214	169,929	1,580,037
1953-54	47,369,225	122,773,375	18,545,180	32,858,110	758,481	3,969,760
1954-55	60,120,947	146,273,460	13,797,559	28,300,103	1,002,203	4,790,886
1955-56	73,507,220	158,377,411	16,379,503	19,479,431	1,428,394	6,221,268

(a) Includes estimated value of rented premises and machinery.

LIST OF INDUSTRIES INCLUDED IN THE SERIES.

- No. 1. CEMENT AND CEMENT GOODS.
- .. 2. BRICKS, TILES, POTTERY AND EARTHENWARE.
- .. 3. CHEMICALS, DRUGS AND MEDICINES.
- .. 4. WHITE LEAD, PAINTS AND VARNISH.
- .. 5. CHEMICAL FERTILIZERS.
- .. 6. SOAP AND CANDLES.
- .. 7. BASIC METAL INDUSTRIES.
- .. 8. METAL FABRICATING INDUSTRIES.
- .. 9. MOTOR VEHICLES AND CYCLES.
- .. 10. COTTON MILLS.
- .. 11. WOOLLEN MILLS.
- .. 12. ROPE AND CORDAGE.
- .. 13. TANNERIES.
- .. 14. BOOTS AND SHOES.
- .. 15. CLOTHING (INCLUDING HOSIERY AND KNITTED GOODS).
- .. 16. FLOUR AND OTHER GRAIN MILLS.
- .. 17. BISCUITS.
- .. 18. CONFECTIONERY.
- .. 19. JAM, FRUIT, VEGETABLES, PICKLES, SAUCES, CONDIMENTS, ETC.
- .. 20. BACON CURING.
- .. 21. BUTTER, CHEESE AND CONDENSED, CONCENTRATED, ETC., MILK.
- .. 22. AERATED WATERS AND CORDIALS.
- .. 23. MEAT AND FISH PRESERVING.
- .. 24. BREWERIES.
- .. 25. WINERIES AND DISTILLERIES.
- .. 26. TOBACCO, CIGARS AND CIGARETTES.
- .. 27. SAWMILLING.
- .. 28. PULP AND PAPER MAKING.
- .. 29. RUBBER WORKS.
- .. 30. BROOMS AND BRUSHES.
- .. 31. ELECTRIC LIGHT AND POWER WORKS.
- .. 32. GAS WORKS.
- .. 33. PLASTIC MOULDING AND PRODUCTS.