

## Calgary Economic Development

### INDUSTRY REPORT: UTILITIES

January 2008

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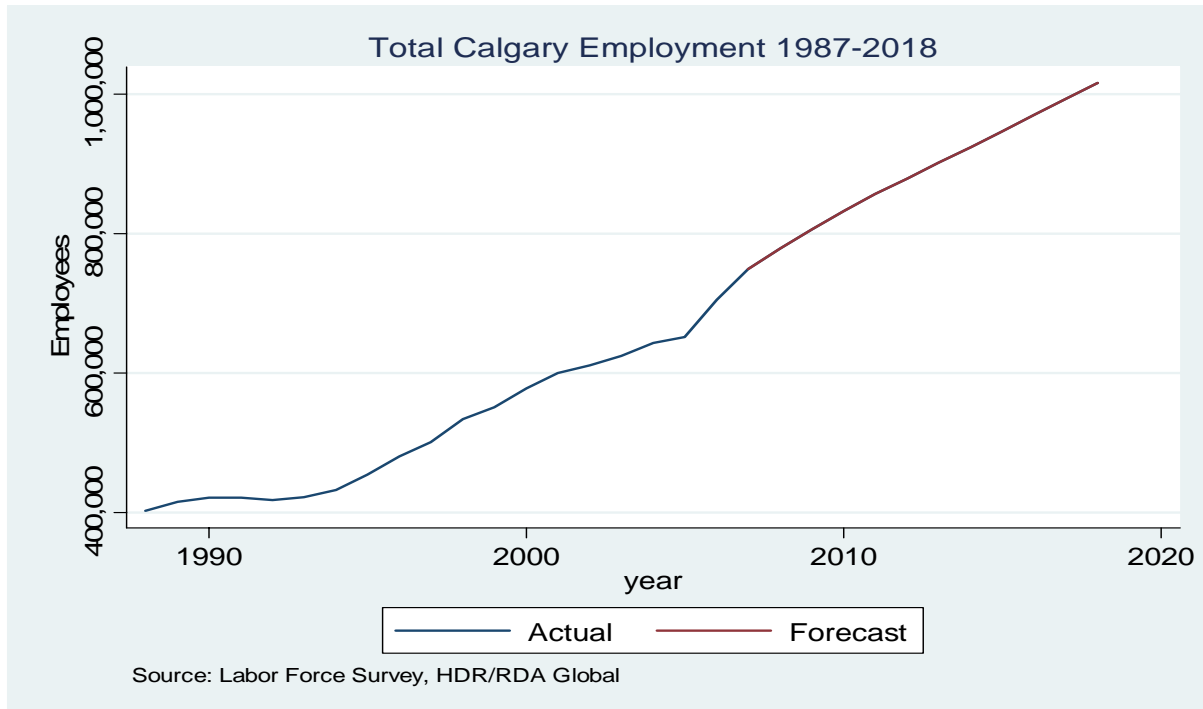


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## CALGARY LABOR MARKET

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Figure 1: Total Calgary Employment Forecast (All Industries)



The Calgary economy has seen tremendous growth in labour demand over the previous decade with employment growth reaching an all-time high of 8.1%<sup>1</sup> in 2006. The recent strong growth in the Calgary economy has been driven by a combination of economic factors spurring growth in specific sectors and generally throughout the Calgary economy. Energy prices are a significant driver with West Texas Intermediate oil price rising 17%<sup>2</sup> in 2006. Investment levels in major construction projects have risen significantly compared to historical levels. Housing starts have risen from 13,700<sup>3</sup> starts in 2005 to 17,000 starts in 2006, an increase of 25%. Calgary GDP grew at 7.7% in 2006.

Recent increases in employment levels have been highest in sectors of the Calgary economy which are related to energy, in particular in the professional services sector. However, overall growth has been relatively balanced among industries with significant growth in most sectors of the economy.

As Figure 1 shows, labour demand in the Calgary Economic Region is expected to continue to grow at a healthy rate throughout the forecast, albeit at a lower, more sustainable level. The overall growth in employment in Calgary is expected to decline over the next several years settling at a more sustainable long-term employment growth rate of 2.4%, in line with historical average growth. However, this lower growth rate will continue to result in strong job creation. Over the previous ten years (1996-2006) Calgary employment increased adding 224,000 new

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<sup>1</sup> Source: Labor Force Survey

<sup>2</sup> Source: US Energy Information Administration

<sup>3</sup> Source for housing starts statistics and Metro GDP at basic prices was the Conference Board of Canada

jobs. Over the ten year forecast period (2007-2017) Calgary employment growth will result in the creation of an additional 244,000 new jobs. This growth in the Calgary economy will be driven by a number of factors including expectations that oil prices will remain at or near historically high levels. Energy prices are expected to be volatile in the near term, with possible spikes in prices, partially due to the declining value of the US dollar. However, for the long-term forecast, an average annual 1.7% growth rate in oil prices has been forecasted, which is consistent with conservative expectations of energy analysts<sup>4</sup>. Calgary GDP growth will moderate to a strong long term compound annual real growth rate of 3.8%.

**Figure 2 Calgary Job Creation in Each Industry**

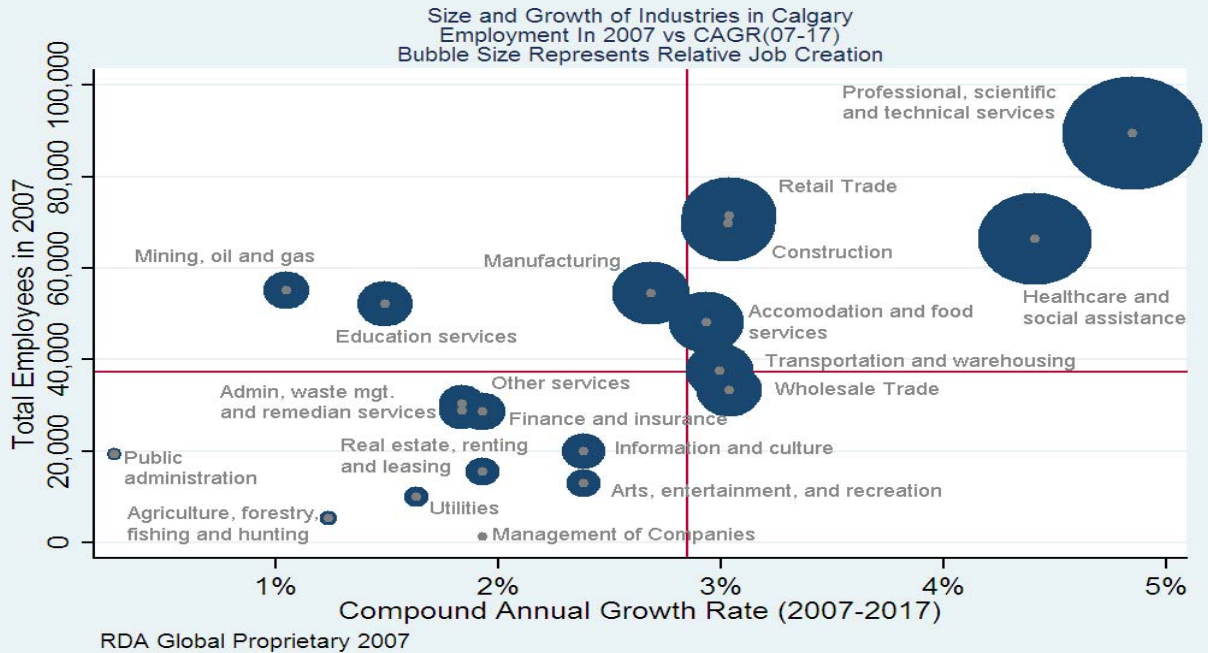


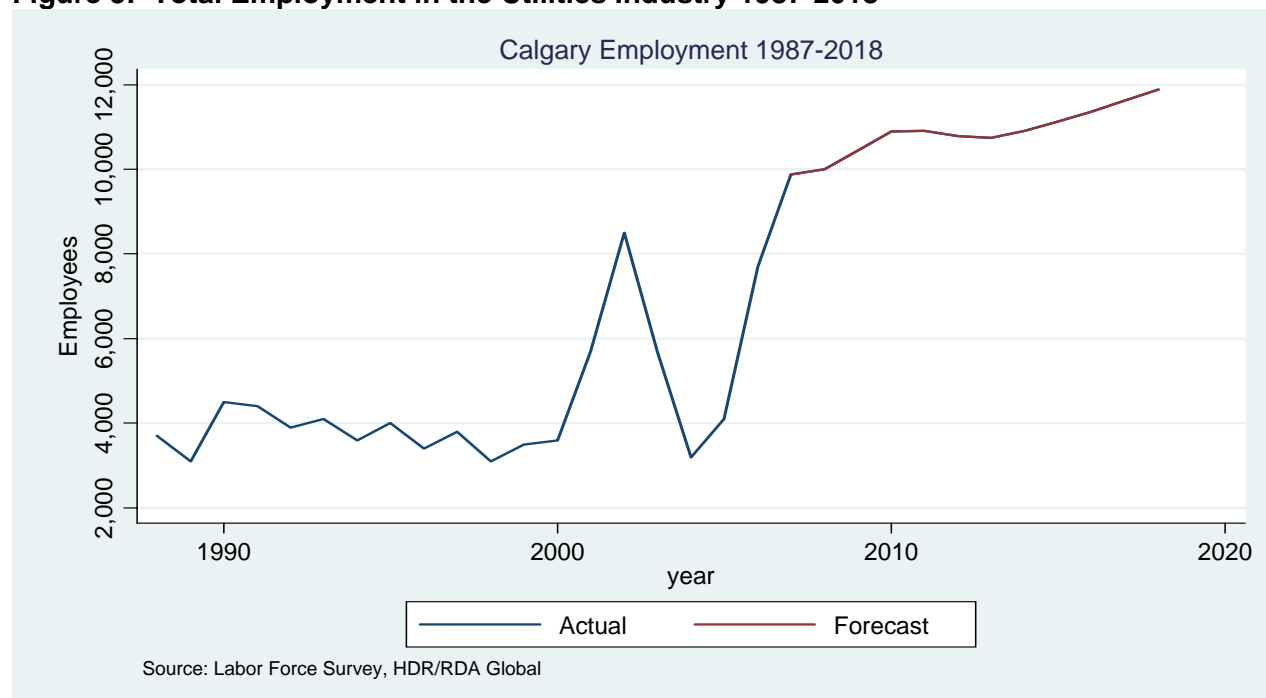
Figure 2 highlights the differences in job creation across industries in Calgary, with the larger circles representing industries with more job creations. Significant gains in employment will be somewhat distributed among economic sectors. However, there will be particularly strong expansion in the professional services sector, which is tied to continued demand for technical and engineering services in the energy sector. There will also be strong job growth in healthcare, driven by overall population growth and growth in the older segments of the population. Job expansion will also continue to be robust in retail, construction, accommodation & food services, transportation, manufacturing, and wholesale. Population growth is expected to drive up demand for education services. Most segments of the economy are expected to continue to see positive growth with employment growth rates in the 1% to 2.5% long-term growth range. However, total job creation in niche industries will be constrained by the relatively smaller size of these segments.

<sup>4</sup> In development of this forecast, oil price forecasts of the Energy Information Administration and Sproule and Associates were consulted, however, final assumptions in the forecast model were based on a nominal annual growth rate of 1.7%.

## UTILITIES INDUSTRY

The Utilities industry is expected to continue to expand at a compound annual growth rate of 1.6% over the next ten years. This will grow below the overall employment growth in Calgary of 2.9% over the same forecast period. Growth in the industry will result in an additional 1,700 jobs added to the industry over the forecast period.

**Figure 3: Total Employment in the Utilities Industry 1987-2018**



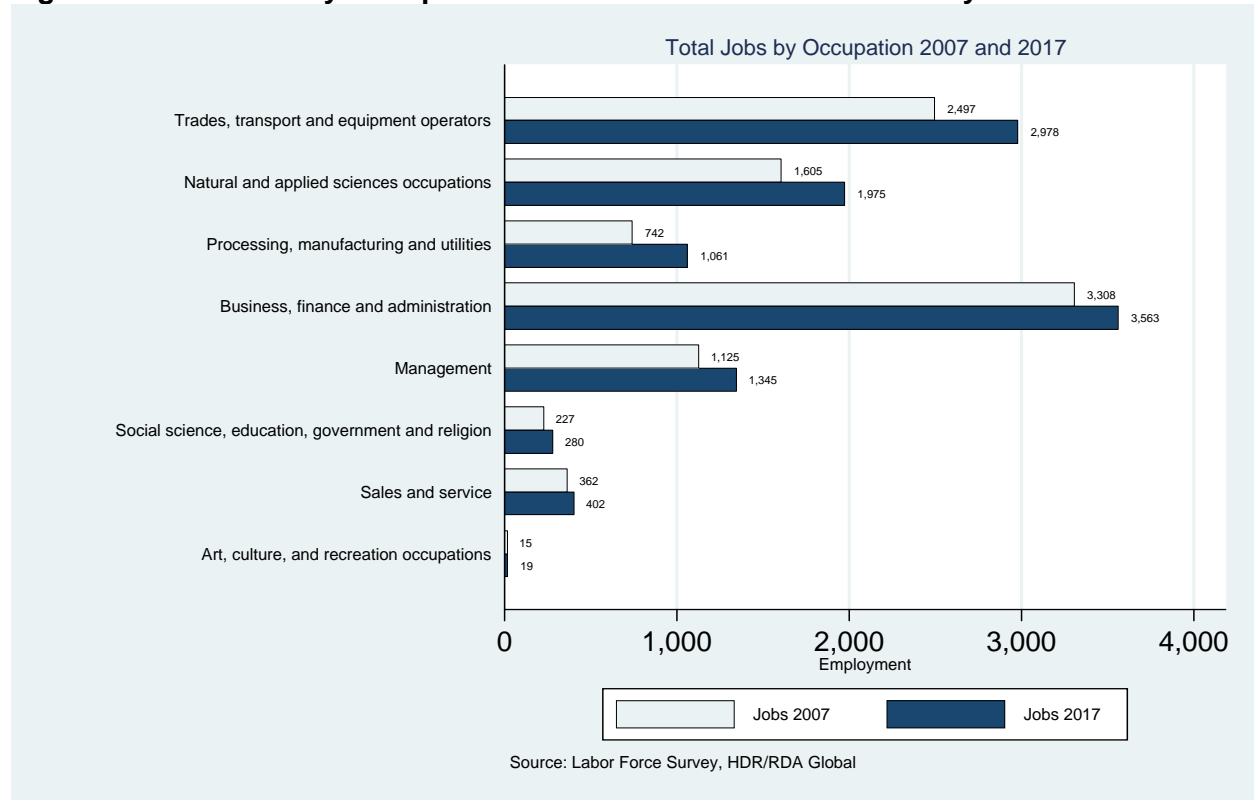
The Utilities industry ranks eighteenth out of twenty for total employment among all industries in Calgary. Historically, growth in this industry has been volatile, with recent employment growth. The industry will continue to grow at a rate below that of the overall regional growth. In terms of jobs created, the industry ranked fourteenth over the 1997-2007 period, creating over 6,000 jobs. The industry will move down to become the seventeenth largest contributor to job creation in the 2007-2017 forecast period, creating about 1,700 new jobs.

**Table 1: Utilities Industry Compared with Other Industries**

NAICS Industry	Total Employment				Compound Annual Growth			Jobs Added		
	1987	1997	2007	2017	1987-97	1997-07	2007-17	1987-97	1997-07	2007-17
11 Agriculture, forestry, fishing and hunting	10,357	8,230	5,262	5,951	-2.3%	-4.4%	1.2%	(2,127)	(2,968)	689
21 Mining and oil and gas extraction	34,043	32,970	55,092	61,154	-0.3%	5.3%	1.0%	(1,073)	22,122	6,062
22 Utilities	4,700	3,800	9,881	11,621	-2.1%	10.0%	1.6%	(900)	6,081	1,740
23 Construction	21,500	36,600	69,847	94,177	5.5%	6.7%	3.0%	15,100	33,247	24,331
31-33 Manufacturing	30,500	42,900	54,380	70,890	3.5%	2.4%	2.7%	12,400	11,480	16,510
41 Wholesale trade	21,375	22,041	33,228	44,815	0.3%	4.2%	3.0%	666	11,187	11,586
44-45 Retail trade	46,025	47,459	71,546	96,493	0.3%	4.2%	3.0%	1,434	24,087	24,948
48-49 Transportation and warehousing	21,300	30,400	37,452	50,295	3.6%	2.1%	3.0%	9,100	7,052	12,844
51 Information and cultural industries	11,317	16,489	19,961	25,271	3.8%	1.9%	2.4%	5,172	3,472	5,310
52 Finance and insurance	16,662	21,266	28,538	34,543	2.5%	3.0%	1.9%	4,603	7,272	6,006
53 Real estate and rental and leasing	9,038	11,534	15,479	18,736	2.5%	3.0%	1.9%	2,497	3,944	3,258
54 Professional, scientific and technical services	27,200	43,700	89,591	143,873	4.9%	7.4%	4.9%	16,500	45,891	54,282
55 Management of companies and enterprises	501	879	1,169	1,415	5.8%	2.9%	1.9%	378	289	246
56 Admin & support, waste mgmt & remediation svcs.	11,299	19,821	28,790	34,543	5.8%	3.8%	1.8%	8,522	8,969	5,753
61 Educational services	23,800	31,900	52,154	60,488	3.0%	5.0%	1.5%	8,100	20,254	8,334
62 Health care and social assistance	33,700	43,200	66,471	102,326	2.5%	4.4%	4.4%	9,500	23,271	35,855
71 Arts, entertainment and recreation	7,283	10,611	12,845	16,262	3.8%	1.9%	2.4%	3,328	2,234	3,417
72 Accommodation and food services	20,200	32,100	48,100	64,248	4.7%	4.1%	2.9%	11,900	16,000	16,148
81 Other services (except public administration)	17,800	21,900	30,408	36,484	2.1%	3.3%	1.8%	4,100	8,508	6,076
91 Public administration	21,200	22,900	19,176	19,712	0.8%	-1.8%	0.3%	1,700	(3,724)	536
<b>Grand Total</b>	<b>389,800</b>	<b>500,700</b>	<b>749,368</b>	<b>993,298</b>	<b>2.5%</b>	<b>4.1%</b>	<b>2.9%</b>	<b>110,900</b>	<b>248,668</b>	<b>243,930</b>

## JOBS CREATED BY OCCUPATION – UTILITIES INDUSTRY

**Figure 4: Total Jobs by Occupation 2007 and 2017 – Utilities Industry**

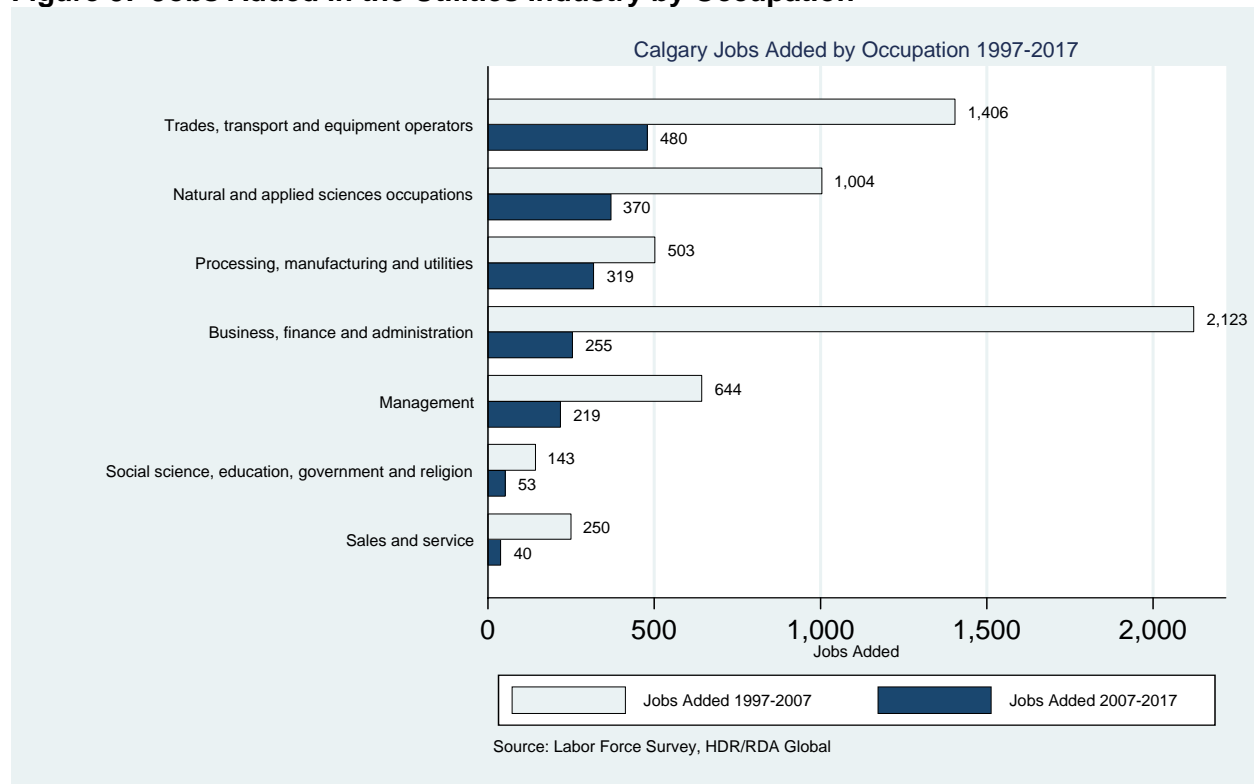


**Table 2: 30-Year Occupational Growth for the Utilities Industry**

Occupation (1 Digit NOC)	Total Employees				Compound Annual Growth		
	1987	1997	2007	2017	1987-97	1997-07	2007-17
A Management occupations	499	482	1,125	1,345	-2.5%	10.8%	0.7%
B Business, finance and administration occupations	1,526	1,184	3,308	3,563	-2.5%	10.8%	0.7%
C Natural and applied sciences and related occupations	704	601	1,605	1,975	-1.6%	10.3%	2.1%
E Occupations in social science, education, government service and religion	88	84	227	280	-0.5%	10.5%	2.1%
F Occupations in art, culture, recreation and sport	8	6	15	19	-1.9%	9.1%	2.2%
G Sales and service occupations	134	112	362	402	-1.8%	12.4%	1.0%
H Trades, transport and equipment operators and related occupations	1,409	1,091	2,497	2,978	-2.5%	8.6%	1.8%
J Occupations unique to processing, manufacturing and utilities	331	239	742	1,061	-3.2%	12.0%	3.6%
<b>Grand Total</b>	<b>4,700</b>	<b>3,800</b>	<b>9,881</b>	<b>11,621</b>	<b>-2.1%</b>	<b>10.0%</b>	<b>1.6%</b>

There are nearly 9,900 employees in the Utilities industry today. 3,300 of these workers have business, finance, and administration jobs, representing the largest share of occupations. Demand for business, finance, and administration jobs will rise slightly to nearly 3,560 over the forecast period. The next largest occupational category is trades, transport and equipment operators and related occupations, which currently employ about 2,500 workers and will employ nearly 3,000 workers in 2017. Natural and applied sciences and related occupations is the third largest category with over 1,600 employees today growing to almost 2,000 workers in 2017.

**Figure 5: Jobs Added in the Utilities Industry by Occupation**



About a quarter of all jobs created in this industry will be trades, transport and equipment operators and related occupations, a total of about 500 new jobs. About 300 jobs will be created for workers in natural and applied sciences and related occupations. Business and finance occupation represent about 250 new jobs by 2017.

**Table 3: Ten-Year Forecast of Jobs by Major Occupational Group – Utilities Industry**

Occupation (1 Digit NOC)	Annual Employment											
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
A Management occupations	855	1,125	1,152	1,209	1,267	1,274	1,258	1,252	1,269	1,293	1,318	1,345
B Business, finance and administration occupations	2,485	3,308	3,348	3,481	3,626	3,597	3,500	3,438	3,449	3,483	3,521	3,563
C Natural and applied sciences and related occupations	1,290	1,605	1,638	1,738	1,801	1,786	1,771	1,777	1,810	1,856	1,913	1,975
E Occupations in social science, education, government service and religion	172	227	228	238	250	252	249	249	255	262	271	280
F Occupations in art, culture, recreation and sport	11	15	14	16	16	17	16	17	17	18	18	19
G Sales and service occupations	271	362	363	366	384	385	377	371	377	385	393	402
H Trades, transport and equipment operators and related occupations	2,030	2,497	2,484	2,577	2,676	2,703	2,696	2,713	2,770	2,838	2,907	2,978
J Occupations unique to processing, manufacturing and utilities	588	742	768	818	868	896	910	929	958	991	1,026	1,061
<b>Grand Total</b>	<b>7,700</b>	<b>9,881</b>	<b>9,996</b>	<b>10,444</b>	<b>10,888</b>	<b>10,909</b>	<b>10,778</b>	<b>10,746</b>	<b>10,904</b>	<b>11,125</b>	<b>11,368</b>	<b>11,621</b>

**Table 4: Top 50 Occupations Adding Jobs From 2007-2017<sup>5</sup>**

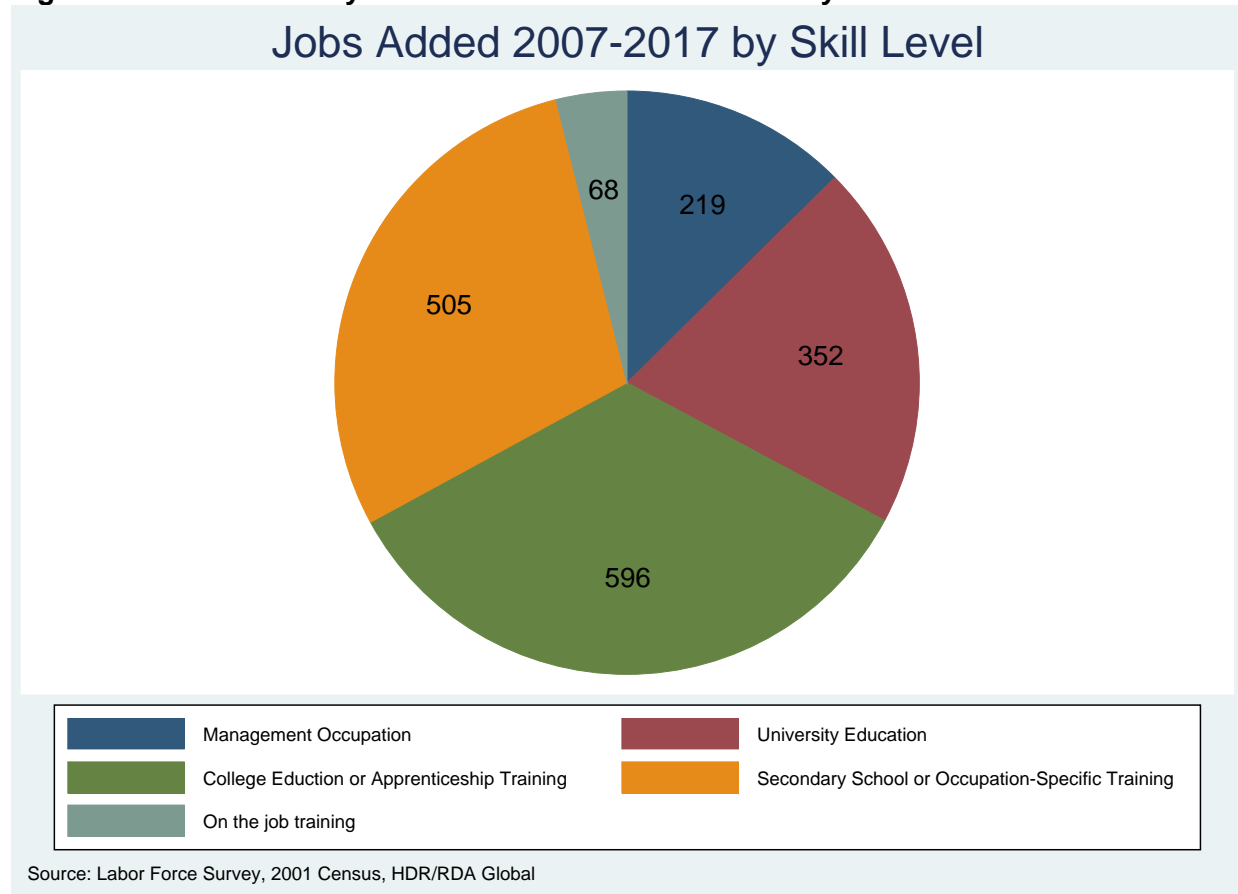
Rank	Occupation (4 Digit NOC)	Employees				Jobs Created
		1987	1997	2007	2017	2007-2017
1	J134 Water and waste plant operators	203	146	432	623	191
2	H532 Waterworks and gas maintenance workers	279	208	485	606	121
3	A392 Utilities managers	188	184	411	521	110
4	J012 Supervisors, petroleum, gas and chemical processing and utilities	83	60	203	282	80
5	H214 Electrical power line and cable workers	219	164	395	468	73
6	C033 Electrical and electronics engineers	147	125	329	395	66
7	H831 Public works and maintenance labourers	126	135	246	303	57
8	B511 General office clerks	260	190	558	604	46
9	C141 Electrical and electronics engineering technologists and technicians	74	63	169	215	45
10	J112 Petroleum, gas and chemical process operators	39	28	97	142	44
11	C032 Mechanical engineers	88	75	198	241	42
12	H222 Power systems and power station operators	90	67	153	191	38
13	C045 Petroleum engineers	36	30	84	118	34
14	B553 Customer service, information and related clerks	191	140	415	449	34
15	H612 Public works maintenance equipment operators	107	79	153	186	33
16	B531 Accounting and related clerks	191	140	412	441	29
17	H113 Gas fitters	77	63	135	164	29
18	G121 Technical sales specialists, wholesale trade	93	79	258	285	28
19	C071 Information systems analysts and consultants	59	51	137	164	27
20	H213 Power system electricians	75	56	134	161	27
21	C163 Inspectors in public and environmental health and occupational health and safety	26	23	62	88	26
22	E033 Business development officers and marketing researchers and consultants	46	44	119	143	25
23	A131 Sales, marketing and advertising managers	80	78	187	211	24
24	C031 Civil engineers	59	51	134	158	24
25	E032 Economists and economic policy researchers and analysts	24	23	63	85	22
26	C111 Chemical technologists and technicians	33	28	75	96	21
27	B012 Financial and investment analysts	69	71	201	222	21
28	A111 Financial managers	50	49	118	138	20
29	H012 Contractors and supervisors, electrical trades and telecommunications occupations	90	57	164	184	20
30	B011 Financial auditors and accountants	164	168	470	488	18
31	B021 Specialists in human resources	61	62	175	193	17
32	C153 Drafting technologists and technicians	50	43	112	129	16
33	H017 Contractors and supervisors, heavy construction equipment crews	75	48	141	157	16
34	C074 Computer programmers and interactive media developers	44	37	100	116	16
35	H411 Construction millwrights and industrial mechanics (except textile)	46	34	94	109	16
36	B013 Securities agents, investment dealers and brokers	37	37	107	122	15
37	B312 Executive assistants	105	69	161	176	15
38	A112 Human resources managers	41	40	96	110	14
39	B116 Customs, ship and other brokers	86	57	139	153	14
40	A016 Senior managers - Goods production, utilities, transportation and construction	31	24	59	74	14
41	A141 Facility operation and maintenance managers	32	32	77	90	14
42	C182 User support technicians	24	21	56	70	14
43	H611 Heavy equipment operators (except crane)	53	39	77	88	11
44	H711 Truck drivers	57	42	92	103	11
45	C072 Database analysts and data administrators	18	15	42	53	11
46	A114 Other administrative services managers	26	26	61	72	11
47	B412 Supervisors, finance and insurance clerks	37	27	81	92	10
48	C112 Geological and mineral technologists and technicians	11	9	25	33	8
49	G111 Sales representatives, wholesale trade (non-technical)	28	24	79	87	8
50	B311 Administrative officers	102	67	157	165	8
	Others	469	373	956	1,060	104
	Grand Total	4,700	3,800	9,881	11,621	1,740

<sup>5</sup> Note that these job creations in Figure 6 capture only jobs created in the Utilities industry and do not represent total job creations for all of Calgary. Jobs with these occupations will also be created in other industries.

## EMPLOYMENT GROWTH BY SKILL LEVEL – UTILITIES INDUSTRY

From a skill level perspective, there will be about 220 new management occupations, 600 jobs requiring some college education or apprenticeship training, 500 jobs which require secondary school or occupation-specific training, 350 that require university training and about 70 that require only on the job training

**Figure 6: Jobs Added by Skill Level in the Utilities Industry**



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## **APPENDIX 1: INDUSTRY DEFINITION – UTILITIES INDUSTRY**

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This sector comprises establishments primarily engaged in operating electric, gas and water utilities. These establishments generate, transmit, control and distribute electric power; distribute natural gas; treat and distribute water; operate sewer systems and sewage treatment facilities; and provide related services, generally through a permanent infrastructure of lines, pipes and treatment and processing facilities.