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MANUFACTURING INDUSTRIES

1966-67



No. 31

ELECTRIC LIGHT AND POWER WORKS



COMMONWEALTH BUREAU OF CENSUS AND STATISTICS
CANBERRA, AUSTRALIA

MANUFACTURING INDUSTRIES, 1966-67

NO. 31. ELECTRIC LIGHT AND POWER WORKS

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EXPLANATORY NOTES

GENERAL. The range of bulletins in this series for 1966-67 is the same as for 1965-66. A complete list of the series is shown inside the back cover. Where a number of industries are combined in one bulletin, the introductory paragraph on page 4 specifies the industries so included.

For years prior to 1964-65 only statistics of the number of factories, persons employed, salaries and wages, value of fuel, materials, production and output, etc., exclude details for the Northern Territory and Australian Capital Territory. Statistics of materials used and articles produced however, exclude the Northern Territory and Australian Capital Territory for all years.

CLASSIFICATION OF FACTORIES. For purposes of industry classification, factories are classified to sub-classes according to the nature of their products. Where two or more distinct types of industrial activity are carried out 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. 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, in general, to the operations of factories classified to the industry specified. However, the statistics of articles produced represent total recorded production in all factories, irrespective of industry classification.

BASIS OF THE STATISTICS. The scope of the factory statistics is fully explained in the annual bulletin Manufacturing Industry, which contains comprehensive statistics both for all factory sub-classes separately and in total.

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. The figures do not include details relating to small establishments not classified for statistical purposes as factories.

Factory employment relates only to persons employed in the manufacturing activities of the factory. The figures relating to employment, therefore, include working proprietors as well as out-workers, but 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 value of materials, etc., 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 power, fuel, light, etc., used includes the cost of lubricants and water.

The value of factory output is the value of the goods manufactured or their value after passing through the particular process of manufacture and includes the amount received for repair work, work done on commission and receipts for other factory work. The basis of valuation of the output is the selling value of the goods 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.

The value of production is the value added to 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, in addition to wages and salaries, such items as interest, depreciation, profits, taxation, advertising and other sundry charges are met. As details of these other costs of production are not collected, the amount of profit resulting from factory operations cannot be ascertained from figures contained herein.

There are many miscellaneous expenses, such as maintenance of buildings, etc., depreciation, workers' compensation insurance, other insurances, pay-roll tax, income tax, advertising, interest on borrowed money, bad debts and many other sundry charges, which are not taken into account. Consequently it must not be inferred that, when wages and salaries are deducted from value of production, the whole of the surplus is available for profits.

ROUNDING OF FIGURES. Any discrepancies between totals and sums of components in tables are due to rounding.

This bulletin refers, in general, to factories which are classified to sub-class 1601 (Heat, light and power - Government), 1602 (Heat, light and power - Local authority) and 1603 (Heat, light and power - Companies) of the Factory Classification (1945).

TABLE 1. - ELECTRIC LIGHT AND POWER WORKS : SUMMARY

AUSTRALIA

Particulars	Factories	Persons employed (a)	Salaries and wages paid (b)	Power, fuel, light, etc. used (c)	Value of materials, etc. used (d)	Value of production (e)	Value of output
	Number	Number	\$'000	\$'000	\$'000	\$'000	\$'000
Year 1962-63	275	12,272	32,007	81,642	10,386	179,113	271,141
1963-64	269	12,162	33,235	85,708	11,492	194,019	291,219
1964-65	258	12,457	36,283	88,590	16,139	206,233	310,962
1965-66	253	12,600	38,879	94,151	17,348	220,237	331,736
1966-67	244	13,085	41,352	98,169	20,176	237,385	355,730

BY TYPE OF OWNERSHIP, 1966-67

Government	84	9,603	30,895	68,281	10,354	200,260	278,895
Local authority	91	2,512	7,306	18,680	7,263	31,306	57,248
Companies	69	970	3,151	11,208	2,558	5,820	19,586

(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 added in process of manufacture (i.e. value of output less value of materials and fuel used).

TABLE 2. - ELECTRIC LIGHT AND POWER WORKS : SUMMARY

STATES, 1966-67

Particulars	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Aust.
Factories	50	18	43	30	83	15	5	..	244
Persons employed (a) -									
Males	4,049	3,925	1,907	(g)	1,107	(g)	90	..	12,941
Females	54	40	11	(g)	13	(g)	1	..	144
Total	4,103	3,965	1,918	(g)	1,120	(g)	91	..	13,085
Salaries and wages paid (b)	12,298	13,498	5,498	(g)	3,707	(g)	237	..	41,352
Value of -									
Power, fuel, light, etc. used (c)	32,202	26,135	18,952	(g)	10,273	(g)	632	..	98,169
Materials, etc. used (d)	5,668	3,976	7,031	(g)	1,399	(g)	524	..	20,176
Production (e)	104,343	63,978	23,641	(g)	15,434	(g)	1,263	..	237,385
Output	142,213	94,089	49,623	(g)	27,106	(g)	2,419	..	355,730
Land and buildings(f)	374,775	48,068	35,443	(g)	14,061	(g)	1,103	..	638,486
Plant and machinery(f)	302,504	266,696	119,580	(g)	60,049	(g)	3,028	..	879,465

For footnotes (a) to (e) see Table 1. (f) Depreciated or book values at end of year. (g) Not available for publication.

TABLE 3. - ELECTRIC LIGHT AND POWER WORKS

AVERAGE SALARIES AND WAGES PAID PER EMPLOYEE, OUTPUT AND PRODUCTION PER PERSON EMPLOYED

AUSTRALIA

Year	Salaries and wages per employee (a)	Value of output per person employed (b)	Value of production per person employed (b)	Ratio of salaries and wages to value of production %
1962-63	2,617	22,094	14,595	17.87
1963-64	2,742	23,945	15,953	17.13
1964-65	2,920	24,963	16,556	17.59
1965-66	3,093	26,328	17,479	17.65
1966-67	3,167	27,186	18,142	17.42

(a) Excludes working proprietors and amounts drawn by them. (b) Includes working proprietors.

TABLE 4. - ELECTRIC LIGHT AND POWER WORKS

PERSONS EMPLOYED (a) : AUSTRALIA

Number employed in each factory	1962-63		1963-64		1964-65		1965-66		1966-67	
	No. of fac-tories	No. of em-ployed	No. of fac-tories	No. of em-ployed	No. of fac-tories	No. of em-ployed	No. of fac-tories	No. of em-ployed	No. of fac-tories	No. of em-ployed
Under 4	131	204	127	193	121	186	113	170	102	155
4	12	48	9	36	7	28	6	24	5	20
5 to 10	42	280	45	292	38	251	37	241	36	242
11 " 20	23	331	21	297	25	376	24	361	29	447
21 " 50	26	846	26	798	30	1,036	30	935	27	902
51 " 100	16	1,067	15	977	10	705	14	1,003	14	996
101 " 200	8	1,107	8	1,108	8	1,163	12	1,759	13	1,826
201 " 300	3	692	5	1,149	6	1,364	3	709	4	935
301 and over	14	7,792	13	7,377	13	7,360	14	7,457	14	7,666
TOTAL	275	12,367	269	12,227	258	12,469	253	12,659	244	13,189
Average number employed per factory	45		45		48		50		54	

(a) Average number employed during period of operation whether for the whole or only part of the year. Includes working proprietors.

TABLE 5. - ELECTRIC LIGHT AND POWER WORKS

PERSONS EMPLOYED (a) BY OCCUPATIONAL STATUS AND SEX

AUSTRALIA

Occupational status	Males			Females		
	1964-65	1965-66	1966-67	1964-65	1965-66	1966-67
Working proprietors	30	28	26	1	2	1
Managerial and clerical staff, including salaried managers and working directors	663	820	740	74	93	97
Chemists, draughtsmen and other laboratory and research staff	194	198	212	3	3	6
Workers in factory (skilled and unskilled) foremen and overseers, carters (excluding delivery only) and messengers	11,460	11,418	11,963	32	38	40
TOTAL	12,347	12,464	12,941	110	136	144

(a) Average number employed calculated on a "whole year" basis, i.e. in factories operating for less than the full year, the average number of persons employed during the period of operation is reduced to a whole year equivalent.

TABLE 6. - ELECTRIC LIGHT AND POWER WORKS

EMPLOYEES BY AGE AND SEX : AUSTRALIA

Last pay day in June -	20 years and under		21 years and over		Total all ages		
	Males	Females	Males	Females	Males	Females	Persons
1963	431	56	11,626	67	12,057	123	12,180
1964	533	47	11,400	63	11,933	110	12,043
1965	488	40	11,722	67	12,210	107	12,317
1966	525	44	12,087	92	12,612	136	12,748
1967	596	49	12,335	92	12,931	141	13,072

TABLE 7. - ELECTRIC LIGHT AND POWER WORKS
CAPACITY OF ENGINES AND GENERATORS : AUSTRALIA

Particulars	Steam engines -		Internal combustion engines	Water	Total
	Recipro-cating	Turbine			
1965-66					
Engines installed -	Rated horsepower				
Total installed	800	9,218,870	364,747	3,282,931	12,867,348
Generators installed -	Kilowatt				
Kilowatt capacity -					
Total installed (a)	560	6,770,852	247,888	2,376,585	9,395,885
Effective capacity (b)	500	6,617,115	228,185	2,344,985	9,190,785
Horsepower equivalent -	Horsepower				
Total installed (a)	751	9,076,192	332,289	3,185,765	12,594,997
Effective capacity (b)	670	8,870,110	305,877	3,143,405	12,320,062
1966-67					
Engines installed -	Rated horsepower				
Total installed	800	10,592,812	382,105	3,992,851	14,968,568
Generators installed -	Kilowatt				
Kilowatt capacity -					
Total installed (a)	560	7,883,852	273,166	2,893,085	11,050,663
Effective capacity (b)	500	7,729,772	250,858	2,850,835	10,831,965
Horsepower equivalent -	Horsepower				
Total installed (a)	751	10,568,146	366,174	3,878,123	14,813,194
Effective capacity (b)	670	10,361,605	336,270	3,821,487	14,520,032

(a) Total installed is the kilowatt capacity of all serviceable generators installed, including spares and standbys. (b) Effective capacity is the kilowatt capacity of all generators which can be linked up at any one time.

NOTE. Footnotes (a) and (b) 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 8. - ELECTRIC LIGHT AND POWER WORKS
POWER, FUEL, LIGHT, ETC. USED : AUSTRALIA

Particulars	Unit of quantity	Quantity			Value (\$'000)		
		1965-66	1965-66	1966-67	1964-65	1965-66	1966-67
Power, fuel and light -	'000 tons						
Coal - Black		9,628	10,563	11,193	52,609	56,166	57,507
Brown	"	13,323	15,368	16,469	13,466	15,030	16,121
Brown coal briquettes	"	618	619	554	8,780	8,343	7,822
Coke	"	..	..	(a)	..	..	(b)
Wood	"	163	191	191	222	256	256
Fuel oil	'000 gal	111,348	126,916	153,594	9,326	10,018	11,707
Tar (fuel)	ton	3,877	2,106	1,488	49	27	17
Gas - Town	-				1,447	1,396	1,403
Other (char-coal, etc.)	-	(c)	(c)	(c)	971	587	756
Water and lubricating oil used	-				1,779	2,327	2,580
TOTAL	-	(c)	(c)	(c)	88,590	94,151	98,169

(a) Less than 500 ton. (b) Less than \$500. (c) Value only available.

TABLE 9. - ELECTRIC LIGHT AND POWER WORKS
VALUE OF LAND AND BUILDINGS, PLANT AND MACHINERY, ETC. : AUSTRALIA
(\$'000)

Year	Book values as at 30 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
1963	499,901	613,244	23,197	66,431	11,250	33,929
1964	497,126	622,087	8,656	46,227	9,618	33,016
1965	537,430	652,376	46,194	62,518	11,305	34,172
1966	533,694	711,382	65,186	99,403	14,780	46,061
1967	638,486	879,465	67,056	210,234	12,318	40,155

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

TABLE 10. - ELECTRIC LIGHT AND POWER WORKS
TOTAL ELECTRICITY GENERATED : STATES
 (million kWh)

Year	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	Total
1962-63	12,188	7,187	3,137	2,335	1,219	3,213	29,279
1963-64	13,859	7,888	3,493	2,547	1,318	3,414	32,519
1964-65	15,174	8,634	3,711	2,863	1,474	3,784	35,641
1965-66	15,545	9,741	4,180	3,227	1,639	3,947	38,279
1966-67	16,722	10,713	4,625	3,402	1,903	4,119	41,484

TABLE 11. - ELECTRIC LIGHT AND POWER WORKS
ELECTRICITY GENERATED BY SUB-CLASS
AUSTRALIA (a) 1966-67
 (million kWh)

Particulars	Commodity code No.	Government	Local Authorities	Companies	Total
Electric light and power works -					
(i) Sold or used outside generating station (c)	499.12.22 less 499.02	29,778	3,850	1,300	34,928
(ii) Used in generating station	499.24	1,928	253	62	2,243
(iii) Lost	499.36	2,549	425	30	3,005
<u>Total sold, used or lost (b)</u>		<u>34,254</u>	<u>4,529</u>	<u>1,392</u>	<u>40,175</u>
Electricity generated in other works (c)					1,309
<u>TOTAL GENERATED</u>					<u>(d) 41,484</u>

(a) Excludes Northern Territory and Australian Capital Territory.

(b) Net after adjustment for inter-station transfers and sales. (c) In factories not classified as Electric light and power works and used mainly within these works. (d) Of this amount hydro-electric generation provided 7,802 million kWh and thermal generation 33,682 million kWh.

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NOTE. Inquiries concerning these statistics may be made in Canberra by telephoning 48 9066 Extension 276 or, in each State capital, by telephoning the office of the Bureau of Census and Statistics.