

COMMONWEALTH BUREAU OF CENSUS AND STATISTICS.

CANBERRA.

OFFICIAL STATISTICS, COMMONWEALTH OF AUSTRALIA.

MANUFACTURING INDUSTRIES.

1939-40.

No. 32. ELECTRIC LIGHT AND POWER WORKS.

Prepared Under Instructions From
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by

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28th August, 1941.

P R E F A C E.

1. Industries included in the Series: The list of industries included in this series is the same as in previous years. Summaries of the various industries will appear as the information becomes available and not necessarily in any given order. The following have already been published: Nos. 1 to 7, 9 to 17, 19 to 25, 27, 29 and 30.
2. Classification of Factories: The classification of factories in Australia is based on the nature of the product. Where two or more distinct types of industrial activity are carried on in one establishment, factory proprietors are requested to furnish separate returns for each activity. In some instances, however, this is not practicable, and in such cases there is no alternative but to classify the factory according to its predominant activity. This difficulty is most acute in the Metal Trades industries (e.g. Engineering firms also producing Agricultural Implements, Stoves and Ovens, and/or Brass and Copper products), but it is also to be found in factories concerned with the treatment or manufacture of Skins, Leather, Clothing, Wood products and some other articles. In consequence, and to an extent which will vary with individual industries, the figures may include the subsidiary but extraneous activities of those establishments included in the industry, while they will exclude relevant activities which are subsidiary to the predominant activity of establishments classified to some other industry. This qualification is not important in the case of Electric Light and Power Works, the industry with which this summary is concerned.
3. Basis of the Statistics: The scope of the factory statistics is fully explained in Part I of the annual Production Bulletin.

Briefly, a "factory" is taken to be an industrial establishment in which four or more hands are employed or in which power other than hand is used.

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, and retailing storemen. The figures do include, however, proprietors who work in their own factories and "out-workers".

The value of output is the wholesale selling value at the factory of goods made or processed during the year, including by-products. 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 of output minus the cost of raw materials, containers, power, fuel, light, lubricants, water, tools replaced, and repairs to plant.

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Acting Commonwealth Statistician.

Canberra, A.C.T.
28th August, 1941.

ELECTRIC LIGHT AND POWER WORKS.

The following table furnishes a summary of the principal statistics of the factories engaged in the production of electricity.

1. ELECTRIC LIGHT AND POWER WORKS : AUSTRALIA, 1908 TO 1939-40.

Year	Number of Factories	Persons Employed (a)	Salaries and Wages Paid (b)	Power, Fuel and Light Used	Value of Other Materials Used	Value of Production	Value of Output
	No.	No.	£'000	£'000	£'000	£'000	£'000
1908	138	(c)1,823	216	235	38	830	1,103
1913	209	(c)3,046	447	472	55	1,765	2,293
1920-21	260	(c)4,044	936	1,270	79	2,718	4,067
1928-29	326	(d)5,851	1,660	2,764	369	5,973	9,106
1929-30	335	5,783	1,672	3,039	335	6,737	10,111
1930-31	357	5,205	1,385	2,449	341	6,757	9,547
1931-32	352	5,252	1,282	2,142	301	6,907	9,351
1932-33	365	5,332	1,296	2,214	355	6,881	9,450
1933-34	386	5,436	1,355	2,344	375	6,842	9,561
1934-35	392	5,796	1,449	2,423	395	6,966	9,854
1935-36	404	6,283	1,587	2,704	496	7,138	10,338
1936-37	373	6,044	1,570	2,576	480	8,255	11,311
1937-38	385	6,184	1,709	2,879	532	8,730	12,141
1938-39	395	6,498	1,877	3,239	519	8,725	12,483
1939-40	387	6,801	1,981	3,493	555	9,529	13,577

- (a) Including Working Proprietors. (b) Exclusive of amounts drawn by Working Proprietors.
(c) Average over period worked by factory. (d) For 1928-29 and succeeding years, the employment figures have been averaged over the whole year.

In the following table particulars of the industry are given for each State during the year 1939-40.

2. ELECTRIC LIGHT AND POWER WORKS : STATES, 1939-40.

Particulars	New South Wales	Victoria	Queensland	South Australia	Western Australia	Tasmania	AUSTRALIA
	No.	No.	No.	No.	No.	No.	No.
Number of Factories ..	99	78	53	43	110	4	397
Number Employed (a)							
Males ..	2,136	1,442	585	1,663	679	124	6,529
Females ..	12	3	2	127	23	5	172
Total ..	2,148	1,445	587	(c)1,790	(c)702	129	6,801
Value of -	£.	£.	£.	£.	£.	£.	£.
Salaries and Wages Paid (b)	668,240	415,541	186,692	470,046	210,339	29,221	1,980,779
Fuel used ..	1,493,276	651,061	436,864	237,096	625,102	-	3,493,399
Materials used	236,845	66,633	45,719	43,335	100,696	61,645	554,873
Production ..	4,466,264	1,955,657	578,575	1,157,640	670,935	700,066	9,529,137
Output ..	(d)6,196,385	(e)2,673,351	(e)1,061,158	(d)488,072	(d)296,733	(d)761,711	13,577,409
Land and Buildings ..	4,611,531	1,945,153	508,824	597,096	464,671	409,399	8,536,674
Plant and Machinery ..	12,271,485	7,464,941	1,760,083	2,038,320	2,895,956	3,184,496	29,615,286

- (a) Includes Working Proprietors. (b) Exclusive of amounts drawn by Working Proprietors.
(c) Includes Distribution as well as Generation. (d) At point of consumption. (e) At Generating Station.

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 each of the years indicated:-

/3. AVERAGE

**3. AVERAGE SALARIES AND WAGES PAID, OUTPUT, ETC., PER EMPLOYEE :
AUSTRALIA, 1908 TO 1939-40.**

Year	Salaries and Wages per Employee (a)	Value of Output Per Person Engaged (b)	Value of Production Per Person Engaged (b)	Ratio per cent. of Salaries and Wages to Value of Production %
	£.	£.	£.	
1908	119	605	455	28.60
1913	148	753	379	25.35
1920-21	233	1,006	672	21.44
1928-29	286	1,556	1,021	21.79
1929-30	291	1,743	1,165	20.80
1930-31	269	1,834	1,208	20.50
1931-32	247	1,780	1,315	18.36
1932-33	246	1,772	1,201	16.89
1933-34	249	1,737	1,243	14.80
1934-35	250	1,682	1,189	20.20
1935-36	255	1,645	1,109	22.22
1936-37	263	1,872	1,366	19.00
1937-38	280	1,963	1,412	29.50
1938-39	293	1,921	1,341	21.56
1939-40	295	1,996	1,401	20.78

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

In the next two tables details are given of the amounts of electricity produced and used in Australia during the periods indicated:-

4. ELECTRIC LIGHT AND POWER WORKS : AUSTRALIA, 1929-40.

Electricity Generated	Government	Local Authorities	Companies	Total
	- Thousand Kilowatt Hours -			
(i) Sold or used outside Generating Station ..	2,340,277	1,194,033	938,490	4,472,800
(ii) Used in Generating Station ..	128,597	49,025	56,417	234,129
(iii) Lost ..	228,579	132,239	56,674	417,492
Total Sold, Used or Lost:	2,697,453	1,375,297	1,051,581	5,124,331
Less Electricity Purchased ..	27,895	253,285	17,357	298,537
Total Electricity Generated in Electric Light and Power Works ..	2,669,558	1,122,012	1,034,224	4,825,794
Plus Electricity Generated in Other Works	-	-	-	252,073
TOTAL PRODUCTION:	-	-	-	5,177,867

**5. PRODUCTION OF ELECTRIC ENERGY : ELECTRIC LIGHT AND POWER WORKS, AUSTRALIA,
1912 TO 1939-40 (IN MILLIONS OF K.W.H.)**

Year	New South Wales	Vic- toria	Queens- land	South Australia	Western Australia	Tas- mania	AUSTRALIA
1912	167	27	11	15	25	6	251
1920-21	342	115	32	32	33	43	597
1928-29	960	674	102	155	101	204	2,256
1929-30	996	724	111	152	112	240	2,436
1930-31	1,060	681	130	133	105	237	2,446
1931-32	1,076	705	122	134	127	242	2,507
1932-33	1,155	779	134	148	145	255	2,716
1933-34	1,228	831	169	165	160	257	2,910
1934-35	1,349	900	202	177	171	400	3,199
1935-36	1,465	975	224	201	204	459	3,528
1936-37	1,627	1,050	257	216	227	522	3,809
1937-38	1,817	1,128	352	241	272	543	4,353
1938-39	1,948	1,223	387	256	307	537	4,668
1939-40	2,116	1,390	422	270	217	615	5,120

The number of employees in Table 2 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 according to the average number employed during the actual period worked.

/6. FACTORIES

6. FACTORIES CLASSIFIED ACCORDING TO HANDS EMPLOYED : AUSTRALIA,
1908 TO 1938-39.

Number of Persons Em- ployed in each Factory	1908		1913		1920-21		1928-29		1938-39(a)	
	Number of Fac- tories	Number Em- ployed	Number of Fac- tories	Number Em- ployed	Number of Fac- tories	Number Em- ployed	Number of Fac- tories	Number Em- ployed	Number of Fac- tories	Number Em- ployed
Under 4	68	112	102	194	120	219	142	271	203	383
4	12	48	20	80	32	128	32	128	44	176
5 to 10	30	212	45	275	61	408	87	579	82	513
11 to 20	12	177	20	280	22	302	30	443	28	415
21 to 50	7	201	11	394	12	387	17	538	20	675
51 to 100	4	227	5	340	5	354	9	651	9	671
Over 100	5	846	6	1,483	8	2,245	9	3,288	9	3,685
TOTAL:	138	1,823	209	3,046	260	4,044	326	5,898	395	6,518
Average number employed per Factory:	13		15		16		18		17	

(a) 1939-40 not yet available.

Further details of employment in the industrial group - Electric Light and Power - are furnished in the next three tables. In the first the employees have been classified according to the nature of their employment.

7. PERSONS EMPLOYED CLASSIFIED ACCORDING TO GRADE OF OCCUPATION -
AUSTRALIA, 1908 TO 1939-40.

Grade of Occupation	1908	1913	1920-21	1928-29	1938-39	1939-40
	No.	No.	No.	No.	No.	No.
Working Proprietors ..	9	27	27	42	84	86
Managers and Overseers ..	112	193	315	478	582	594
Clerical Staff ..	110	225	497	464	463	491
Engine Drivers and Firemen ..	451	641	771	1,145	1,327	1,379
Workers, Skilled and Unskilled ..	988	1,748	2,322	3,569	3,935	4,126
Other (Carters and Messengers) ..	153	212	112	153	107	115
TOTAL:	1,823	3,046	4,044	5,851	6,498	6,801

The next table shows the actual number of persons employed (excluding Working Proprietors) on the pay-day nearest to the 15th of each month for the years 1938-39 and 1939-40.

8. PERSONS EMPLOYED ON PAY-DAY NEAREST TO THE 15TH OF EACH MONTH : AUSTRALIA,
1938-39 AND 1939-40 (WORKING PROPRIETORS EXCLUDED).

Month	1938-39			1939-40		
	Males	Females	Total	Males	Females	Total
	No.	No.	No.	No.	No.	No.
July ..	5,947	142	6,089	6,338	144	6,482
August ..	6,003	143	6,146	6,352	146	6,498
September ..	6,041	145	6,186	6,376	146	6,522
October ..	6,125	146	6,271	6,456	150	6,606
November ..	6,080	148	6,228	6,439	155	6,594
December ..	6,132	147	6,279	6,398	153	6,551
January ..	6,176	148	6,324	6,416	155	6,571
February ..	6,335	150	6,485	6,457	152	6,609
March ..	6,284	150	6,434	6,460	159	6,619
April ..	6,277	151	6,428	6,455	158	6,613
May ..	6,256	148	6,404	6,362	159	6,521
June ..	6,256	150	6,406	6,465	158	6,623
Average:	6,159	147	6,306	6,414	153	6,567

A classification of the number of employees according to age on or about the 15th June, 1940 is shown in the next table:-

9. PERSONS EMPLOYED CLASSIFIED ACCORDING TO AGE : JUNE, 1940.

Sex	Under 16 years	16 and under 21 years	Adults	Total
	No.	No.	No.	No.
Males ..	16	368	6,081	6,465
Per Cent. of Total ..	0%	6%	94%	100%
Females ..	1	65	92	158
Per Cent. of Total ..	1%	41%	58%	100%
Persons ..	17	433	6,173	6,623
Per Cent. of Total ..	0%	7%	93%	100%

Statistics of the power equipment of the factories included in this group are given in the next table for the years 1938-39 and 1939-40. Particulars are given of the rated H.P. of Prime Movers installed and the kilowatt capacity and its equivalent in terms of H.P., in various categories, of the Generators installed.

10. CAPACITY OF ENGINES AND GENERATORS : AUSTRALIA, 1938-39 AND 1939-40.

10. CAPACITY OF ENGINES AND GENERATORS								
Particulars	Steam Engines		Internal Combustion Engines			Water	Total	
	Reciprocating	Turbine	Gas	Petrol or Other LightOils	Heavy Oils			
1938-39								
Engines Installed -	Rated H.P.	Rated H.P.	Rated H.P.	Rated H.P.	Rated H.P.	Rated H.P.	Rated H.P.	
Total Installed ..	35,531	1,769,449	20,226	1,733	138,540	239,140	2,204,619	
Generators Installed -	K.W.	K.W.	K.W.	K.W.	K.W.	K.W.	K.W.	
Kilowatt Capacity -								
Total Installed ..	17,986	1,323,383	12,347	921	92,070	173,589	1,620,296	
Effective Capacity	15,555	1,100,744	11,406	867	85,251	150,589	1,364,412	
Maximum Load ..	12,910	947,216	8,876	860	61,930	128,644	1,160,436	
Horse Power Equivalent -	H.P.	H.P.	H.P.	H.P.	K.P.	H.P.	H.P.	
Total Installed ..	24,111	1,774,061	16,551	1,235	123,424	232,704	2,172,086	
Effective Capacity	20,853	1,475,601	15,291	1,162	114,283	201,872	1,829,062	
Maximum Load ..	17,306	1,269,790	11,898	1,153	83,021	172,454	1,555,622	
1939-40								
Engines Installed -	Rated H.P.	Rated H.P.	Rated H.P.	Rated H.P.	Rated H.P.	Rated H.P.	Rated H.P.	
Total Installed ..	39,024	1,919,290	20,909	1,574	153,549	246,030	2,380,376	
Generators Installed -	K.W.	K.W.	K.W.	K.W.	K.W.	K.W.	K.W.	
Kilowatt Capacity -								
Total Installed ..	18,162	1,406,523	12,753	825	98,611	182,052	1,718,926	
Effective Capacity	15,253	1,197,506	12,025	744	91,992	156,881	1,474,401	
Maximum Load ..	13,116	1,005,866	9,084	654	67,819	144,307	1,240,846	
Horse Power Equivalent -	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.	
Total Installed ..	24,347	1,885,514	17,096	1,106	132,193	244,050	2,304,306	
Effective Capacity	20,447	1,605,315	16,120	998	123,321	210,307	1,976,508	
Maximum Load ..	17,583	1,348,414	12,177	877	90,914	183,451	1,663,416	

Details of the quantities and values of the various items of power, fuel and light used in Electric Light and Power Works are shown in the following table:-

11. POWER, FUEL AND LIGHT, ETC. USED : AUSTRALIA, 1939-40.

Particulars	Unit of Quantity	Quantity	Value £.
Coal - Black ..	ton	1,968,339	2,211,229
Brown ..	"	2,380,043	315,289
Coke ..	"	33,282	17,967
Wood ..	"	220,256	186,596
Fuel Oil ..	gallon	17,405,705	538,148
Electricity ..	(a)	-	-
Gas ..	(a)	-	72,375
Other (Charcoal, etc.) ..	(a)	-	12,432
Water used ..	(a)	-	60,349
Lubricating Oil ..	(a)	-	79,014
TOTAL:		Value Only	3,493,399

(a) Value only available.

Particulars of the book values of premises occupied and plant used in Electric Light and Power Works at the 30th June for each of the five years ended 1940 are shown in the next table. In addition, details of the values of additions and replacements made and depreciation allowed during the year 1939-40 are also shown. It should be noted that the amounts expended in Additions and Replacements refer to expenditure incurred by existing factories and do not include the cost of erecting and equipping new factories; these latter items, however, are included with the book values shown at 30th June. The amounts shown for Depreciation are those returned by factories. Changes in the number of factories operating and other factors affect comparison from year to year.

12. VALUE OF LAND AND BUILDINGS, PLANT AND MACHINERY : AUSTRALIA, 1939-40.

Particulars	Land and Buildings	Plant and Machinery
	£.	£.
Additions and Replacements made during year (a)	310,678	3,000,134
Depreciation allowed during year (a) ..	136,373	1,090,433
Book Value (a) as at 30th June -		
1940 ..	8,536,674	29,615,286
1939 ..	8,388,057	27,751,494
1938 ..	8,088,954	24,633,105
1937 ..	8,355,446	24,496,070
1936 ..	8,343,854	25,554,863

(a) See Note above.
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The following table shows the minimum weekly rates of wage and hours of labour operating as at 30th June, 1940 as prescribed by Commonwealth and State Industrial Tribunals. Where no rate is shown it indicates that the particular occupation is not specifically provided for.

13. ELECTRIC LIGHT AND POWER.

Minimum Weekly Rates of Wage and Hours of Labour as at 30th June, 1940.

Occupation		New South Wales		Victoria		Queensland		South Australia		Western Australia		Tasmania	
		Hrs	Week-ly Wage	Hrs	Week-ly Wage	Hrs	Week-ly Wage	Hrs	Week-ly Wage	Hrs	Week-ly Wage	Hrs	Week-ly Wage
Electrician in Charge of	C	44	119/-	44	118/-	..	..	44	114/-	..	..	44	114/-
Electric Supply undertakings ..	..	..	and 129/-	..	and 128/-	..	..	..	and 124/-	..	..	..	and 124/-
Installation Inspector	S	..	..	..	..	44	158/-	..	..	..	..	..	..
..	C	44	116/-	44	115/-	..	..	44	111/-	..	..	44	111/-
..	S	44	128/-	..	..	..	..	..	..	44	106/2	..	..
Installation Tester	.. C	44	116/-	44	115/-	..	..	44	111/-	..	..	44	111/-
..	S	44	125/-	..	..	..	..	..	..	44	106/2	..	..
Shift Electrician	.. C	44	107/-	44	106/-	..	..	44	102/-	..	..	44	102/-
..	..	..	and 113/-	..	and 112/-	..	..	..	and 108/-	..	..	..	and 108/-
..	S	44	128/-	..	..	44	130/10 to 140/10	..	..	..	..	..	..
Shift Electrician's Assistant	C	44	103/-	44	102/-	..	..	44	98/-	..	..	44	98/-
..	S	..	..	..	..	..	..	..	..	..	..	..	..
Electrician in Charge of Plant or Installation	C	44	113/-	44	112/-	..	..	44	108/-	..	..	44	108/-
..	S	44	121/-	..	..	44	120/4 to 142/10	..	..	44	106/2	44	109/- and 121/-
Electrical Fitter	.. C	44	113/-	44	112/-	..	..	44	108/-	..	..	44	108/-
..	S	44	119/-	..	..	44	126/10 to 136/10	..	..	44	106/2	44	108/-
Armature Winder	.. C	44	113/-	44	112/-	..	..	44	108/-	..	..	44	108/-
..	S	44	119/-	..	..	44	116/10 and 136/10	..	..	44	106/2	44	108/-
Electrical Mechanic	.. C	44	110/-	44	109/-	..	..	44	105/-	..	..	44	105/-
..	S	44	113/-	..	..	44	114/1 and 133/10	..	..	44	106/2	44	105/-
Linesman	.. C	44	106/-	44	105/-	..	..	44	101/-	..	..	44	101/-
..	S	44	113/-	..	..	44	114/1	..	..	44	100/2	..	..
Cable Joiner	.. C	44	110/-	44	109/-	..	..	44	105/-	..	..	44	105/-
..	..	..	and 112/-	..	and 111/-	..	..	..	and 107/-	..	..	..	and 107/-
..	S	44	119/-	..	..	44	114/1	..	..	44	100/2	..	..
Cable Joiner's Mate	.. C	44	91/-	44	90/-	..	..	44	86/-	..	..	44	86/-
..	S	..	..	..	..	..	..	..	..	..	..	..	..
Meter Tester	.. C	44	100/-	44	95/-	..	..	44	95/-	..	..	44	95/-
..	..	..	and 103/-	..	and 102/-	..	..	..	and 98/-	..	..	..	and 98/-
..	S	..	..	..	..	..	..	..	..	44	106/2	..	..
Meter Fixer	.. C	44	101/-	44	100/-	..	..	44	96/-	..	..	44	96/-
..	S	44	113/-	..	..	..	..	..	..	44	92/2	..	..
Transformer Attendant	.. C	44	96/6	44	95/6	..	..	44	91/6	..	..	44	91/6
..	S	..	..	..	..	..	..	..	..	..	..	..	..
Patrolman	.. C	44	93/-	44	92/-	..	..	44	88/-	..	..	44	88/-
..	..	..	and 103/-	..	and 102/-	..	..	..	and 98/-	..	..	..	and 98/-
..	S	44	113/-	..	..	44	91/9 to 109/10	..	..	..	..	..	..
Switchboard Attendant	.. C	44	103/6	44	102/6	..	..	44	98/6	..	..	44	98/6
..	S	..	..	..	..	..	..	..	..	..	..	..	..

C. denotes Commonwealth Court Award. S. denotes State Award.