

# Heat Plant in New Zealand

Heat Plant Sized Greater Than One Hundred Kilowatts Thermal  
Segmented by Industry Sector

as at March 2008



Energy Efficiency and  
Conservation Authority  
Te Tari Tiaki Pūngao



Database Maintained by East Harbour Management Services  
on behalf of  
the Bioenergy Association of New Zealand (BANZ),  
in conjunction with  
Energy Efficiency and Conservation Authority (EECA) and the  
Ministry of Economic Development



While the Bioenergy Association has made every effort to ensure the accuracy of the  
'Heating Plant in New Zealand' list, no responsibility is accepted for any error,  
and we welcome corrective feedback.

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# 1 Introduction

This report updates the “2006 Heat Plant Survey” and was undertaken by East Harbour Management Services (East Harbour) on behalf of the Bioenergy Association of New Zealand (BANZ), in conjunction with and funded by the Energy Efficiency and Conservation Authority (EECA) and the Ministry of Economic Development (MED).

The Bioenergy Association of New Zealand has an interest in promoting the uptake of bioenergy in New Zealand, and as such requires market information for its members. The survey performed in the process of this investigation serves to fulfil this requirement.

EECA has an interest in measuring the scale of bioenergy use in New Zealand, with respect to reporting on progress toward implementation of the New Zealand Energy Efficiency and Conservation Strategy (NZECS), and achievement of the heat plant survey gives an indication as to the scale of bioenergy currently used in New Zealand.

The Ministry of Economic Development have an interest in the aggregated information for inclusion in their NZ Energy Data File and for use in establishment of energy policy.

The survey was undertaken by reference to a number of industry databases and sector directory listings to identify users of heat. Telephone and email contact has been made with identified owners of heat plant.

The update of the database of heat plant has extended the sum of data collected to include heat plant utilisation and heat plant down to 100 kW from the previous 1 MW lower limit.

The database will also highlight opportunities for replacement of existing plant with that fuelled by renewable energy.

# 2 Background

For the year ending December 2006 the industrial and commercial/institutional sectors consumed around 112 PJ of heat or 22% of the country’s consumer energy use. There is estimated to be 44 PJ of bioenergy produced heat each year and the remainder from other sources<sup>1</sup>.

# 3 Survey

A survey of New Zealand industry was performed with respect to gaining information on heat plant (boiler) capacity and use.

To identify potential heat plant users existing industry directories (sourced via Internet, trade magazines and published reports) were interrogated with respect to thermal industries where heat is required. Contact details (generally aggregate for larger organisations) were established and telephone interviews completed. Information was cross checked against a previous Cogeneration Association data listing and other databases held by East Harbour.

Schools were included for the first time. With regard to school heating plant only 30% of schools that were recorded as having boilers in the Ministry of Education database responded to the questionnaire.

## 3.1 Industry Coverage

The survey includes:

- Wood Processing
- Dairy Processing
- Education
- Food and Beverage Processing
- Hospitals
- Other Manufacturing

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<sup>1</sup> Ministry of Economic Development Energy Data File June 2007

## 3.2 Key Assumptions

The survey is limited to sites or heating plant greater than one hundred kilowatt thermal capacity. If a survey respondent has a boiler less than 100 kW thermal, it is not recorded. However, where a respondent has boilers of size less than 100 kW, but site capacity is assessed to be greater than or equal to 100 kW, this is recorded within the database.

## 4 Data Issues

The collection of boiler data from both commercial (and non-commercial) operations was approached from a number of directions in order to fully identify where heat plant was located. The information has also been cross checked between sources wherever possible. It must be emphasised while every effort has been made to get all the heat plant recorded it should be assumed that not all installed heating plant is on the database.

Users of the database are encouraged to advise the database administrator of errors or omissions.

### 4.1 Database

The data is held in a Microsoft Access database and a freely available public version (this report) is available from the Bioenergy Association website. The full Access or Excel version of the database is available on request to Bioenergy Association members.

### 4.2 Contact Persons

The key constraint to data consistency during this investigation was the availability of suitably qualified staff to respond to the survey. Occasionally, the staff member considered as the Boiler Engineer or Operator was not available or available staff had limited experience with the plant (either new employee, or subcontractor). Where responders were not available or did not provide requested information, two repeated

contacts to obtain the information were made. If there was no response old or estimated data is included.

### 4.3 Complete Data

The completeness of data available to boiler maintenance staff and operators was often found to be limited. On occasion, fuel consumption was unknown as this was not a direct concern of the boiler operators, rather the responsibility of purchasing staff. The output figures were sometimes quoted for “full output”, whereas others provided an outline of the load profile on both a shift and a seasonal basis.

### 4.4 Confidentiality

The collection of data from the survey was undertaken with the purpose of making the information publicly available. This was explained to each respondent approached for information. To encourage the obtaining of information there was an emphasis on collection of non-commercial data. Taking this into account, few organisations either declined, or requested anonymity of their data.

### 4.5 Consistency of Units

The units which boiler manufacturers and operators use for energy output from plant varies considerably, with reference to horsepower, kilowatts and flow rates of various outputs (saturated steam, superheated steam, hot water). Also a number of responders did not know the technical data sought and thus provided the information in different formats. Standardisation of format was achieved through the judgement of an experienced engineer to whom units were generally self-evident).

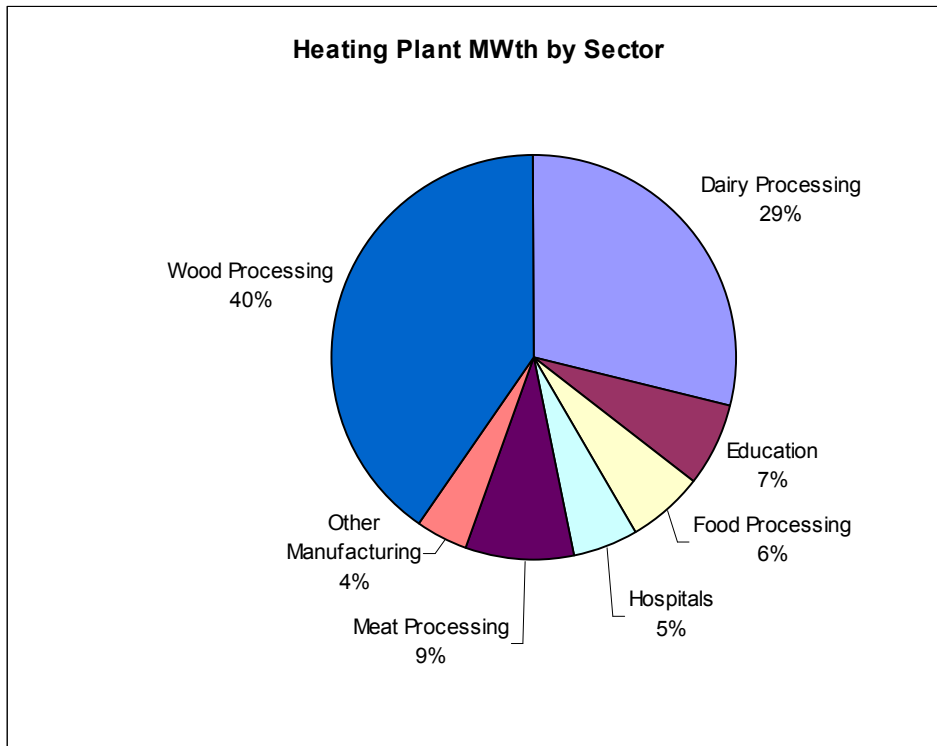
## 5 Survey Results

The information obtained from the survey is provided in appendices 1 to 7.

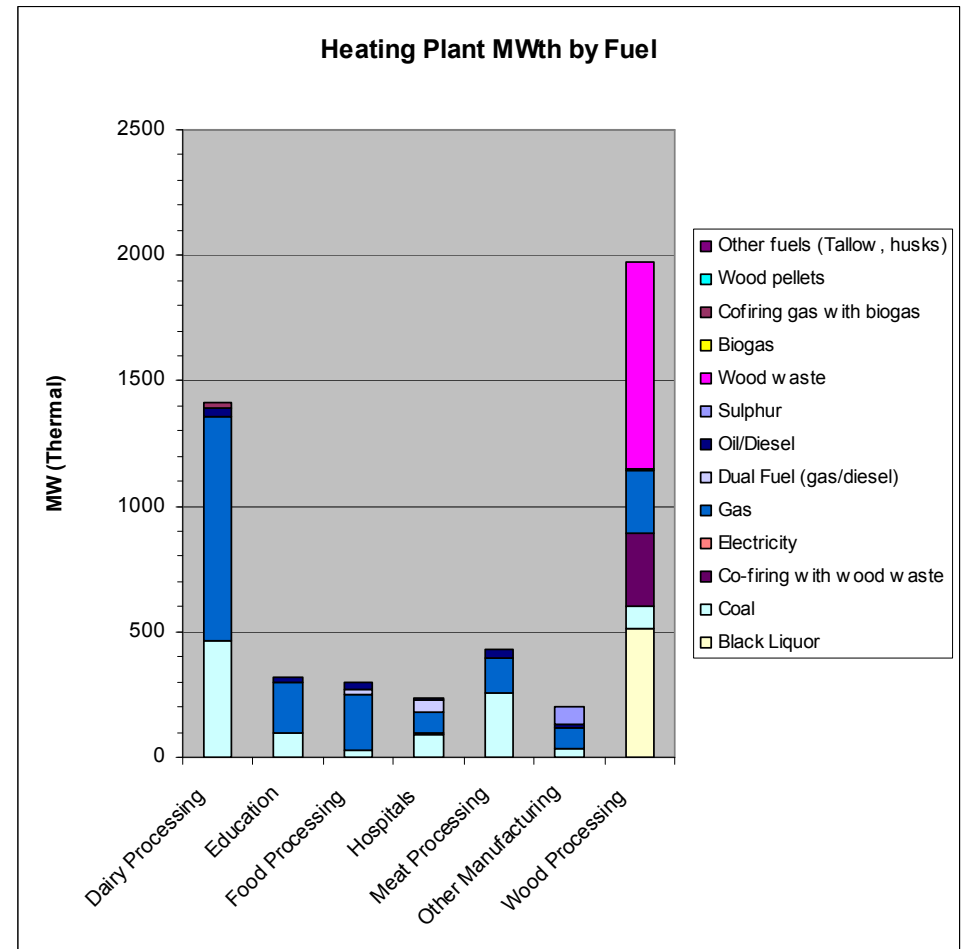
## 6 Analysis of Survey Results

Nearly 4900 MW thermal of heating plant is included in the database. Just over one third of this is plant smaller than 10 MWth. The wood processing sector with 40% of the total installed MWth capacity has the largest amount of heating plant followed by the dairy processing sector with 29% of the total. The remainder is spread over the other sectors as shown in Figures 1 and 2. Gas is the predominant fuel followed by wood residues and coal.

**Figure 6.1 Installed Heating Plant**



**Figure 6.2 Installed heating Plant by Sector and Fuel**



Estimates of annual fuel consumption and heat output based on responses given in the survey are shown in Table 1 and Figures 3 and 4.

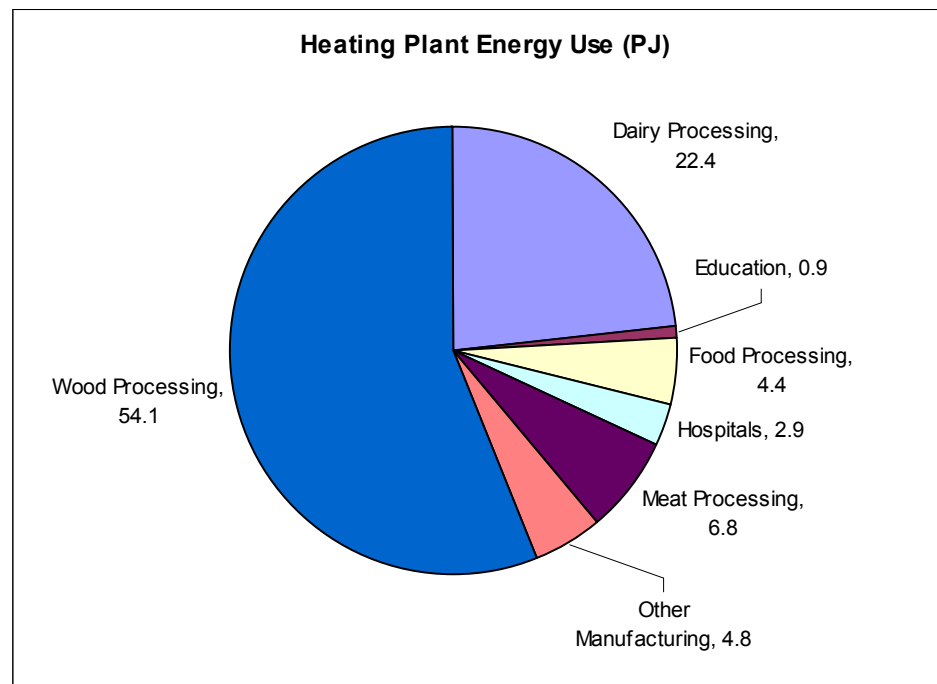
**Table 1 Sector Energy Use and Output**

Sector	Fuel PJ Input	Heat PJ Output
Dairy Processing	22.4	17.6
Education	0.9	0.7
Food Processing	4.4	3.5
Hospitals	2.9	2.3
Meat Processing	6.8	5.2
Other Manufacturing	4.8	3.8
Wood Processing	54.1	39.1
<b>Total</b>	<b>96.4</b>	<b>72.1</b>

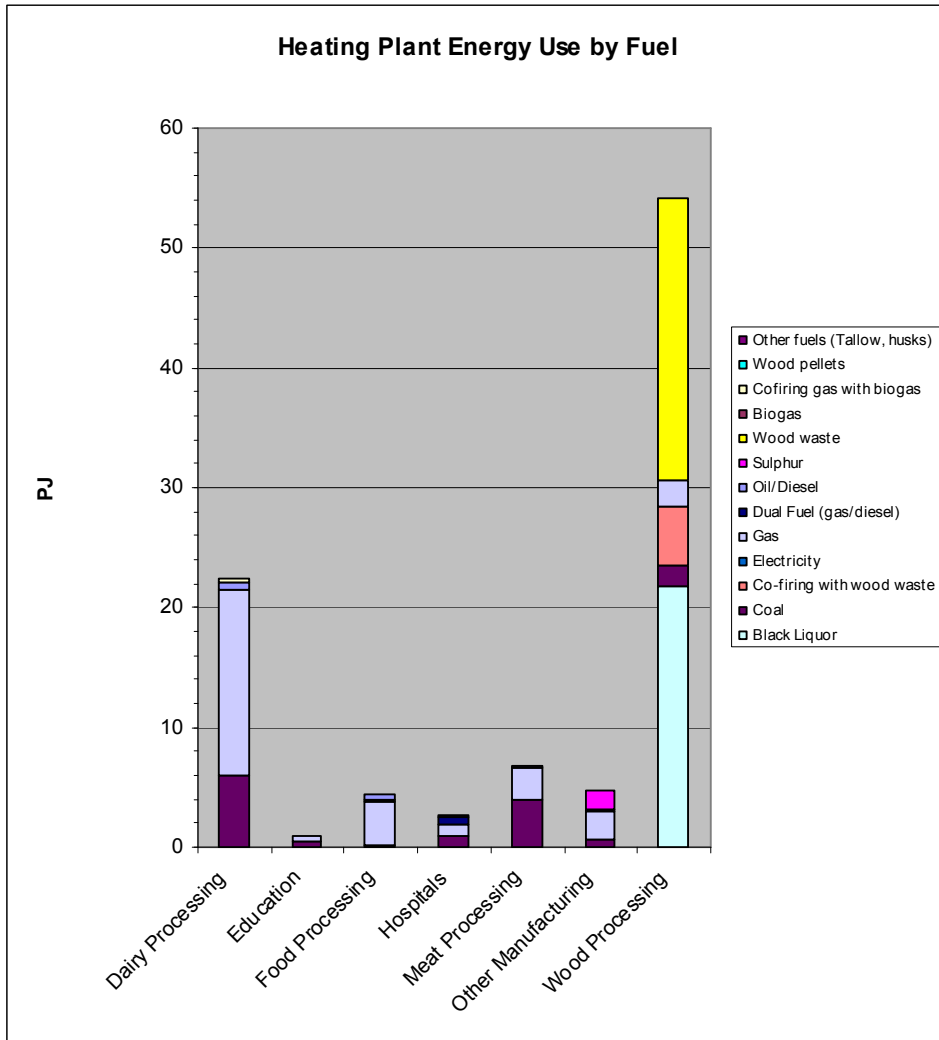
Wood processing has the largest energy use with this sector including large pulp and paper plants.

The authors have endeavoured to include only primary fuel burning plant in the analysis. Plant that has not been included are the cogeneration plants that are primarily for electricity generation rather than heat production at the Fonterra dairy processing plants, Southdown and the steel mill at Glenbrook.

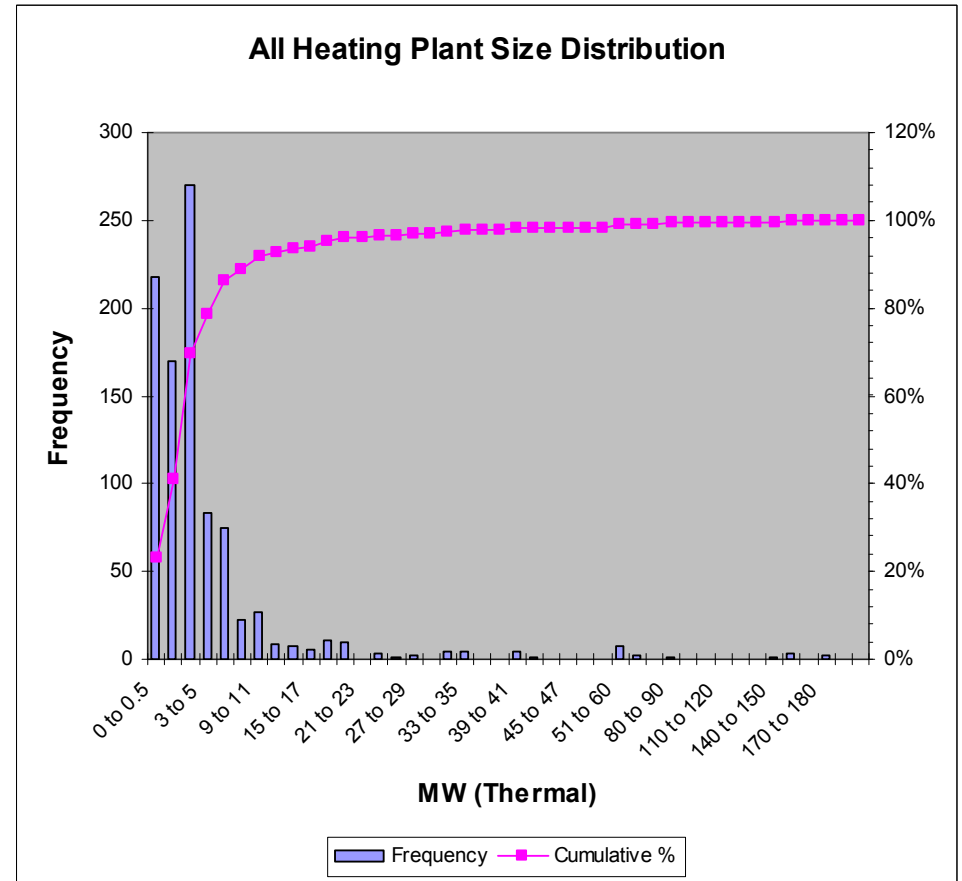
**Figure 6.3 Heating Plant Energy Use by Sector**



**Figure 6.4 Sector Heating Plant Energy Use**



**Figure 6.5 Heating Plant Size Distribution**

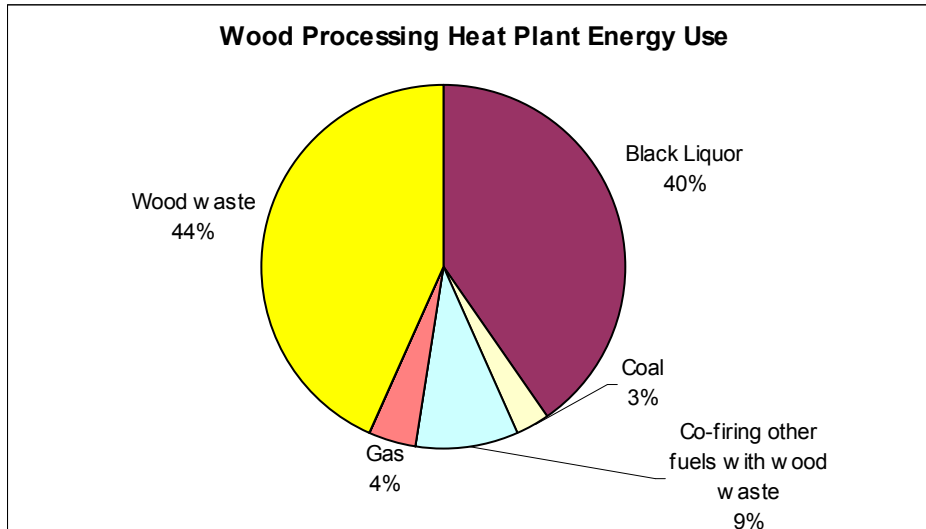


Note the scale changes along the MW axis.

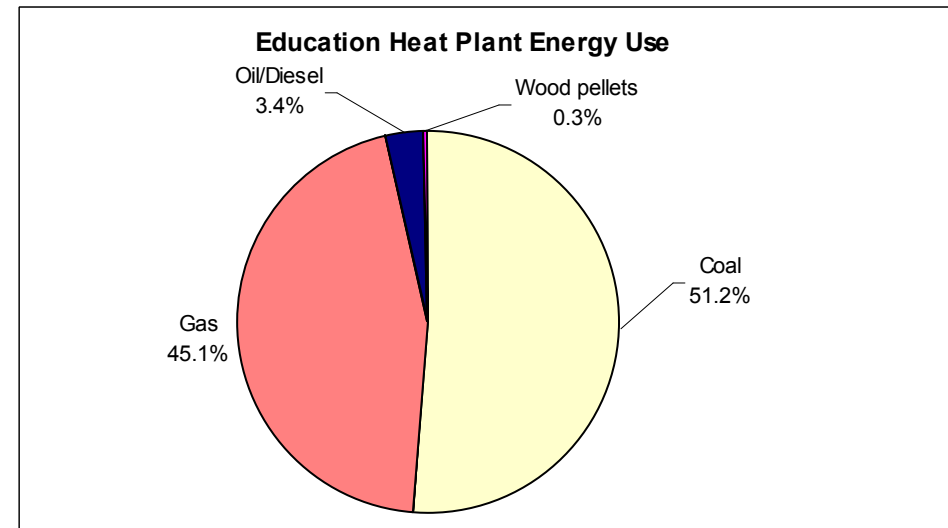
It can be seen from Figure 5 above that there are a significant number of small plant plus a few very large ones. The median heating plant size is 1.4 MWth.

More details of fuel type used in each of the sectors are given in the following figures.

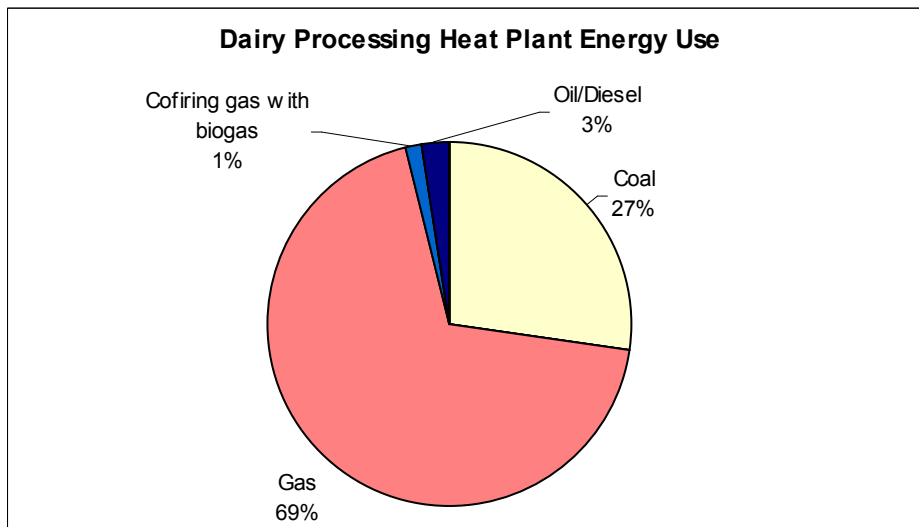
## 6.1 Wood Processing



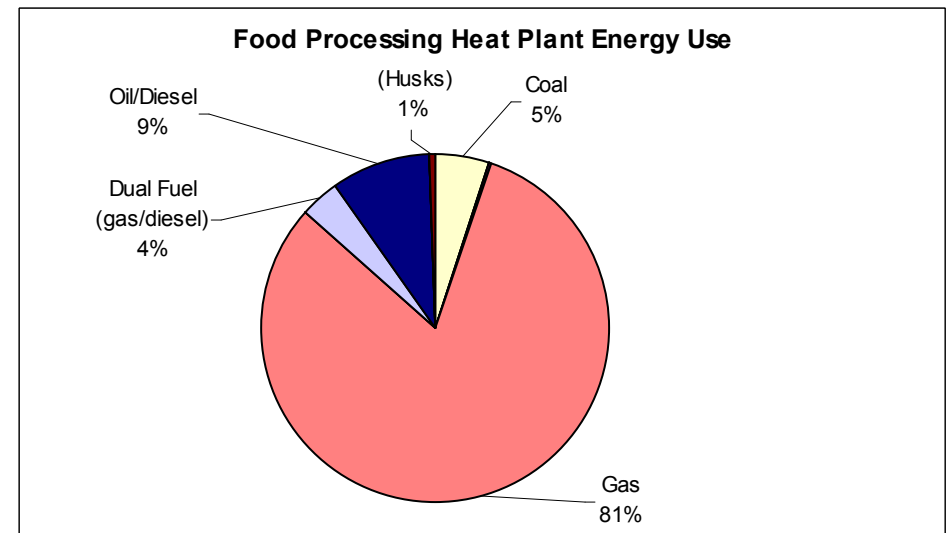
## 6.3 Education



## 6.2 Dairy Processing

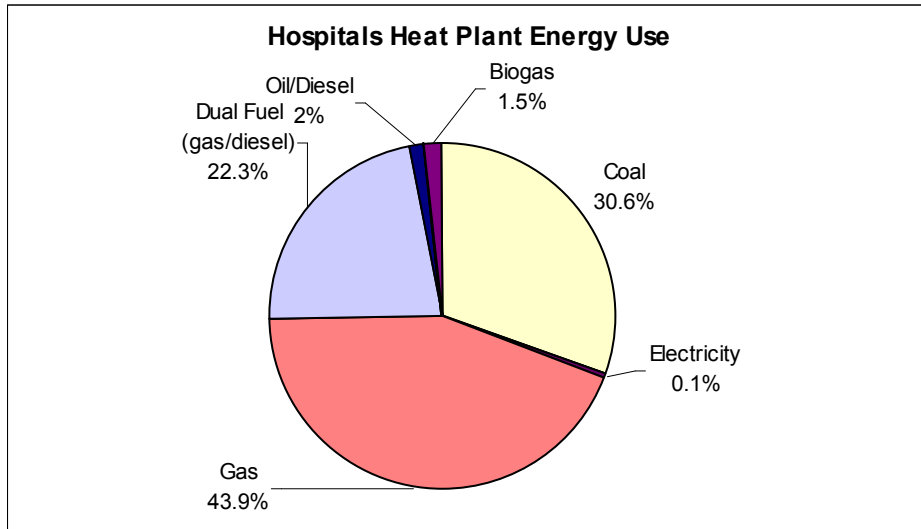


## 6.4 Food and Beverage Processing

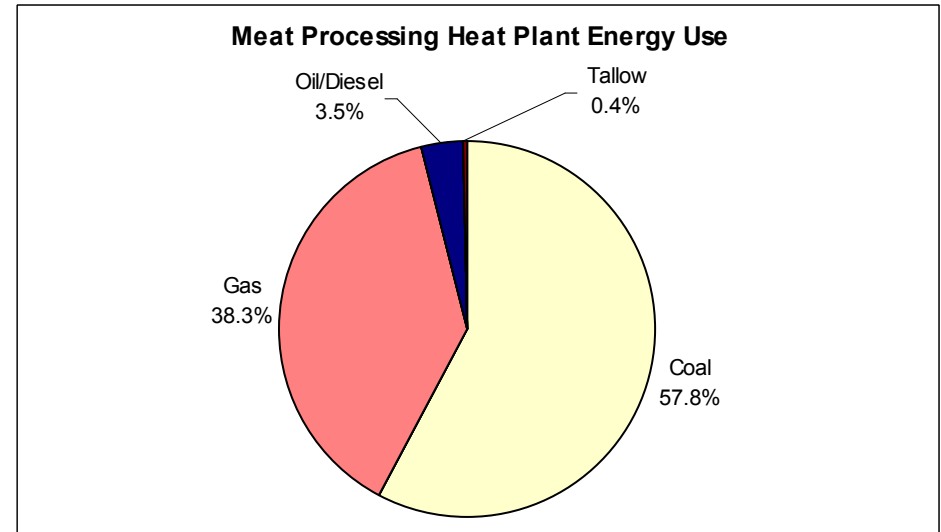




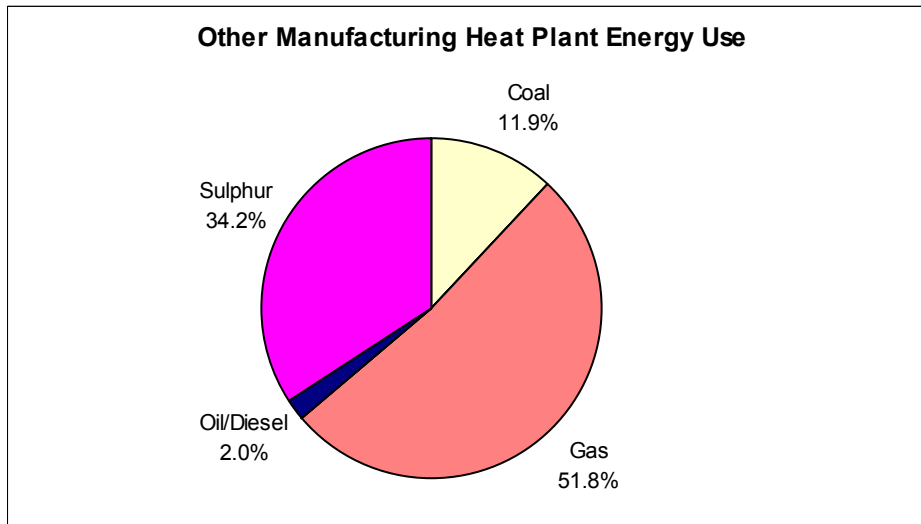
## 6.5 Hospitals



## 6.7 Meat Processing



## 6.6 Other Manufacturing



## 6.8 Changes in Heating Plant Since April 2006

The number of entries in the installed plant database has increased significantly since April 2006. However most of this increase is the result of including schools and colleges in the database. Reducing the threshold from 1 MW to 100 kW has increased the plant numbers as well as increasing the number of companies and their heating plant being included in the database.

Most companies surveyed said that there was no change in heating plant use since the last survey. Updated information has not been received (at time of writing) from the Fonterra group of plants so older information has been used.

High gas prices are causing companies to consider alternative fuels. Woodwaste, coal, and biogas were the alternative fuels chosen. Wood pellets and tallow are new fuels to be reported.

Most of the 173 MW of new plant installed were replacement for old plant. Almost half of this was coal fired (81.5 MW, 64 MW at three plants), gas and wood waste were similar at 43 MW and a small amount of oil/diesel and biogas. A further 9 MW of new heating plant is planned in the next 12 months.

Some companies appear to have gone out of business and 47 MW of gas plant, 12 MW of coal plant, 6MW of oil/diesel plant and 4MW of waste wood has been shut down or decommissioned. Another 10 MW is expected to be decommissioned.

There is an increased focus on plant efficiency with some companies putting in energy management systems or altering plant to improve efficiency.

More portable multifuel boilers are now available for hire. A 0.75 MW and a 1.4 MW model have been added to the two 1.14 MW boilers included in the database.

## 6.9 Fuel Switching

Very little fuel switching was reported (25 cases, 23 MW), it occurred mostly in the education sector (19 cases) where a number of schools dispensed with their boilers and installed heat pumps. A few (3) converted to pellet boilers. Switching fuels was mentioned by some as a way to increase the efficiency of the heating plant.

Wood processing was the other area where a small amount of fuel switching occurred, with 20 MW converted from gas to geothermal, and 2.75 MW from coal to sawdust. Another 10 MW were considering switching to wood residue firing within the next two years.

## 6.10 Scope for Efficiency Improvements

Only a small number of respondents (18) offered suggestions for improving their heating plant efficiency. Many considered that the boilers were operating efficiently (as the plant was regularly serviced) and a number were able to list the efficiency improvements they had made recently. Many of the plants had been automated to unattended or limited attendance status and had variable speed motor drives installed. Heat recovery from other items of plant and the boiler stack was also mentioned.

Boiler efficiency was less of a concern in the wood processing industry where burning wood processing residue had a dual purpose, as fuel and also a means of disposing of it.

In the education sector (7 cases), three respondents saw changing to wood chip or wood pellets, or gas or heat pumps as a way of improving efficiency while three others saw efficiency improvements as being improved insulation, boiler controls and sealing the chimney stack. One school had two boilers both of which were only partly loaded. Having one on standby and having a higher load on the other was a way to improve boiler efficiency.

Other sectors saw upgrading controls, adding oxygen trim, variable speed motor drives, and improved heat recovery such as feedwater heating as ways to increase thermal efficiency.

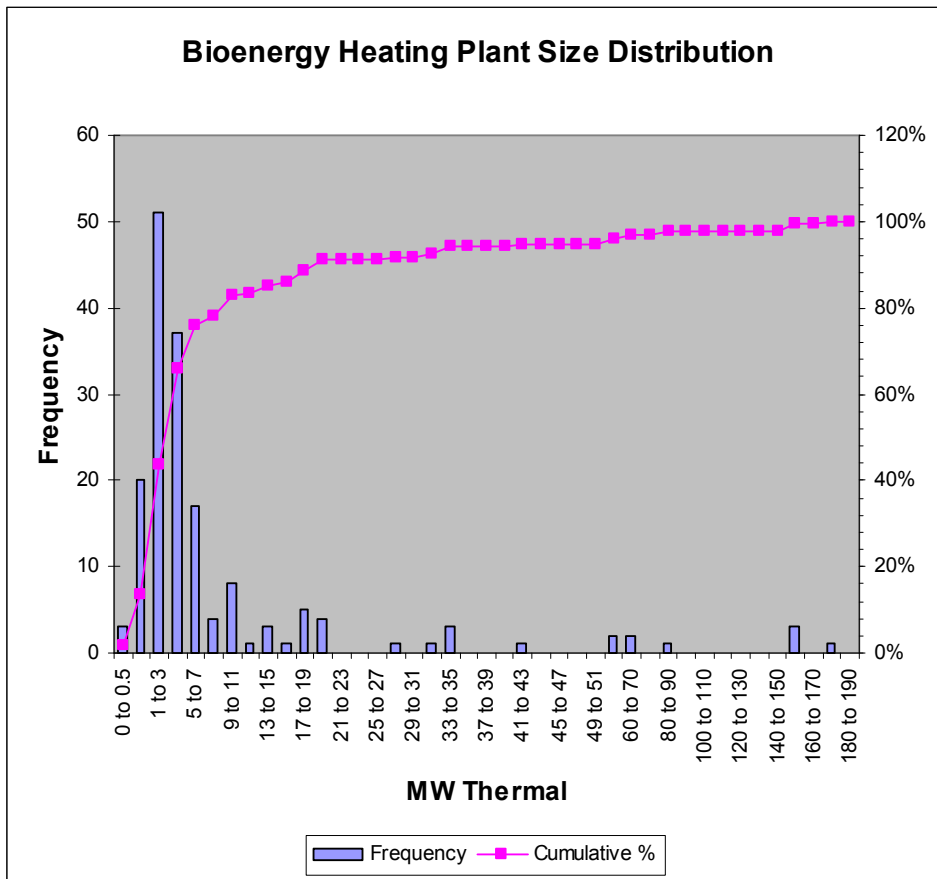
## 6.11 Operator Qualifications

All operating staff of the 67 attended boilers had certificates. The larger boiler operators have EMChem 4 or equivalent or higher qualifications. 33 boilers had limited attendance status with the staff having lower level qualifications such as EMChem 2 or equivalent for the smaller plant and EMChem 4 or equivalent or higher qualifications for the larger plant. Many of the unattended plant were also monitored, 39 cases being reported.

## 6.12 Woody Biomass

The wood processing sector has the largest installed capacity of each sector (1974 MW) with this dominated by several large boilers from the pulp and paper industry. The size distribution of the heating plants are shown in Figure 6.

**Figure 6.6 Bioenergy Heating Plant Size Distribution**



Note the changes in scale along the MW axis

The median plant size is 4 MWth. 80% of the boilers were below 10 MWth.

## 6.13 School Boilers

Schools were included in the survey which had been identified as having boilers. However for the survey it was identified that about 20% had switched to electric heating, mainly heat pumps. Table 2 shows the distribution of heat plant among schools.

**Table 2 Schools with Boilers**

Schools	Numbers of boilers		
	Fueled	All Electric	Total
Primary	210	53	<b>263</b>
Intermediate	22	2	<b>24</b>
Secondary	74	11	<b>85</b>
Special Schools	4	2	<b>6</b>
	<b>310</b>	<b>68</b>	<b>378</b>

Table 3 gives a breakdown of the installed capacity and fuels used in the schools and Table 4 the energy input for each group.

**Table 3 Installed Heat Plant Capacity**

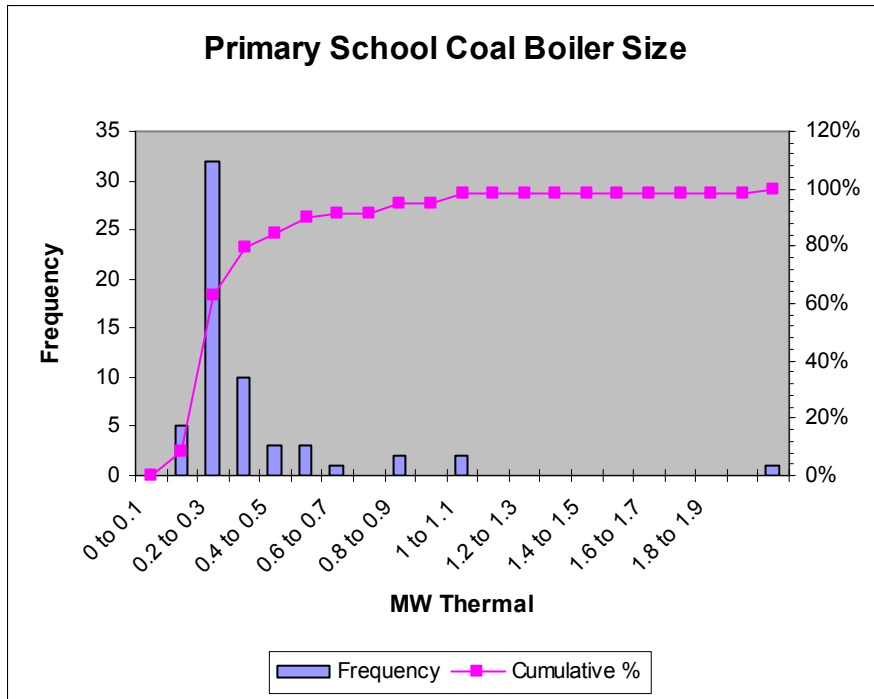
Schools	Installed MW (Thermal)				Total MW
	Coal	Gas (Includes LPG)	Oil	Wood	
Primary	36.2	12.4	7.5	1.1	<b>57.2</b>
Intermediate	4.0	1.8	1.7		<b>7.6</b>
Secondary	22.4	128.5	5.9	1.0	<b>157.8</b>
Special Schools		0.6	0.3		<b>0.9</b>
	<b>62.6</b>	<b>143.3</b>	<b>15.5</b>	<b>2.1</b>	<b>223.5</b>

**Table 4 Heat Plant Energy Input**

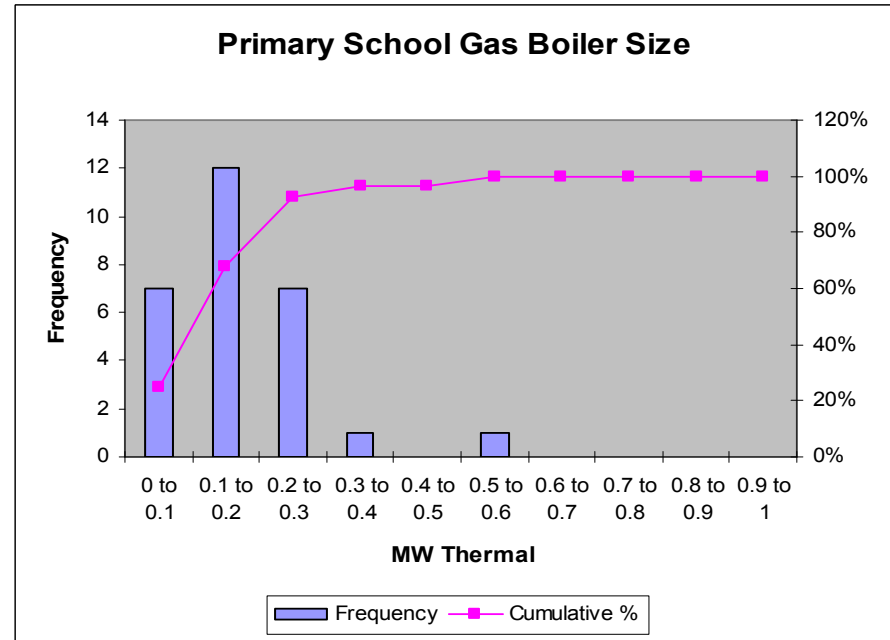
Schools	Energy Input PJ				
	Coal	Gas (Includes LPG)	Oil	Wood	Total MW
Primary	0.070	0.021	0.013	0.001	0.105
Intermediate	0.006	0.002	0.003		0.012
Secondary	0.043	0.054	0.015	0.001	0.114
Special Schools		0.008	0.001		0.009
	<b>0.119</b>	<b>0.086</b>	<b>0.031</b>	<b>0.003</b>	<b>0.239</b>

Boiler heating plant varied in size. Figures 7 to 14 show the distribution of the boiler plant among the types of school and fuel used.

**Figure 6.7 Primary School Coal Boiler Size Distribution**



**Figure 6.8 Primary School Gas Boiler Size Distribution**



Includes LPG

Figure 6.9 Primary School Oil Boiler Size Distribution

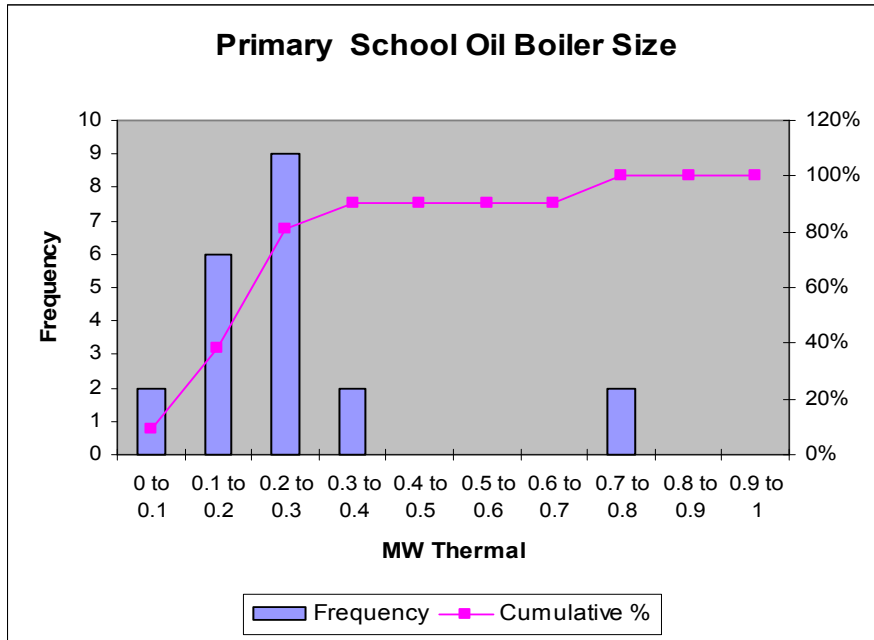


Figure 6.10 Intermediate School Gas Boiler Size Distribution

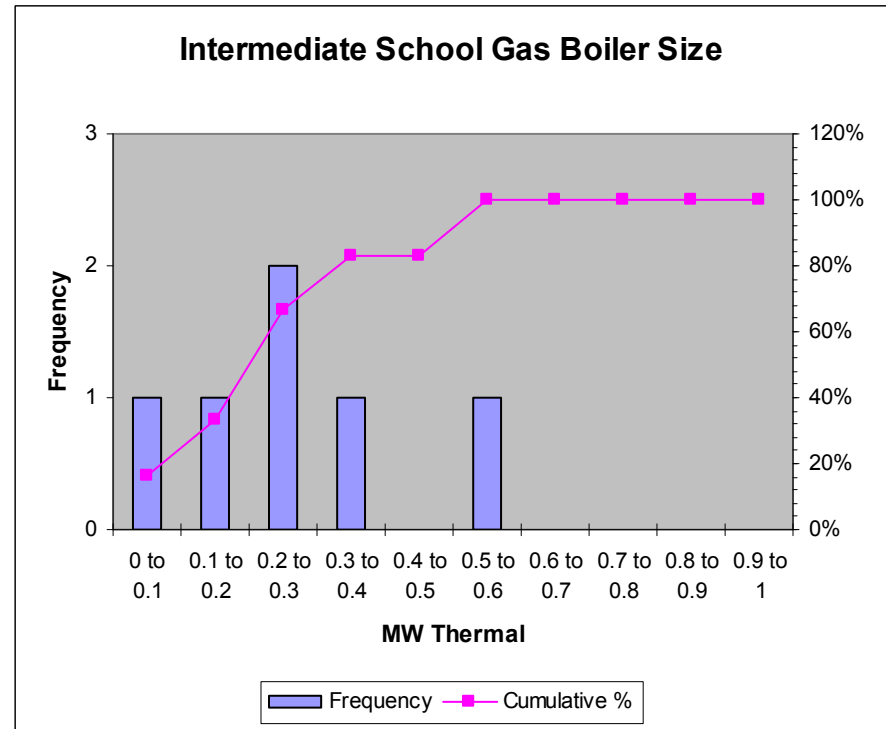


Figure 6.11 Intermediate School Coal Boiler Size Distribution

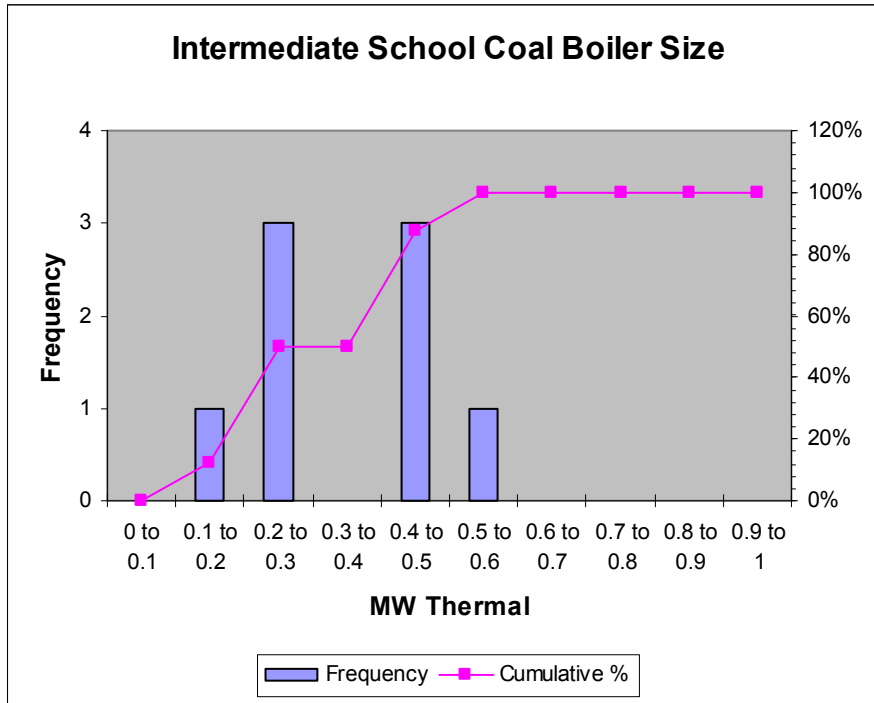


Figure 6.12 Secondary School Coal Boiler Size Distribution

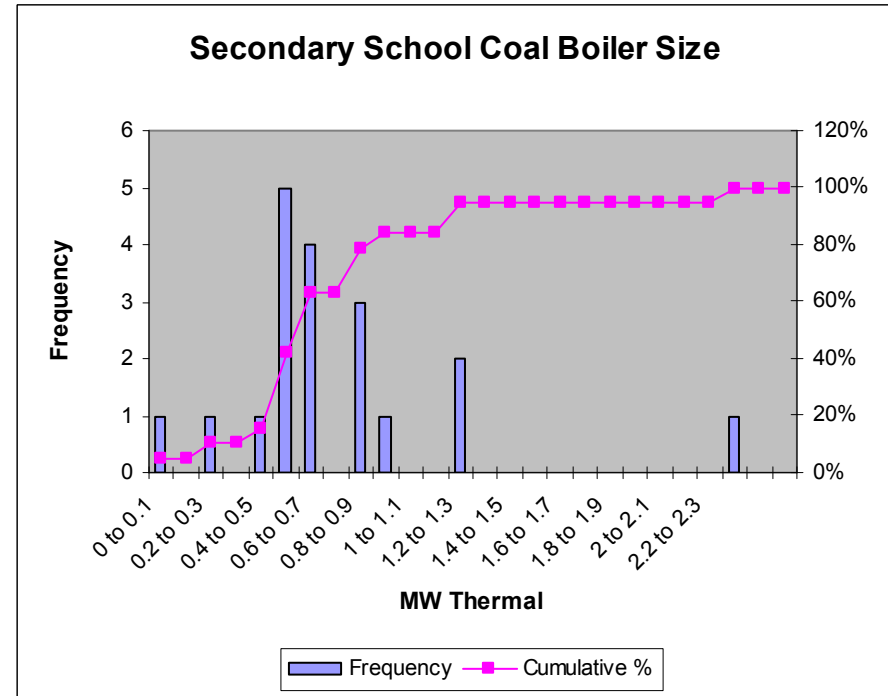


Figure 6.13 Secondary School Gas Boiler Size Distribution

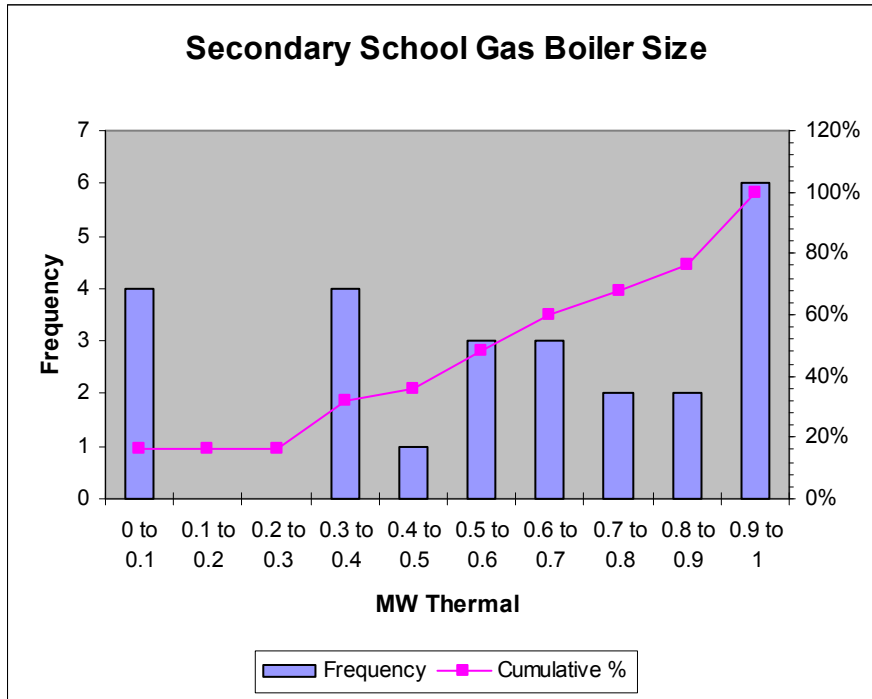
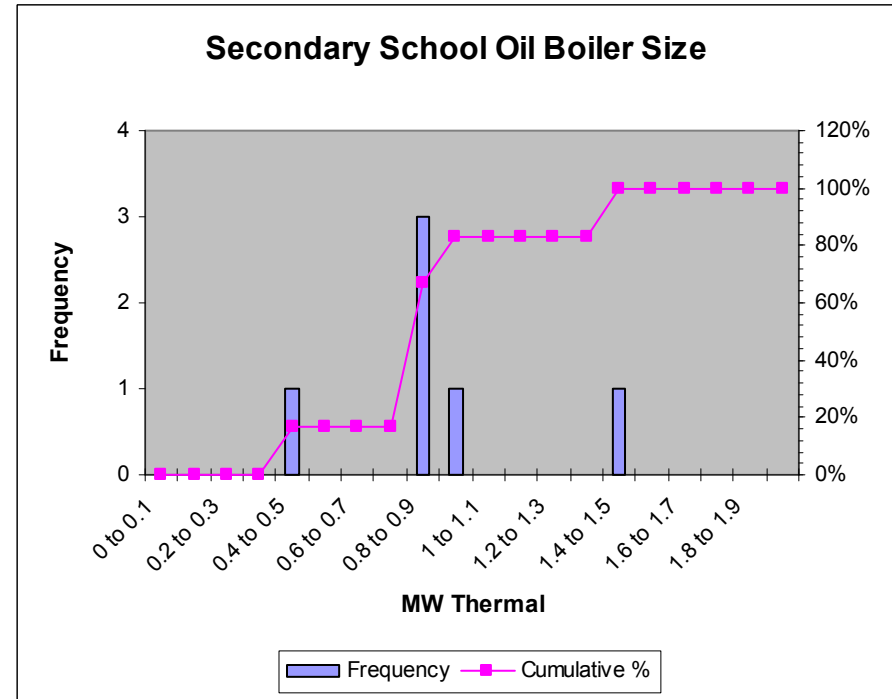


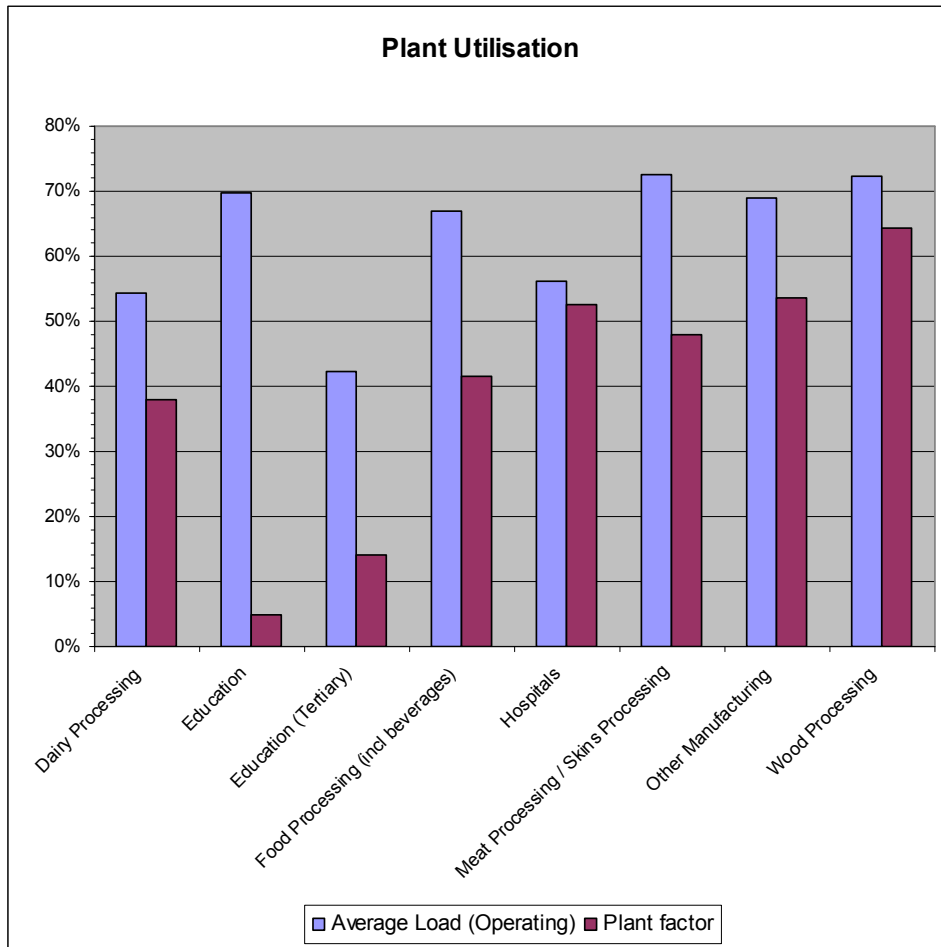
Figure 6.14 Secondary School Oil Boiler Size Distribution



## 6.14 Plant Utilisation

Plant utilisations for each of the sectors are shown in Figure 15. The average load is that which the heating plant is working at while it is supplying heat. The plant factor is the proportion of heating achieved in a year to that it could have achieved over the 8760 hours in a year. Plant factor results reflect the seasonal nature of many of the sectors and the average load the ability to meet highs and lows of the production cycle.

**Figure 6.15 Plant Utilisation**



Hospitals are a little different in that they often have two boilers on a lead/lag system to ensure there is always sufficient heat available all year. Schools have a short heating season in comparison with other sectors but their average load when operating is around 70% capacity.



## Appendix 1. Dairy Processing Heating Plant

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
BARRYS BAY CHEESE	BARRYS BAY CHEESE	SCOTT	Firetube	1973	1.3	Saturated Steam		9.4	3.744	3.744		180	Oil/Diesel	0.85		1	15.86	1102
CONTACT ENERGY	TE RAPA	FOSTER WHEELER (MCKENZIE & RIDLEY)	Waterwall	1998	52	Superheated Steam	180	42				287	Gas	0.85				
CONTACT ENERGY	TE RAPA		Waterwall	1998	146								Gas	0.75				
DAIRY GOAT CO-OPERATIVE LTD	DAIRY GOAT CO-OPERATIVE LTD	EASTEEL - STEAMPAC		2004	3.6	Steam	5.74	10.5	30.8448	30.8448		100	Gas			0.5		
DAIRY GOAT CO-OPERATIVE LTD	DAIRY GOAT CO-OPERATIVE LTD	EASTEEL	Direct fired heater		1								Gas					
DEEP SOUTH ICE CREAM	Christchurch	SCOTT		1983	0.42	Saturated Steam	0.54	10	0.63	0.63			Oil/Diesel			0.9		
FONERRA	EDGE CUMBE	MAXITHERM	Watertube	1996	16	Saturated Steam	25	17	102.144	102.144		205	Gas	0.7		0.2	525.31	27736
FONERRA	EDGE CUMBE	EASTEEL	Watertube	1993	10	Saturated Steam	15	17				205	Gas					
FONERRA	EDGE CUMBE			1996	25	Saturated Steam	64	17	159.6	159.6		205	Gas			0.2		
FONERRA	TE RAPA				57	Saturated Steam	60	42				410	Gas					
FONERRA	EDENDALE	JOHN THOMPSON	Watertube	1994	32	Superheated Steam		60	182.784	182.784		420	Lignite	0.76		0.33	865.82	82426
FONERRA	EDENDALE	ELECTRO KESSELL COWEN	Watertube	1996	32	Saturated Steam		60	188.16	188.16		420	Lignite	0.76		0.33	891.28	84850
FONERRA	EDENDALE	JOHN THOMPSON	Watertube	2003	35	Saturated Steam		42	205.8	205.8			Lignite	0.76		0.3	974.84	92805

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
FONTERRA	KAIKOURA CHEESE	SCOTT		1969	5.6	Saturated Steam	3.63	8.3					Oil/Diesel					
FONTERRA	STIRLING PUHOI VALLEY CHEESE	FOSTER WHEELER (MCKENZIE & RIDLEY)	Watertube	2001	17.5	Saturated Steam		10	111.72	111.72		180	Lignite			0.7		
FONTERRA	BRIGHTWATER	MAXITHERM	Watertube	1987	7	Saturated Steam	11.6	10	51.744	51.744			Coal			0.65		
FONTERRA	TIRAU	FOSTER WHEELER (MCKENZIE & RIDLEY)	Waterwall	1974	13	Saturated Steam	31	13	45.864	45.864			Gas	0.82		0.3	201.35	10631
FONTERRA	TIRAU	JOHN THOMPSON		1981	20.8	Saturated Steam	17	13	153.754	153.754			Gas	0.81		0.465	683.35	36081
FONTERRA	MORRINSVILLE	BABCOCK & WILCOX		1970	7.7	Saturated Steam	8	11.5				190	Gas					
FONTERRA	MORRINSVILLE	BABCOCK & WILCOX		1970	6.2	Saturated Steam	8	11.5				190	Gas					
FONTERRA	MORRINSVILLE			1980	2.2	Saturated Steam	8	9				180	Gas					
FONTERRA	Longburn Casein			2004	17.5		22.69	10	30.8	30.8			Gas	0.8		0.1	138.60	7318
FONTERRA	Longburn Casein			2004														
FONTERRA	Longburn Casein	ANDERSON			10.5		13.61						Gas					
FONTERRA	Longburn Casein	ANDERSON			8.8		11.34						Gas					
FONTERRA	Longburn Casein	ANDERSON			7		9.07						Gas					
FONTERRA	Longburn Casein				7		9.07	10	11.2	11.2			Gas			0.5		
FONTERRA	PAHIATUA	ANDERSON	Watertube	1977	7.7	Saturated Steam	9.98	10	51.744	51.744			Gas			1		

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
FONTERRA	PAHIATUA	ANDERSON	Watertube	1977	7.7	Saturated Steam	9.98	10					Gas	0.8				
FONTERRA	PAHIATUA			2003	3.5								Gas	0.8				
FONTERRA	PAHIATUA			1991	10							98	Gas					
FONTERRA	PAHIATUA			1991	10				67.2	67.2		280	Gas			0.8		
FONTERRA	WHAREROA	JOHN THOMPSON	Watertube	1993	20	Saturated Steam	25	36					Gas					
FONTERRA	WHAREROA	JOHN THOMPSON	Watertube	1996	56	Superheated Steam	50	42				435	Gas					
FONTERRA	WHAREROA	JOHN THOMPSON	Watertube	1996	56	Superheated Steam	50	42				435	Gas	0.75				
FONTERRA	WHAREROA			1997	40	Superheated Steam	30	42				420	Gas	0.75				
FONTERRA	WHAREROA			1997	40	Superheated Steam	30	42				420	Gas	0.65				
FONTERRA	WHAREROA				28								Gas	0.65				
FONTERRA	CLANDEBOYE	FOSTER WHEELER (MCKENZIE & RIDLEY)	Watertube	1995	10.5	Saturated Steam		28					Coal					
FONTERRA	CLANDEBOYE	BABCOCK & WILCOX	Watertube	1997	20	Saturated Steam		35					Coal	0.81				
FONTERRA	CLANDEBOYE	BABCOCK & WILCOX	Watertube	1997	20	Saturated Steam		35					Coal	0.81				
FONTERRA	CLANDEBOYE	FOSTER WHEELER (MCKENZIE & RIDLEY)	Watertube	2001	33	Saturated Steam		35					Coal	0.81				
FONTERRA	CLANDEBOYE	BABCOCK & WILCOX	Watertube	2004	40.8			35					Coal	0.81				

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
FONTERRA	CLANDEBOYE	BABCOCK & WILCOX	Watertube	2004	40.8			35					Coal	0.81				
FONTERRA	TAKAKA	MAXITHERM	Watertube	1986	8	Saturated Steam	12.76	10.6	53.76	53.76		187	Coal chips/fines	0.75		0.75	258.05	23534
FONTERRA	KAIKOURA	SCOTT	Watertube	1969	2.8	Saturated Steam	3.6	8.3	14.896	14.896		180	Oil/Diesel					
FONTERRA	ELTHAM Collingwood St	SCOTT		1994	2.8	Saturated Steam	3.6	9				180	Gas					
FONTERRA	ELTHAM Collingwood St	HOVAL		1997	1	Hot Water	3.6	9				55	Gas					
FONTERRA	TE AWAMUTU	ABB AUSTRALIA			57			42	450.072	450.072		410	Gas					
FONTERRA	TE AWAMUTU	BABCOCK & WILCOX	Watertube	2004	53	Superheated Steam	56	42	391.776	391.776		415	Coal			0.3		
FONTERRA	EDGECUMBE			1996	25		23	17	159.6	159.6		205	Gas			0.7		
FONTERRA	KAIKOURA	SCOTT		1959	5.6	Saturated Steam	3.63	8.5					Oil/Diesel					
FONTERRA	ELTHAM Bridge St	BABCOCK & WILCOX	Firetube	1976	2.46	Saturated Steam	3.18	10.3	21.0773	21.0773			Gas	0.8		0.8	94.85	5008
FONTERRA	ELTHAM Bridge St	ANDERSON	Firetube	1962	2.28	Saturated Steam	2.95	10.34	19.535	19.535			Gas	0.75		0.8	93.77	4951
GOODMAN FIELDER	BLENHEIM RD	MAXITHERM	Watertube	1996	8	Saturated Steam		20	69.888	69.888			Oil/Diesel	0.82		0.6	306.83	21324
GOODMAN FIELDER	BLENHEIM RD	MAXITHERM	Watertube	1996	6	Saturated Steam		20	52.416	52.416			Oil/Diesel	0.82		0.6	230.12	15993
GOODMAN FIELDER	BLENHEIM RD	SCOTT	Firetube	1970	1.4	Saturated Steam	1.81	8					Oil/Diesel					
GOODMAN FIELDER	GOODMAN FIELDER PALMERSTON NORTH	EASTEEL		1999	4.2	Hot Water		10	36.6912	36.6912		160	Gas	0.85		0.75	155.40	8205

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
GOODMAN FIELDER	GOODMAN FIELDER PALMERSTON NORTH	SCOTT		1988	1.1	Saturated Steam		8	9.6096	9.6096			Gas	0.8		0.35	43.24	2283
GOODMAN FIELDER	GOODMAN FIELDER PALMERSTON NORTH			2005	0.16				0.5824	0.5824			Gas			0.5		
GREEN VALLEY CHEESE					0.6								Oil/Diesel					
HAUTAPU CHEESE	HAUTAPU	JOHN THOMPSON	Firetube	1978	5.1			10	8.9964	8.9964			Coal	0.73		0.85	44.37	4046
HAUTAPU CHEESE	HAUTAPU	JOHN THOMPSON	Firetube	1974	5.1			10	8.9964	8.9964			Coal	0.73		0.85	44.37	4046
HAUTAPU CHEESE	HAUTAPU	FOSTER WHEELER (MCKENZIE & RIDLEY)	Watertube	1974	10.2			19					Gas	0.8				
HOHEPA HOMES HAWKES BAY	HOHEPA HOMES HAWKES BAY		Watertube		0.102	Hot Water		0.14	0.14688	0.14688		96	LPG/Butane	0.82		0.25	0.64	39
KAIMAI CHEESE	KAIMAI CHEESE	Energy Products International		2007	0.4	Hot Water			3.4944	3.4944		85	LPG/Butane					
KAPUNI ENERGY	KAPUNI	FOSTER WHEELER (MCKENZIE & RIDLEY)		1970	16.6	Superheated Steam	20	30				300	Gas	0.88				
KAPUNI ENERGY	KAPUNI			1998	15.4		18.5	30				300	Gas					
KARIKAAS CHEESE	KARIKAAS CHEESE			2003	0.08	Hot Water			0.06656	0.06656		85	Oil/Diesel	0.8		0.5	0.30	21
KAURI CREAM	KAURI CREAM	EASTEEL		1990	7.5	Heated Oil			27.72	27.72		260	Gas			0.5		
KAURI CREAM	KAURI CREAM	EASTEEL		1992	7.5							260	Gas					
KAURI CREAM	KAURI CREAM	EASTEEL	Firetube	2000	10	Saturated Steam		11	35.28	35.28		180	Gas			0.75		

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
KAURI CREAM	KAURI CREAM	EASTEEL		1994	10	Hot Water			35.28	35.28		105	Gas			0.5		
KAURI CREAM	KAURI CREAM	EASTEEL		2001	10	Hot Water			35.28	35.28		105	Gas			0.5		
MAHOE FARMHOUSE CHEESE	MAHOE FARMHOUSE CHEESE			1989	0.05	Hot Water			0.0468	0.0468		95	Electricity					
MAINLAND PRODUCTS	HAMILTON	EASTEEL		2006	1.7	Saturated Steam		10	14.8512	14.8512			Gas	0.83		0.4	64.41	3401
MAINLAND PRODUCTS	HAMILTON	EASTEEL		2005	1.7	Saturated Steam		10	14.8512	14.8512			Gas	0.83		0.35	64.41	3401
MAINLAND PRODUCTS	HAMILTON	HOVAL		1986		Hot Water							Gas			0.8		
NATIONAL FOODS	NATIONAL FOODS	ANDERSON	Watertube	1975	1.4	Saturated Steam	1.81	10.3	8.568	8.568			Gas			0.5		
NATIONAL FOODS	NATIONAL FOODS	ANDERSON	Watertube	1975	1.4	Saturated Steam	1.81	10.3					Gas					
NEW ZEALAND DAIRY FOODS	TOWN MILK FACTORY	BABCOCK	Firetube	1985	3	Hot Water		3				96	Gas	0.79				
NEW ZEALAND DAIRY FOODS	TOWN MILK FACTORY	EASTON	Firetube		2.4	Hot Water		3				96	Gas	0.79				
NEW ZEALAND DAIRY FOODS	TOWN MILK FACTORY	JOHN THOMPSON	Firetube	1994	4	Hot Water		8				175	Gas	0.79				
NEW ZEALAND DAIRY FOODS	TOWN MILK FACTORY	EASTEEL - STEAMPAC	Firetube	2001	4	Steam		8				175	Gas	0.79				
NEW ZEALAND DAIRY FOODS	COUNTRY FOODS FACTORY	YGNIS	Firetube	1990	4	Hot Water		3				96	Gas	0.79				
NZ DAIRIES LTD	NZ DAIRIES LTD		Watertube	2007	15	Saturated Steam		30	103.32	103.32			Coal	0.85		0.4	437.59	39908

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
NZ DAIRIES LTD	NZ DAIRIES LTD		Watertube	2007	15	Saturated Steam		30	103.32	103.32			Coal	0.85		0.4	437.59	39908
PUHOI VALLEY CHEESE	PUHOI VALLEY CHEESE	AQUATHERM YGNIS	Watertube	1994	0.8	Hot Water		5				95	Oil/Diesel					
PUHOI VALLEY CHEESE	PUHOI VALLEY CHEESE	YGNIS		2006	2.3	Hot Water						98	Oil/Diesel					
SYNLAIT MILK LTD	SYNLAIT MILK LTD	EASTEEL	Watertube	2008	20	Saturated Steam		20					Coal	0.815				
TARANAKI MILK PRODUCTS	TARANAKI MILK PRODUCTS			2005	0.25	Hot Water			1.092	1.092			LPG/Butane			0.5		
TATUA CO-OP DAIRY	TATUA CO-OP DAIRY	FOSTER WHEELER (MCKENZIE & RIDLEY)	Watertube	1974	13	Steam	17	10	113.568	113.568		184	Gas	0.83		0.6	492.58	26008
TATUA CO-OP DAIRY	TATUA CO-OP DAIRY						1.04											
TE MATA CHEESE COY	TE MATA CHEESE COY			1993	0.15	Hot Water			1.2096	1.2096		98	LPG/Butane	0.87		0.25	5.01	302
THE OPEN COUNTRY CHEESE COY	THE OPEN COUNTRY CHEESE COY	JOHN THOMPSON	Watertube	1983	11	Saturated Steam	15	11	94.248	94.248			Coal			0.65		
THE OPEN COUNTRY CHEESE COY	THE OPEN COUNTRY CHEESE COY	EASTEEL		2008	14			32										
WESTLAND MILK PRODUCTS	WESTLAND MILK PRODUCTS	FOSTER WHEELER (MCKENZIE & RIDLEY)	Watertube	2002	25	Saturated Steam	28	38	189	189		249	Coal	0.82		0.7	829.76	75674
WESTLAND MILK PRODUCTS	WESTLAND MILK PRODUCTS	FOSTER WHEELER (MCKENZIE & RIDLEY)		1981	10	Saturated Steam		20	75.6	75.6			Coal	0.82		0.7	331.90	30270
WHITESTONE CHEESE	WHITESTONE CHEESE		Firetube	2003	0.4	Hot Water			0.4032	0.4032		80	LPG/Butane	0.88		0.6	1.65	100

## Appendix 2. Education Heating Plant

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
ABBOTSFORD SCHOOL	Abbotsford, Dunedin	CRANE WHITEHALL No.26 SECTIONAL BOILER	Watertube	1952	1	unknown		0.75				75	coal OHAI PEAS	0.4				
ADDINGTON SCHOOL	Christchurch	AQUATHERM YGNIS	Watertube	2003	0.75	Hot Water	0.125	5	0.375	0.375		75	Oil/Diesel			0.5		
ALBANY SCHOOL	ALBANY		No Boiler - electrical heating	2008														
ALLENTON SCHOOL	Ashburton	HOVAL	Waterwall	2005	0.3	Hot Water		2.5	0.1575	0.1575		77	Oil/Diesel					
AMISFIELD SCHOOL	AMISFIELD SCHOOL	PENSOTTI G2N		1997				4				95	Gas			0.5		
ANDERSON'S BAY SCHOOL	ANDERSON'S BAY Dunedin	uncertain	not sure	2007		Hot Water						80	coal OHAI PEAS					
AORAKI POLYTECHNIC	AORAKI POLYTECHNIC	RADCO		1960	0.8	Hot Water			2.688	2.688		80	Coal					
AORANGI PRIMARY SCHOOL	Christchurch		No Boiler - electrical heating															
AORERE COLLEGE	Auckland	RENDAMAX R30		2007	0.613	Hot Water		1	0.24827	0.24827		75	LPG/Butane	0.9	122000	60	0.99	60
ARANUI HIGH SCHOOL	Christchurch	TAYLOR	Watertube	1995														
ARTHUR STREET SCHOOL	Dunedin		No Boiler - electrical heating	2008														
ARTHUR STREET SCHOOL	Dunedin		No Boiler - electrical heating	2008														
ASHBURTON INTERMEDIATE SCHOOL	ASHBURTON	AQUATHERM YGNIS	horizontal smoke tube	2002	0.5	Hot Water		5	0.375	0.375		85	Oil/Diesel					



Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
AUCKLAND UNIVERSITY OF TECHNOLOGY	AUCKLAND UNIVERSITY OF TECHNOLOGY	YGNIS		2004	0.6								Gas	0.81				
AUCKLAND UNIVERSITY OF TECHNOLOGY	AUCKLAND UNIVERSITY OF TECHNOLOGY	HOVAL		1989	0.47								Gas					
AUCKLAND UNIVERSITY OF TECHNOLOGY	AUCKLAND UNIVERSITY OF TECHNOLOGY	HOVAL		1989	0.47								Gas					
AUCKLAND UNIVERSITY OF TECHNOLOGY	AUCKLAND UNIVERSITY OF TECHNOLOGY	YGNIS		1984	1.9								Gas					
AUCKLAND UNIVERSITY OF TECHNOLOGY	AUCKLAND UNIVERSITY OF TECHNOLOGY	YGNIS		1984	1.9								Gas					
AUCKLAND UNIVERSITY OF TECHNOLOGY	AUCKLAND UNIVERSITY OF TECHNOLOGY	YGNIS		1997	0.75								Gas					
AUCKLAND UNIVERSITY OF TECHNOLOGY	AUCKLAND UNIVERSITY OF TECHNOLOGY	YGNIS		1998	0.6								Gas					
AVONDALE PRIMARY SCHOOL	AVONDALE Auckland	TAYLOR	Watertube	1988	0.186		0.037		0.1116	0.1116		72	coal blend CPI			0.75		
AVONDALE PRIMARY SCHOOL AUCKLAND	AVONDALE AUCKLAND	CUDDON		1988		Hot Water							Coal					
AVONHEAD SCHOOL	Christchurch	Ecoflame Single Stage	Watertube	2000	0.175	Hot Water	0.5	10	0.056	0.056		80	Oil/Diesel	0.93		1	0.22	15
BAILEY ROAD SCHOOL	BAILEY ROAD Mt Wellington Auckland	RADCO	Segment Jacket	1965	0.33	Hot Water			0.1188	0.1188		75	Coal					
BALMACEWEN INTERMEDIATE SCHOOL	BALMACEWEN INTERMEDIATE SCHOOL	TAYMAC HEATPAK 4807	Watertube	2005	0.45	Hot Water		4.4				85	coal 50/50 mix - OHAI and KAITANGAT	0.75				
BANKS AVENUE SCHOOL	Christchurch	HOVAL		1999	0.225				0.09	0.09		80	A pea coal Oil/Diesel			0.5		
BAYSWATER SCHOOL	Auckland	NU WAY automatic diesel burner Model 112D type B	Waterwall			Hot Water						60	Oil/Diesel			0.5		
BAYVIEW PRIMARY SCHOOL	Auckland	CUDDON	Watertube	1979	0.235	Hot Water		0.6	0.05993	0.05993		80	Coal	0.65			0.33	30

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
BEACH HAVEN PRIMARY SCHOOL	BEACH HAVEN PRIMARY SCHOOL	FERROLI	water jacket	2000	0.124	Hot Water			0.02635	0.02635		76	Gas	0.91		0.9	0.10	6
BEACHLANDS SCHOOL	BEACHLANDS SCHOOL		No Boiler - Heatpumps															
BELFAST SCHOOL	BELFAST Christchurch	HOVAL	Reverse Flame Fire Tube	2000	0.3	Hot Water		2.5	0.225	0.225		90	Oil/Diesel	0.85		0.5	0.95	66
BELMONT CONTRIBUTING - LOWER HUTT	BELMONT CONTRIBUTING SCHOOL		No Boiler - electrical and gas heating	2008														
BELMONT PRIMARY SCHOOL	BELMONT Lower Hutt	HEATSERVE	Watertube	1956		Hot Water		2.41				65	coal OHAI PEAS			1		
BELMONT SCHOOL (LOWER HUTT)	BELMONT SCHOOL (LOWER HUTT)		No Boiler - electrical and gas heating	2008														
BIRDWOOD SCHOOL	BIRDWOOD SCHOOL	BEACON	Watertube	1983	0.165	Hot Water		2	0.0858	0.0858		60	Coal			0.75		
BIRKENHEAD COLLEGE	BIRKENHEAD COLLEGE	YGNIS	Watertube	2003		Hot Water		2.8				80	Gas			50		
BISHOPDALE SCHOOL	Christchurch		No Boiler - Heatpumps															
BLAKETOWN SCHOOL	Greymouth		No Boiler - electrical heating															
BOMBAY SCHOOL	Auckland		Watertube	1949	0.1	Hot Water			0.027	0.027		84	Coal					
BOTANY DOWNS SECONDARY COLLEGE	BOTANY DOWNS SECONDARY COLLEGE	AQUATHERM YGNIS		2002	0.95			5				80	Gas	0.87				
BOULCOTT PRIMARY SCHOOL	Lower Hutt	PENSOTTI CERVINA 60		1998				4				70	Gas			100		
BRADFORD SCHOOL	Dunedin	ROBIN HOOD	Watertube	1955	0.094	Hot Water			0.05922	0.05922		80	Coal	0.7		0.8	0.30	28
BRANSTON INTERMEDIATE	Christchurch	AQUATHERM YGNIS	Firetube	2001	0.3			5	0.102	0.102		70	Oil/Diesel					

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
BREENS INTERMEDIATE SCHOOL	Christchurch	AQUATHERM YGNIS	Watertube	2008	0.6	Hot Water		7.5	0.336	0.336		70	Oil/Diesel					
BRIDGE PA SCHOOL	BRIDGE PA, Hawkes Bay		No Boiler - Heatpumps	2008														
Brighton School	Christchurch	HEATSERVE		1980				2.4					coal OHAI PEAS			0.7		
BRIGHTWATER SCHOOL	BRIGHTWATER Nelson	AQUATHERM YGNIS	Watertube	1999				2				70	Oil/Diesel					
BROADWOOD AREA SCHOOL / MANGANUIOWAE	MAUNGANUIOWAE	AQUATHERM YGNIS	Watertube	2005	0.25	Hot Water		5	0.06125	0.06125			Oil/Diesel			1		
BROOKFIELD PRIMARY SCHOOL	Tauranga	HEATSERVE	Watertube	1979	0.175	Hot Water		2.47	0.0665	0.0665			coal OHAI PEAS					
BRUCE McLAREN INTERMEDIATE SCHOOL	AUCKLAND	CUDDON	Watertube			Hot Water						50	coal OHAI PEAS			1		
BUCKLANDS BEACH SCHOOL	BUCKLANDS BEACH AUCKLAND	AQUATHERM YGNIS	Waterwall		0.25	Hot Water		5					Gas			0.5		
BULLER HIGH SCHOOL	BULLER	TAYLOR	Watertube									65	COAL HEAPY PEAS			0.5		
BURNSIDE HIGH SCHOOL	CHRISTCHURCH	TAYLOR	Firetube	1998	0.9	Hot Water						78	Oil/Diesel					
BURNSIDE HIGH SCHOOL	CHRISTCHURCH	TAYLOR	Firetube	1997	0.9	Hot Water						78	Oil/Diesel					
BURWOOD SCHOOL	CHRISTCHURCH	HOVAL	Watertube	2004	0.15	Hot Water			0.081	0.081		80	Oil/Diesel			1		
CASHMERE HIGH SCHOOL	CHRISTCHURCH	Hamilton Heatpak Taylors clone	Watertube	1970	0.63				0.4095	0.4095		80	coal blend CPI	0.65		50	2.27	207
CAVERSHAM PRIMARY SCHOOL	DUNEDIN	BRITANNIA No.37	Waterwall	1907	0.15	Hot Water			0.05363	0.05363		80	coal OHAI PEAS	0.7		1	0.28	25
CENTENNIAL PARK SCHOOL	TE KUITI		No Boiler - Heatpumps	2008														

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne	
CENTRAL HAWKES BAY COLLEGE	Waipukurau		No Boiler - Heatpumps	2008															
CENTRAL NEW BRIGHTON SCHOOL	CHRISTCHURCH	(TAYLOR 78) - tarmac Heatpak HP2405	Watertube	1982	0.3	Hot Water		1	0.12	0.12		40	Wood Pellets	0.61			0.71	0	
CENTRAL NORMAL SCHOOL	Palmerston North	AQUATHERM		1988	0.3			5	0.108	0.108		67	Gas			100			
CHARTWELL SCHOOL	Wellington		No Boiler - electrical heating	2008															
CHAUCER SCHOOL	Blockhouse Bay, AUCKLAND		Watertube	2000			0.0233	4.5				95	coal OHAI PEAS				0.75		
CHRISTCHURCH BOYS HIGH SCHOOL	CHRISTCHURCH	COATES (ELECTRIC)		1990	0.29			3	0.18125	0.18125		66	Electricity				0.5		
CHRISTCHURCH EAST SCHOOL	CHRISTCHURCH		No boiler - nightstores and heaters	2008															
CHRISTCHURCH POLYTECHNIC	CHRISTCHURCH	YGNIS		2000	0.75	Hot Water		2				80	LPG/Butane	0.96					
CHRISTCHURCH SOUTH INTERMEDIATE SCHOOL	CHRISTCHURCH	Hamilton Heatpak Taylors clone	Watertube	1996	0.233	Hot Water		2	0.15145	0.15145		70	Coal				0.5		
CHURCHILL PARK SCHOOL	Glendowie, AUCKLAND	Northvale ECO Ambassador A100	condensing boiler	2007	0.1	Hot Water			0.0275	0.0275		70	LPG/Butane	1	17500	0.7	0.10	6	
CHURTON SCHOOL	Aramohu, WANGANUI	HOVAL		1976	0.6			0.25	0.24	0.24		80	Gas	0.86			0.5	1.00	53
CLARKEVILLE SCHOOL	CLARKVILLE SCHOOL		No Boiler - Heatpumps	2008															
CLAYTON PARK SCHOOL	CLAYTON PARK SCHOOL		No Boiler - Heatpumps	2007															
CLENDON PARK SCHOOL	Manurewa, AUCKLAND		No Boiler - Heatpumps																
COBHAM SCHOOL	Gisborne	RADCO		1962	0.5			2	0.1925	0.1925			Coal				1		

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
COCKLEBAY SCHOOL	Howick, AUCKLAND		No Boiler - Heatpumps	2008														
COLEY STREET SCHOOL	COLEY STREET SCHOOL		No Boiler - Heatpumps	2008														
COLLINGWOOD AREA SCHOOL	COLLINGWOOD	HEATPAK	Waterwall	1983	0.36	Hot Water			0.225	0.225		80	Coal					
CONIFER GROVE SCHOOL	Papakura, AUCKLAND	BEACON HEATER 185	not sure	1980	0.165	Hot Water		2	0.04331	0.04331		65	coal OHAI PEAS			1		
COROMANDEL AREA SCHOOL	COROMANDEL AREA SCHOOL	TAYLOR	Watertube	2006		Hot Water		3					coal OHAI PEAS			0.5		
CORSTORPHINE SCHOOL	DUNEDIN	BRITANNIA No.37		2008								80	Coal					
COTSWOLD PRIMARY SCHOOL	Bishopdale, CHRISTCHURCH	YGNIS AQUATHERM	Watertube	2008	0.25			0.6	0.12938	0.12938		55	light oil			0.5		
CULLINANE COLLEGE	St John's Hill, WANGANUI		No Boiler - electrical and gas heating															
DANNEVIRKE HIGH SCHOOL	DANNEVIRKE	Gordon Products Ltd, Blenheim	Watertube	1967		Hot Water							Oil/Diesel			1		
DARFIELD PRIMARY SCHOOL	DARFIELD		No Boiler - Heatpumps															
DAVID HENRY SCHOOL	Tokoroa	YGNIS		1982	0.15	Hot Water			0.054	0.054		70	Gas			100		
DAVID STREET SCHOOL	Morrinsville		No Boiler - Heatpumps	2008														
DIAMOND HARBOUR SCHOOL	DIAMOND HARBOUR	TAYMAC SR175	Waterwall	2002		Hot Water		4.5				72	Oil/Diesel	0.9		1		
DON BUCK PRIMARY SCHOOL	MASSEY, AUCKLAND	BEACON 104	cross tube vertical baler	1981				2				75	Coal	0.5				
DONOVAN PRIMARY SCHOOL	Invercargill	HAMILTON	Waterwall	1975		Hot Water						60	coal OHAI PEAS			0.1		

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
EAST OTAGO HIGH SCHOOL	Palmerston	TAYMAC	Watertube	2006	2.4	Hot Water		7.5	1.92	1.92		60	COAL - New Vale Peas 25					
EAST TAIERI SCHOOL	Mosgiel	BEECROFT	Watertube	2004	0.1	Hot Water		3	0.06	0.06		80	coal OHAI PEAS	0.65		0.5	0.33	30
EAST TAMAKI SCHOOL	Otara, AUCKLAND	FERROLI		2002	0.102	Hot Water			0.02601	0.02601		78	Gas	0.9		0.7	0.10	5
EASTERN HUTT SCHOOL	Lower Hutt		No Boiler - gas heaters	2008														
EASTERN INSTITUTE OF TECHNOLOGY	Napier												Gas					
EBBETT PARK SCHOOL	Hastings	HEATSERVE	Watertube	1974	0.176	Hot Water		2.4	0.0704	0.0704		70	Coal					
EDENDALE PRIMARY SCHOOL	Sandringham AUCKLAND	AQUATHERM YGNIS	Watertube	2003				5				78	Gas			0.5		
EDGE CUMBE COLLEGE	EDGE CUMBE	HAMILTON HEATPAK	Waterwall	1993	0.645	Hot Water		2	0.258	0.258		75	Coal	0.65	180600	0.7	1.43	130
EDGE CUMBE PRIMARY SCHOOL	EDGE CUMBE	CUDDON	Watertube		0.17	Hot Water		3	0.04335	0.04335		75	Coal	0.85		0.25	0.18	17
EDMONTON PRIMARY SCHOOL	Te Atatu South, AUCKLAND	HEATPAK	Watertube	1947	0.5	Hot Water		4.5	0.13125	0.13125		76	Coal			0.05		
EDMUND HILLARY SCHOOL	Papakura, AUCKLAND	CUDDON	Watertube	1972	0.17	Hot Water		7	0.051	0.051			Coal					
ELLESMERE COLLEGE	Leeston	TAYMAC HEATPAK 4807	Waterwall	2007	0.53	Hot Water		4.4	0.46375	0.46375		60	Coal Blended Giles Creek-Tillers Peas	0.7		0.5	2.39	218
ELMGROVE SCHOOL	Mosgiel	CRANE WHITEHALL No.26 SECTIONAL BOILER	Waterwall	1963		Hot Water						80	Coal					
ELMPARK SCHOOL	Pakuranga, AUCKLAND		No Boiler - Heatpumps															
ENNER GLYNN SCHOOL	Nelson	Sime Gulliver RG5D 12 Freestanding	Watertube	2002	0.213		0.025		0.07242	0.07242			light oil					

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
EPSOM GIRLS GRAMMAR SCHOOL	EPSOM AUCKLAND	YGNIS AQUATHERM	Watertube	1995	0.95	Hot Water		5	0.627	0.627		23	Gas					
FAIRBURN SCHOOL	Otahuhu, AUCKLAND	AQUATHERM YGNIS		1998	0.3			5	0.0735	0.0735			Gas			1		
FAIRFIELD COLLEGE SCHOOL	Fairfield, HAMILTON	Energy Products International	condensing boiler	2006	0.6	Hot Water			0.21	0.21			Gas	0.9		1	0.84	44
FAIRFIELD SCHOOL	Fairfield, HAMILTON	BRITANNIA No.37		1958		Hot Water		1.5				70	Coal					
FAIRFIELD SCHOOL LEVIN	LEVIN	ROBIN HOOD	Waterwall	1971		Hot Water						70	Gas					
FAIRLIE PRIMARY SCHOOL	FAIRLIE	RYLAND		1955								85	Coal			1		
FARM COVE INTERMEDIATE SCHOOL	Pakuranga, AUCKLAND	IVAR 290	Waterwall	2008	0.3	Hot Water		3	0.09	0.09		70	Gas	0.9			0.36	19
FAVONA SCHOOL	Mangere, Manukau AUCKLAND	HEATSERVE	Waterwall	1973	0.22	Hot Water			0.0561	0.0561		80	HUNTLY PEA COAL	0.65		0.75	0.31	28
FEATHERSTON PRIMARY SCHOOL	FEATHERSTON	TAYMAC	Watertube	1998		Hot Water		0.6				60	Coal			0.5		
FERGUSON INTERMEDIATE SCHOOL	Trentham, UPPER HUTT	AQUATHERM	Watertube	1997	0.4	Hot Water		5	0.216	0.216		80	Gas	0.8		0.75	0.97	51
FINLAYSON PARK SCHOOL	Manurewa, AUCKLAND	A&T Burnt Ltd VALE AUTOMATIC STOKER	Watertube	1980	0.3			2.6	0.05775	0.05775			Coal	0.6		100	0.35	32
FIRTH PRIMARY SCHOOL	Matamata	AQUATHERM YGNIS		1999	0.2	Hot Water		5	0.08	0.08		65	Coal					
FLAXMERE COLLEGE	FLAXMERE	HAMILTON	Watertube	1977	0.1	Hot Water			0.032	0.032		70	Huntly pea coal			0.25		
FLAXMERE SCHOOL	FLAXMERE	CUDDON	Watertube	1968		Hot Water						50	coal OHAI PEAS			1		
FOREST EDUCATION CENTRE	FOREST EDUCATION CENTRE	EASTEEL			4	Steam							Gas					

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
FOREST LAKE SCHOOL	FOREST LAKE SCHOOL												Gas					
FORREST HILL SCHOOL	Forrest Hill, North Shore	BEECROFT	Watertube	1980	0.165	Hot Water			0.0396	0.0396		75	Coal chips/fines					
FRANCIS DOUGLAS MEMORIAL COLLEGE	New Plymouth	HOVAL	Watertube	1982	0.4	Hot Water		3	3.2256	3.2256		84	Gas			0.67		
FREEVILLE SCHOOL	FREEVILLE SCHOOL		No Boiler - Heatpumps	2008														
FREYBERG HIGH SCHOOL	Palmerston North	AQUATHERM	Watertube	2008	0.77			4	0.462	0.462		75	Gas			1		
GERALDINE HIGH SCHOOL	GERALDINE	HAMILTON	Watertube	1977	0.7	Hot Water		6.9	0.4375	0.4375		80	Coal	0.7		0.7	2.25	205
GISBORNE INTERMEDIATE SCHOOL	GISBORNE		No Boiler - Heatpumps															
GLADSTONE PRIMARY SCHOOL	Mt Albert, AUCKLAND	HAMILTON	Waterwall	1973		Hot Water						80	Coal			0.75		
GLENAVON SCHOOL	Auckland	(TAYLOR 78) - taymac Heatpak HP2405	Watertube	1991	0.125	Hot Water	0.125	4.4	0.04688	0.04688			Coal					
GLENBERVIE SCHOOL	Whangarei			2008														
GLENDENE SCHOOL	GLENDENE AUCKLAND	CUDDON	Waterwall	1964		Hot Water						65	coal OHAI PEAS	0.5				
GLENDOWIE COLLEGE	GLENDOWIE AUCKLAND	AQUATHERM YGNIS	not sure	1997		Hot Water		5				72	Gas			100		
GLENMOOR SCHOOL	Mairehau, CHRISTCHURCH	BRITANNIA No.37		1957		Hot Water						80	Coal	0.7		50		
GRANTS BRAES SCHOOL	Dunedin	CRANE WHITEHALL No.26 SECTIONAL BOILER	Watertube	1955		Hot Water		3				80	coal OHAI PEAS			1		
GREEN BAY HIGH SCHOOL	Green Bay, Waitakere	HAMILTON	Waterwall	1967	0.7	Hot Water		5	0.2975	0.2975		110	Coal	0.5		70	2.14	195



Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
GREEN ISLAND SCHOOL	GREEN ISLAND DUNEDIN	HEATPAK	Waterwall	1974		Hot Water						62	Coal			100		
GREENACRES SCHOOL	Tawa, WELLINGTON	YGNIS		1998	0.175	Hot Water		2	0.04375	0.04375		70	Gas			0.25		
GREY MAIN SCHOOL	Greymouth	BEACON HEATER 2201	Waterwall	1999	0.3	Hot Water		0.45	1.1592	1.1592		70	COAL - Blend 2					
HAMMERLEY PARK SCHOOL	Shirley, CHRISTCHURCH	HAMILTON	Waterwall	1981		Hot Water		2				70	coal blend CPI	0.8	300	50		
HAMMERLEY PARK SCHOOL	HAMMERLEY PARK SCHOOL - BOILER B	HOVAL	Waterwall	1994		Hot Water		3				70	Oil/Diesel	0.8	200	0.5		
HAMPTON HILL SCHOOL	Tawa, WELLINGTON	PENSOTTI CERVINA 60	Waterwall		0.087	Hot Water		2	0.04186	0.04186		65	Gas					
HASTINGS CENTRAL SCHOOL	HASTINGS	HAMILTON	Watertube	2008		Hot Water						60	Coal		60	0.5		
HAY PARK PRIMARY SCHOOL	Mt. Roskill, AUCKLAND	BEACON HEATER 2327	Watertube	1978	0.165	Hot Water		1	0.0396	0.0396		70	Huntly pea coal	0.8		0.85	0.18	16
HENDERSON NORTH SCHOOL	HENDERSON AUCKLAND	BEACON	Waterwall	1981	0.165	Hot Water		2	0.066	0.066			Coal					
HENDERSON VALLEY SCHOOL	HENDERSON VALLEY SCHOOL	TAYLOR	Watertube	1989	0.125	Hot Water		4.4	0.04063	0.04063		80	coal OHAI PEAS			1		
HENLEY SCHOOL	Richmond, NELSON	HAMILTON	Waterwall	1968								80	Coal	0.8		0.75		
HERETAUNGA COLLEGE	HERETAUNGA UPPER HUTT	AQUATHERM	Watertube	1998		Hot Water		3				76	Gas	0.83		100		
HIKURANGI SCHOOL	HIKURANGI		Watertube	1958		Hot Water						60	COAL HEAPY PEAS			1		
HILLMORTON HIGH SCHOOL	HILLMORTON CHRISTCHURCH	TRIWAY	Watertube	1996	0.9	Hot Water			0.945	0.945		85	Coal					
HILLMORTON HIGH SCHOOL	HILLMORTON HIGH SCHOOL - 2	HAMILTON	Watertube	1968	0.45	Hot Water			0.4725	0.4725		85	Coal					

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
Hillsborough Primary School	HILLSBOROUGH PRIMARY		No Boiler - gas heaters	2008														
HINUERA SCHOOL	Matamata	FERROLI		2005	0.07	Hot Water			0.0315	0.0315		75	Oil/Diesel	0.85			0.13	9
HOKITIKI SCHOOL	HOKITIKA		No Boiler - Heatpumps	2008														
HORA HORA SCHOOL	HORA HORA			2008														
HORNBY HIGH SCHOOL	HORNBY CHRISTCHURCH	TRIPASS GO 1200P		1998	1.41	Hot Water		4.5				60	Oil/Diesel	0.85		1		
HUIA RANGE SCHOOL	Dannevirke		no boiler - gas,heat pumps and other electric Firetube	2008														
HUTT VALLEY HIGH SCHOOL	HUTT VALLEY LOWER HUTT	AQUATHERM YGNIS	Firetube	1989	0.7							80	Gas					
HUTT VALLEY HIGH SCHOOL	HUTT VALLEY LOWER HUTT		Firetube	1989	0.7							80	Gas					
ILAM SCHOOL	ILAM CHRISTCHURCH	AQUATHERM YGNIS	Waterwall	2001	0.15	Hot Water		5	0.1044	0.1044		80	Oil/Diesel			0.5		
INGLEWOOD HIGH SCHOOL	INGLEWOOD	WEISHAMPT	Watertube	1981		Hot Water		3.5				70	Gas			100		
IONA COLLEGE	IONA COLLEGE	YGNIS	Waterwall	2008	0.4			1.7	1.344	1.344		70	Gas	0.83			5.83	308
KAIAPOI BOROUGH SCHOOL	KAIAPOI	TAYLOR	Watertube	1991	0.3	Hot Water		1.5	0.216	0.216		70	Coal	0.75		0.65	1.04	95
KAIAPOI HIGH SCHOOL	KAIAPOI	TAYLOR	Watertube	2000		Hot Water						80	COAL HEAPY PEAS	0.8				
KAIAPOI HIGH SCHOOL	KAIKOURA	TAYMAC HAMILTON HEAT PONY	Waterwall	1980	0.48	Hot Water		0.5	0.6912	0.6912		60	COAL HEAPY PEAS	0.9	53	75	2.76	252
KAIHU VALLEY SCHOOL	KAIHU VALLEY Dargaville	RADCO	Waterwall	1975		Hot Water						70	Coal	0.9				

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
KAIKOHE WEST SCHOOL	KAIKOHE		No Boiler - Heatpumps															
KAikorai PRIMARY SCHOOL	Roslyn, DUNEDIN	HAMILTON HEATPAK	Waterwall	2003		Hot Water		2.5				82	coal OHAI PEAS			1		
KAITAIA PRIMARY SCHOOL	KAITAIA		No Boiler - Heatpumps															
KAITANGATA SCHOOL	KAITANGATA	CRANE WHITEHALL No.26 SECTIONAL BOILER	Waterwall	1968		Hot Water						70	Coal					
KAMO PRIMARY SCHOOL	Whangarei	HEATSERVE	Watertube	1977	0.132	Hot Water		2.4	0.0726	0.0726		50	Coal			100		
KAPITI PRIMARY SCHOOL	Paraparaumu	PENSOM CERVIVIA 1&2		1995									Gas					
KAWERAU SOUTH SCHOOL	KAUERAU	HAMILTON	Watertube	1963	0.16	Hot Water			0.06	0.06		80	Coal					
KEITH STREET PRIMARY SCHOOL	Wanganui	ROBIN HOOD	Watertube	1955		Hot Water						65	Coal			0.5		
KELSTON DEAF EDUCATION CENTRE	Kelston, Waitakere, AUCKLAND	ALLEN YGNIS	Firetube	1983	0.3	Hot Water		0.6	0.294	0.294		70	Gas	0.8	230000	0.5	1.32	70
KELSTON PRIMARY SCHOOL	Kelston, Waitakere, AUCKLAND	(TAYLOR 78) - taymac Heatpak HP2405		1989	0.12			4.4	0.036	0.036			Gas					
KELVIN ROAD SCHOOL	Papakura, AUCKLAND	Gyro Heating Ltd		1968		Hot Water						80	coal OHAI PEAS					
KIHIKIHI SCHOOL	KIHIKIHI	HEATSERVE	Watertube	1980	0.174	Hot Water		2.4	0.09396	0.09396		92	coal OHAI PEAS	0.8			0.42	39
KIMIHA SCHOOL	Huntly	H&P	Waterwall	1965		Hot Water						700	COAL HEAPY PEAS	0.5		65		
KINGSFORD PRIMARY SCHOOL	Mangere, AUCKLAND		Watertube	1965		Hot Water		4.4					Coal			50		
KOWHAI INTERMEDIATE SCHOOL	KOWHAI INTERMEDIATE SCHOOL	TAYLOR	Watertube	1988		Hot Water		4.4				65	Coal	0.65		100		

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
KURANUI COLLEGE	Greytown	TAYMAC		1993		Hot Water						75	Coal			70		
LEVIN NORTH SCHOOL	LEVIN	AQUATHERM	Firetube	1990	0.155	Hot Water		5	0.0775	0.0775		85	Gas					
LICHFIELD SCHOOL	Putaruru		No Boiler - Heatpumps	2008														
LIMEHILLS PRIMARY SCHOOL	LIMEHILLS	DOHERTY	Watertube	1978	0.8	Hot Water			0.288	0.288		60	coal OHAI PEAS			100		
LINCOLN HEIGHTS SCHOOL	Massey, AUCKLAND	TAYLOR	Watertube	1967		Hot Water		0.002				50	Coal			25		
LINCOLN UNIVERSITY	LINCWORKS PROPERTY SERVICES	ANDERSON	Firetube 3 pass	1967	2.7	Saturated Steam	1.81	10.34	4.536	4.536		180	Coal	0.83		0.4	19.67	1794
LINCOLN UNIVERSITY	LINCWORKS PROPERTY SERVICES	VEKOS	Firetube 3 pass	1974	5.7	Saturated Steam	8	10.34	28.728	28.728		180	Coal	0.82		0.064	126.12	11502
LINCOLN UNIVERSITY	LINCWORKS PROPERTY SERVICES	EASTEEL		2002	0.308	Steam			0.41395	0.41395			Electricity			0.8		
LINDEN SCHOOL	LINDEN PORIRUA	GBS Series 2		1996	0.1	Hot Water		5	0.072	0.072		90	Gas					
LINWOOD INTERMEDIATE SCHOOL	LINWOOD CHRISTCHURCH	BRITANNIA LPHW	Waterwall	1956									COAL - REEFTON BLEND			50		
LONG BAY PRIMARY SCHOOL	LONG BAY	BEACON HEATER 185	Waterwall	1980		Hot Water		2				60	coal OHAI PEAS		29375	1		
Longburn Adventist College	Longburn		No Boiler - electrical and gas heating	2008														
Lucknow School	Havelock North		No Boiler - Heatpumps	2008														
Lyttleton West School	Lyttleton		No Boiler - Heatpumps	2008														
MACANDREW BAY SCHOOL	MACANDREW BAY DUNEDIN	IDEAL K5 Model 2		1968	0.13	Hot Water		0.4	0.1794	0.1794		75	Coal			0.85		

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
MACLEANS COLLEGE	Bucklands Beach, AUCKLAND	TAYLOR	Watertube	1980	0.582	Hot Water		4.5	0.2328	0.2328		80	Coal		177780	100		
MACLEANS PRIMARY SCHOOL	Bucklands Beach, AUCKLAND	MCDONALD	Watertube	1974		Hot Water		1.1				70	Coal					
MAIREHAU PRIMARY SCHOOL	MAIREHAU SCHOOL		No Boiler - Heatpumps	2008														
MAKARAKA SCHOOL	MAKARAKA SCHOOL		No Boiler - electrical heating	2008														
MALFOY SCHOOL	Rotorua	ROBIN HOOD	Waterwall	1957	1	Hot Water		1.5	0.605	0.605		71	Huntly pea coal	0.48		1	4.54	414
MANCHESTER STREET SCHOOL	FEILDING	AQUATHERM		1996		Hot Water							Gas			0.5		
MANGAKINO AREA SCHOOL	MANGAKINO	TAYMAC	Watertube	2000	0.533	Hot Water		4.5	0.4264	0.4264		95	coal OHAI PEAS			1		
MANGAMAIRE SCHOOL	MANGAMAIRE SCHOOL		No Boiler - Heatpumps	2007														
MANGAPAPA SCHOOL	Gisborne		No Boiler - Heatpumps	2008														
MANGATERETE RE SCHOOL	MANGATERETE RE Hastings		No Boiler - Heatpumps	2008														
MANGERE BRIDGE SCHOOL	MANGERE AUCKLAND			2008														
MANGERE CENTRAL SCHOOL	MANGERE Auckland	BEACON		2008		Hot Water						80	coal OHAI PEAS			0.5		
MANUKORIHI INTERMEDIATE SCHOOL	Waitara, Taranaki	BEACON	Watertube		0.2	Hot Water	0.3	1	0.26	0.26		70	coal OHAI PEAS	0.84		0.66	1.11	102
MAORIBANK SCHOOL	Upper Hutt	PENSOTTI CERVINA 60		2008									Gas					
MARLBOROUGH GIRLS COLLEGE	MARLBOROUGH	TAYLOR		1979	0.586	Hot Water		3.45	0.44302	0.44302		40	Coal	0.7	586	0.5	2.28	208

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
MARSHALL LAING SCHOOL	Mt Roskill, AUCKLAND	BRITANNIA No.37	Watertube	1968		Hot Water							Coal			1		
MARSHLAND PRIMARY SCHOOL	Christchurch	AQUATHERM YGNIS	Watertube	2000	0.15	Hot Water		5	0.04725	0.04725		72	Oil/Diesel	0.92	47250		0.18	13
MASSEY UNIVERSITY	MASSEY UNIVERSITY WELLINGTON	AQUATHERM		1988	0.59			5					Gas					
MASSEY UNIVERSITY	MASSEY UNIVERSITY WELLINGTON	AQUATHERM		1988	0.59			5					Gas					
MASSEY UNIVERSITY	MASSEY UNIVERSITY WELLINGTON	AQUATHERM		1991	1.5			5					Gas					
MASSEY UNIVERSITY	MASSEY UNIVERSITY WELLINGTON	AQUATHERM		1991	1.5			5					Gas					
MASSEY UNIVERSITY	MASSEY UNIVERSITY WELLINGTON	Energy Products International		2000	0.6			5					Gas					
MASSEY UNIVERSITY	MASSEY UNIVERSITY WELLINGTON	Energy Products International		2000	0.6			5					Gas					
MASSEY UNIVERSITY	AUCKLAND	YGNIS		2008	0.35													
MASSEY UNIVERSITY	AUCKLAND	YGNIS		2008	0.35													
MASSEY UNIVERSITY	AUCKLAND	YGNIS		2008	0.35													
MASSEY UNIVERSITY	AUCKLAND	AQUATHERM		2008	0.35													
MASSEY UNIVERSITY	AUCKLAND	AQUATHERM		2008	0.35													
MASSEY UNIVERSITY	AUCKLAND	AQUATHERM		2008	0.35													
MASSEY UNIVERSITY	AUCKLAND	AQUATHERM		2008	0.35													

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
MASSEY UNIVERSITY 2	BOILER HOUSE	AQUATHERM YGNIS	Watertube	1995	1.5	Hot Water		3				85	Gas	0.83				
MASSEY UNIVERSITY 2	BOILER HOUSE	AQUATHERM YGNIS	Waterwall	1995	1.5	Hot Water		3				85	Gas	0.83				
MASSEY UNIVERSITY 2	SOCIAL SCIENCE LECTURE THEATRE	AQUATHERM YGNIS	Watertube	1991	1.2	Hot Water		3				85	Gas	0.8				
MASSEY UNIVERSITY 2	SOCIAL SCIENCE LECTURE THEATRE	AQUATHERM YGNIS	Watertube	1991	1.2	Hot Water		3				85	Gas	0.8				
MASSEY UNIVERSITY 2	SCIENCE TOWER B	AQUATHERM YGNIS	Watertube	1995	1.5	Hot Water		3				85	Gas	0.83				
MASSEY UNIVERSITY 2	SCIENCE TOWER B	AQUATHERM YGNIS	Watertube	2004	1.5	Hot Water		3				85	Gas	0.83				
MASSEY UNIVERSITY 2	RIDET TOWER	AQUATHERM YGNIS	Firetube	1970	1.2	Saturated Steam		8				175	Gas	0.8				
MATAMATA INTERMEDIATE SCHOOL	MATAMATA	BOLAR	Watertube	1955	0.5	Hot Water		5	0.15	0.15		77	coal OHAI PEAS	0.65		0.25	0.83	76
MAUNGARAKI SCHOOL	MAUNGARAKI LOWER HUTT	PENSOTTI CERVINA 60	Waterwall	1988	0.087	Hot Water		4	0.04578	0.04578		90	Gas	0.8		1	0.21	11
MAUNGATAPERE PRIMARY SCHOOL	MAUNGATAPERE Whangarei	COATES (ELECTRIC)		1978	0.072	Hot Water			0.0108	0.0108		60	Electricity			100		
MAYFIELD SCHOOL	Blenheim			1998		Hot Water							Coal					
MELVILLE INTERMEDIATE SCHOOL	Hamilton	AQUATHERM YGNIS		2004	0.3	Hot Water		5	0.108	0.108								
MERCURY BAY AREA SCHOOL	Whitianga		Watertube		0.8	Hot Water		0.5	0.192	0.192		70	coal OHAI PEAS			0.2		
METHVEN SCHOOL	METHVEN		No Boiler - Heatpumps	2008														
MILFORD SCHOOL	MILFORD SCHOOL	AQUATHERM YGNIS		2008	0.125	Hot Water		5					Gas					

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
MILTON PRIMARY SCHOOL	MILTON	ROBIN HOOD	water jacket	1966		Hot Water						72	Coal					
MOANATAIARI SCHOOL	Thames		No Boiler - Heatpumps	2008														
MORRINSVILLE COLLEGE	MORRINSVILLE	AQUATHERM	Watertube		0.059	Hot Water		1	0.00797	0.00797		88	Gas			0.5		
MORRINSVILLE INTERMEDIATE SCHOOL	MORRINSVILLE	H&P	Watertube	1969	0.44			2	0.154	0.154			COAL - New Vale Peas 25					
MOUNT ASPIRING COLLEGE	Wanaka	HAMILTON HEATPAK	Waterwall	1986	0.83	Hot Water		4.5	0.5478	0.5478		82	Coal			0.6		
MOUNT HUTT COLLEGE	Methven	HOVAL	Watertube	1999	0.75	Hot Water			1.05	1.05		79	Oil/Diesel	0.93		0.75	4.06	282
MOUNTAINVIEW HIGH SCHOOL	Timaru	HAMILTON	Waterwall	1984		Hot Water						90	Coal					
MOUNTVIEW SCHOOL	Taupo		No Boiler - Heatpumps	2008														
MURITAI SCHOOL	MURATAI SCHOOL	MEGALUX 90 (2)		2008		Hot Water						60	Gas					
MURRAY'S BAY INTERMEDIATE SCHOOL	MURRAY'S BAY AUCKLAND	AQUATHERM	Waterwall	1998	0.3	Hot Water		5	0.09	0.09			Gas					
MURUPARA SCHOOL	MURUPARA	Energy Products International	Watertube	2006		Hot Water		2.4				70	Coal			0.25		
NAENAE COLLEGE	NAENAE LOWER HUTT	CARBOFUEL		1991	0.45	Hot Water			0.648	0.648		90	Gas	0.7		0.8	3.33	176
NAPIER BOYS HIGH SCHOOL	NAPIER	VEKOS POWERMASTER	Watertube	1971		Hot Water		3.4				82	Coal					
NAYLAND COLLEGE	Stoke, Nelson	TAYLORS HEATSERV	Watertube	1978	0.586	Hot Water		4	0.2344	0.2344		85	Coal			0.5		
NAYLAND PRIMARY SCHOOL	Stoke, Nelson	FONDERIE SIME Model 2R 15	Watertube	2003		Hot Water		5				85	Oil/Diesel	0.95		1		



Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
NEW PLYMOUTH GIRLS HIGH SCHOOL	NEW PLYMOUTH	ALLEN YGNIS		1973		Hot Water						80	Gas					
NEWLANDS COLLEGE	NEWLANDS WELLINGTON	CARBOFUEL	Watertube	1990	0.6	Hot Water		1.5	0.36	0.36		80	Gas	0.8		0.5	1.62	86
NGATI TOA PRIMARY SCHOOL	Titahi Bay, PORIRUA	BONGIOANNI - BON GAS		2000		Hot Water		5				90	Gas			0.75		
NORTH EAST VALLEY NORMAL SCHOOL	Dunedin		Watertube	1965		Hot Water		10				70	coal OHAI PEAS			0.6		
NORTH NEW BRIGHTON SCHOOL	NEW BRIGHTON CHRISTCHURCH	TAYLOR	Watertube	1998	0.186	Hot Water							Coal	0.87		0.5		
NORTH STREET SCHOOL	Feilding	AQUATHERM YGNIS	Firetube	2000	0.25	Hot Water		2	0.11813	0.11813		82	Gas	0.83		0.5	0.51	27
NORTHCOTE COLLEGE	NORTHCOTE AUCKLAND	HAMILTON HEATPAK	Watertube	1978		Hot Water		1.2				80	coal OHAI PEAS			1		
NORTHLAND COLLEGE	Kaikohe	AQUATHERM YGNIS	Watertube	2005	0.5	Hot Water			0.125	0.125		60	Oil/Diesel	0.83	6300		0.54	38
OAMARU INTERMEDIATE SCHOOL	OAMARU	Hamilton Heatpak Taylors clone	tube bundle	1998	0.533	Hot Water		3	0.09994	0.09994		80	Coal blend - 33% cascade and 67% Takitimu	0.8		0.5	0.45	41
OAMARU NORTH SCHOOL	OAMARU	TAYMAC HEATPAK 3605	Watertube	2000	0.244	Hot Water		4.5	0.122	0.122		82	Coal	0.95		1	0.46	42
OHAU SCHOOL	OHAU Levin	H&P	Watertube	1971		Hot Water		0.14				60	HUNTLY PEA COAL			0.6		
OMAKAU SCHOOL	OMAKAU	KROLL HEAT EXCHANGER		2005		Hot Water		1.5				65	Oil/Diesel	0.87	29400	0.5		
ONEHUNGA PRIMARY SCHOOL	ONEHUNGA AUCKLAND	ECOMAX 200	Firetube	2007	0.2	Hot Water		1.5	0.06	0.06		70	Gas	0.9			0.24	13
ONERAHI PRIMARY SCHOOL	ONERAHI	CUDDON	Watertube	1948		Hot Water						71	Coal			1		
OPAHEKE SCHOOL	Papakura, AUCKLAND	H&P	Watertube	1968	0.15	Hot Water		0.3	0.06	0.06		65	Coal			0.5		

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
OPOTIKI COLLEGE	OPOTOKI	HOVAL	Firetube		0.9	Hot Water		5	0.396	0.396		80	Gas	0.85			1.68	89
OPOTIKI PRIMARY SCHOOL	OPOTIKI	ACFV 150 Energy Products International	Watertube	2007	0.15	Hot Water		3	0.06	0.06		80	Coal			0.5		
OREWA COLLEGE	OREWA	HEATSERVE	Watertube	1978	0.9	Hot Water		1.1	0.45	0.45		80	coal OHAI PEAS			0.7		
OREWA PRIMARY SCHOOL	OREWA		No boiler - heating supplied from another school	2008														
OTAHUHU COLLEGE	OTAHUHU COLLEGE AUCKLAND	RENDAMAX R30	Watertube	2006								82	Gas					
OTAHUHU COLLEGE	OTAHUHU COLLEGE - B BLOCK	RAYPAK Atmospheric Boiler	Watertube	2006								82	Gas					
OTAHUHU PRIMARY SCHOOL	OTAHUHU AUCKLAND		No Boiler - gas heaters															
OTAKI SCHOOL	OTAKI	SANGIORGIO	Watertube	1996		Hot Water						90	Gas			1		
OTOROHANGA PRIMARY SCHOOL	OTOROHANGA	CRANE WHITEHALL No.26 SECTIONAL BOILER		1958		Hot Water						80	coal OHAI PEAS			0.75		
OXFORD AREA SCHOOL	OXFORD	HAMILTON HEATPAK	Waterwall	1984		Hot Water							Coal					
PAEKAKARIKI SCHOOL	PAEKAKARIKI	TAYLOR		1996	0.2	Hot Water		4.4	0.12	0.12			Coal			0.5		
PAEROA CENTRAL SCHOOL	PAEROA	HAMILTON	Watertube		0.16	Hot Water			0.088	0.088		90	coal OHAI PEAS			1		
PAKURANGA COLLEGE	PAKURANGA COLLEGE - MAIN BOILER	AQUATHERM YGNIS		2000		Hot Water		7.5				75	Gas			0.7		
PAKURANGA COLLEGE	PAKURANGA COLLEGE - SWEENEY SCIENCE BLOCK BOILER	AQUATHERM PENSOTTI CERVINIA 51		1998		Hot Water		4				90	Gas			0.7		

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
PAKURANGA COLLEGE	PAKURANGA COLLEGE - STONE BLOCK BOILER	AQUATHERM PENSOTTI CERVINIA 51		1998		Hot Water		4				95				0.7		
PAKURANGA COLLEGE	PAKURANGA COLLEGE - LIBRARY BOILER	LENNOX / CLEVER		1998	0.04	Hot Water			0.08064	0.08064		60	Gas				0.5	
PAKURANGA HEIGHTS SCHOOL	PAKURANGA	AQUATHERM YGNIS	Watertube	1996	0.125	Hot Water		5	0.05	0.05		73	Oil/Diesel				0.5	
PALMERSTON NORTH GIRLS HIGH SCHOOL	PALMERSTON NORTH	HOVAL	Watertube	1985	0.94	Hot Water		5	0.3948	0.3948		95	Gas	0.82			0.5	1.73 92
PAPAMOA PRIMARY SCHOOL	PAPAMOA	AQUATHERM YGNIS	Firetube	1998	0.35	Hot Water		2	0.119	0.119		80	Gas				0.5	
PAPANUI PRIMARY SCHOOL	PAPANUI CHRISTCHURCH	HOVAL	Watertube	1999	0.25	Hot Water			0.18	0.18		77	Oil/Diesel	0.09			1	7.20 500
PAPATOETOE CENTRAL SCHOOL	PAPATOETOE AUCKLAND	HOVAL	Waterwall	1983		Hot Water							Gas					
PAPATOETOE EAST PRIMARY SCHOOL	PAPATOETOE AUCKLAND		No Boiler - electrical heaters and heat pumps	2008														
PAPATOETOE INTERMEDIATE SCHOOL	PAPATOETOE AUCKLAND	BRITANNIA No.37	Waterwall	1955		Hot Water						30	Oil/Diesel	0.5			1	
PARAPARAUMU BEACH SCHOOL	PARAPARAUMU	BONGAS 1/9 T	Watertube	2000	0.103	Hot Water		5	0.0927	0.0927		90	Gas				0.5	
PARAPARAUMU COLLEGE	PARAPARAUMU	TAYLORS HEATSERV	Watertube	1978	0.879	Hot Water		3	0.91416	0.91416		85	Gas				0.75	
PARKLANDS SCHOOL	Motueka	TRIWAY	Watertube	1997		Hot Water						80	coal OHAI PEAS	0.8				
PARKSIDE SPECIAL SCHOOL	Pukekohe, AUCKLAND	CUDDON		1968		Hot Water						82	Oil/Diesel				1	
PARKVIEW SCHOOL	Parklands, CHRISTCHURCH	HOVAL	Watertube	2000	0.325	Hot Water		11	0.104	0.104		80	Oil/Diesel	0.75			1	0.50 35
PATRICIA AVENUE SCHOOL	Hamilton		No Boiler - electrical heaters and heat pumps	2008														

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
PIGEON MOUNTAIN SCHOOL	Buckland's Beach	FERROLI	Watertube	2000	0.1	Hot Water			0.03	0.03		75	Gas		32485			
PILLANS POINT SCHOOL	Tauranga		No Boiler - electrical and gas heating	2008														
POKENO SCHOOL	POKENO			1960		Hot Water						40	Coal					
PROSPECT PRIMARY SCHOOL	Glen Eden, AUCKLAND	CUDDON	Watertube	1958	2	Hot Water		2	0.6	0.6		60	coal OHAI PEAS			0.75		
PUTARURU PRIMARY SCHOOL	PUTARURU	AQUATHERM	Watertube	1998	0.4	Hot Water		3.5	0.2	0.2		45	Coal			0.5		
QUEENS HIGH SCHOOL	Dunedin			2008														
RANGITOTO COLLEGE	RANGITOTO COLLEGE																	
RAUMATI BEACH	RAUMATI BEACH	REGENCY GBS SERIES 2		1996									Gas			100		
RED BEACH SCHOOL	RED BEACH AUCKLAND	TAYLOR	Waterwall		0.125	Hot Water		4.4	0.06375	0.06375			coal OHAI PEAS					
REDCLIFFS SCHOOL	REDCLIFFS CHRISTCHURCH			2008														
REDWOOD SCHOOL	REDWOOD CHRISTCHURCH		No Boiler - gas heaters															
REMUERA INTERMEDIATE SCHOOL	REMUERA AUCKLAND - Boiler 1	BRITANNIA No 38k	Waterwall	1955	0.184	Hot Water			0.06492	0.06492		75	Gas	0.7			0.33	18
REMUERA INTERMEDIATE SCHOOL	REMUERA INTERMEDIATE SCHOOL - Boiler 2	PENSOTTI CERVINIA MODEL E51		1999	0.065	Hot Water		4				93	Gas					
RHODE STREET SCHOOL	Dinsdale, HAMILTON	ROBIN HOOD	Waterwall	1959		Hot Water							Coal			0.25		
RICCARTON HIGH SCHOOL	RICCARTON CHRISTCHURCH	YGNIS	Watertube	2002	0.9	Hot Water		1.5	0.945	0.945		80	Oil/Diesel	0.9			3.78	263

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
RICHMOND SCHOOL	Maraenui, NAPIER		No Boiler - Heatpumps	2008														
RIVERHILLS SCHOOL	Pakuranga, AUCKLAND	H&P		1968									Coal					
RODNEY COLLEGE	Wellsford	BRITANNIA	Watertube	1968		Hot Water							coal OHAI PEAS					
ROSLYN SCHOOL	Palmerston North	AQUATHERM	Watertube					5				75	Gas			0.5		
ROTORUA GIRLS HIGH SCHOOL	ROTORUA	TAYMAC	Watertube	1997	1.02	Hot Water		3	0.408	0.408		80	Wood Pellets					
RUAWAI SCHOOL	RUAWAI	HOVAL	Watertube	1999	0.1	Hot Water		0.5	0.052	0.052		70	Oil/Diesel			1		
RUSSLEY SCHOOL	Avonhead, CHRISTCHURCH	HOVAL	Watertube	1999	0.25	Hot Water		5	0.04	0.04		70	Oil/Diesel	0.8		1	0.18	13
RUTHERFORD INTERMEDIATE	Wanganui	HOVAL	Watertube	1963	0.585	Hot Water			0.08336	0.08336		80	Gas	0.834		1	0.36	19
SARA COHEN SCHOOL	Dunedin	HEATSERVE	Watertube	1983	0.132	Hot Water			0.099	0.099		65	coal OHAI PEAS	0.7	42000	0.4	0.51	46
SELWYN PRIMARY SCHOOL	Rotorua		Watertube	1966	0.6	Hot Water		0.2	0.18	0.18		60	Wood Pellets			1		
SHIRLEY BOYS' HIGH SCHOOL	SHIRLEY CHRISTCHURCH	YGNIS	Firetube	2002	1	Hot Water						80	Oil/Diesel	0.9				
SIR EDMUND HILLARY COLLEGIATE	Otara, AUCKLAND	YGNIS		2002	1	Hot Water		1.8	0.6	0.6		75	Gas	0.86		0.5	2.51	133
SOUTH WESTLAND AREA SCHOOL	Hari Hari	BOAG 48/10	Watertube	1991		Hot Water							COAL - Blend 2			0.25		
SOUTHBROOK SCHOOL	Rangiora	TAYMAC HEATPAK 3605	Watertube	1994	0.125	Hot Water		0.5	0.03	0.03		70	Coal	0.75	30000	0.5	0.14	13
SOUTHLAND ADVENTIST CHRISTIAN SCHOOL	Invercargill	DOHERTY	Watertube	1998	0.25	Hot Water			0.4	0.4		45	Lignite			1		

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
SOUTHLAND BOYS HIGH SCHOOL	Invercargill	TAYLOR	Watertube	1993	1.3	Hot Water			0.156	0.156		80	COAL / LIGNITE MIX					
SPREYDON PRIMARY SCHOOL	SPREYDON CHRISTCHURCH	AQUATHERM YGNIS		2004	0.35	Hot Water		5	0.14	0.14		72	Oil/Diesel					
SPRINGLANDS SCHOOL	Blenheim	CUDDON		1996	0.17	Hot Water			0.0935	0.0935		80	Coal	0.8	83500	1	0.42	38
ST ALBANS SCHOOL	ST ALBANS CHRISTCHURCH	AQUATHERM YGNIS	Firetube	2003	0.25	Hot Water		5	0.125	0.125		70	Oil/Diesel	0.92			0.49	34
ST CANICES SCHOOL	Westport		No Boiler - electrical heating	2008														
ST CATHERINES COLLEGE	Kilbirnie, WELLINGTON	BOAG 48/10	Waterwall	1968		Hot Water						65	Gas					
ST DOMINICS COLLEGE	Henderson, AUCKLAND		No Boiler - electrical heating	2008														
ST MARYS CATHOLIC SCHOOL	Rotorua	HYDROTHERM		1988	0.07	Hot Water			0.28224	0.28224		110	Gas			0.25		
ST PATRICKS COLLEGE WELLINGTON	Kilbirnie, WELLINGTON	HOVAL	water jacket	1979	0.4	Hot Water		6	0.392	0.392		80	Gas	0.81			1.74	92
ST THOMAS'S SCHOOL	Kohimarama, AUCKLAND	BEACON 104	Watertube	1988	0.165	Hot Water		2	0.0462	0.0462		70	coal OHAI PEAS			1		
STANMORE BAY PRIMARY SCHOOL	Wangaparaoa	Ecoflame Single Stage	Watertube	2004	0.2			3	0.036	0.036		69	Gas				0.75	
SUMNER SCHOOL	SUMNER CHRISTCHURCH		No Boiler - Heatpumps															
SUNSET PRIMARY SCHOOL	Rotorua		Watertube	1965	0.175	Hot Water			0.035	0.035		49	Wood Pellets	0.8			0.16	0
SUTTON PARK SCHOOL	Mangere, AUCKLAND	HOVAL		1982		Hot Water		3				66	Gas					
TAHUNA SCHOOL	TAHUNA SCHOOL												Coal					

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
TAIPA AREA SCHOOL	TAIPA		No Boiler - electrical heating	2008														
TAKUPAU SCHOOL	TAKUPAU	RADCO	Firetube	1953		Hot Water		0.3				75	Coal					
TAMATEA HIGH SCHOOL	TAMATEA Napier	uncertain	Waterwall	1974		Hot Water							Coal					
TANGAROA COLLEGE	Otara, AUCKLAND	HEATPAK		1978									Coal					
TARADALE HIGH SCHOOL	TARADALE		No Boiler - Heatpumps	2008														
TARARUA COLLEGE	Pahiatua	HOVAL	Watertube	1986	0.4	Hot Water		7.2	0.24	0.24		75	Gas	0.9		0.25	0.96	51
TARGET ROAD PRIMARY SCHOOL	Glenfield, AUCKLAND	H&P	Watertube	1973		Hot Water						22	HUNTLY PEA COAL			0.5		
TAUHARA COLLEGE	Taupo	YGNIS AQUATHERM	Watertube	1998	0.75	Hot Water		5	0.9	0.9		80	Gas					
TAUPO INTERMEDIATE SCHOOL	TAUPO		Waterwall	1983		Hot Water							Coal			1		
TAURANGA INTERMEDIATE SCHOOL	TAURANGA	NEW ROBIN SENIOR	Watertube	1961		Hot Water		10				70	coal OHAI PEAS	0.8		1		
TAURAROA AREA SCHOOL	TAUROA	BEACON	cross tube vertical baler	1982		Hot Water		0.43				82	Coal			1		
TE AROHA COLLEGE	TE AROAHA	ROBIN HOOD	Waterwall	1955		Hot Water						58	coal OHAI PEAS					
TE AWAMUTU COLLEGE	TE AWAMUTU	AQUATHERM YGNIS	Firetube	1995	0.95	Hot Water		5	0.57	0.57		80	Gas	0.84		1	2.44	129
TE KAO SCHOOL	Kaitaia	HEATSERVE	Watertube	1968	0.088	Hot Water							Coal					
TE KUITI PRIMARY SCHOOL	TE KUITI	HEATPAK	Watertube	1970		Hot Water		4.5				75	coal OHAI PEAS	0.6				

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
TE KURA O HIRANGI SCHOOL	Turangi	H&P	Watertube	1968	0.002	Hot Water			0.00068	0.00068		80	Coal	0.9		0.6	0.00	0
TE KURA O OTANGAREI SCHOOL	Whangarei		No Boiler - Heatpumps	2008														
TE KURA O TE TEKO SCHOOL	TE TEKO		No Boiler - Heatpumps	2008														
TE MATA SCHOOL	Havelock North		No Boiler - Heatpumps	2008														
THAMES SCHOOL	THAMES	HAMILTON		1965	0.105	Hot Water			0.021	0.021		80	Coal chips/fines			0.5		
THE CATLINS AREA SCHOOL	Owaka	BOAG 48/10	Watertube	1982		Hot Water						65	kai point coal			0.5		
THE TERRACE SCHOOL	Alexandra		No boiler - nightstores and heaters	2008														
THE UNIVERSITY OF WAIKATO	STUDENT UNION B01	HOVAL	Watertube		0.235	Hot Water		5	0.376	0.376		87	Gas			0.25		
THE UNIVERSITY OF WAIKATO	F 401	HOVAL	Watertube		0.937	Hot Water		5	3.59808	3.59808		82	Gas			0.5		
THE UNIVERSITY OF WAIKATO	F 401	HOVAL	Watertube		0.937	Hot Water		5	3.14832	3.14832		82	Gas			0.5		
THE UNIVERSITY OF WAIKATO	F 401	HOVAL	Watertube		0.937	Hot Water		5	3.14832	3.14832		82	Gas			0.5		
THE UNIVERSITY OF WAIKATO	K 401	HOVAL	Watertube		0.937	Hot Water		5	2.09888	2.09888		71	Gas			0.25		
THE UNIVERSITY OF WAIKATO	K 401	HOVAL	Watertube		0.937	Hot Water		5	1.83652	1.83652		71	Gas			0.25		
THE UNIVERSITY OF WAIKATO	K 401	HOVAL	Watertube		0.937	Hot Water		5	1.83652	1.83652		71	Gas			0.25		
THE UNIVERSITY OF WAIKATO	L BLOCK	AQUATHERM	Watertube	1997	0.25	Hot Water		5	0.672	0.672		80	Gas			0.25		



Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
THE UNIVERSITY OF WAIKATO	B BLOCK	HOVAL	Watertube		0.25	Hot Water		4	0.4	0.4		88	Gas			0.5		
THE UNIVERSITY OF WAIKATO	M 501 LIBRARY	HOVAL	Watertube		0.938	Heated Oil		5	2.10112	2.10112		75	Gas			0.25		
THE UNIVERSITY OF WAIKATO	M 501 LIBRARY	HOVAL	Watertube		0.938	Hot Water		5	2.10112	2.10112		75	Gas			0.25		
THE UNIVERSITY OF WAIKATO	A BLOCK	AQUATHERM	Watertube		0.25	Hot Water		5	0.4	0.4		80	Gas			0.5		
THE UNIVERSITY OF WAIKATO	(CHBH) COLLEGE HALLS BOILER HOUSE	AQUATHERM	Watertube	1991	1.1	Hot Water		5	5.9136	5.9136		80	Gas			0.5		
THE UNIVERSITY OF WAIKATO	STUDENT VILLAGE DINING	HOVAL	Watertube		0.381	Hot Water		5	1.19482	1.19482		85	Gas			0.25		
THE UNIVERSITY OF WAIKATO	ORANGA	HOVAL	Watertube		0.147	Hot Water		5	0.18816	0.18816		70	Gas			0.25		
THE UNIVERSITY OF WAIKATO	STUDENT VILLAGE KNIGHTON RD	AQUATHERM	Watertube	1990	0.35	Hot Water		5	1.8816	1.8816		70	Gas			0.5		
THE UNIVERSITY OF WAIKATO	BRYANT HALL Z BLOCK	AQUATHERM	Watertube	2000	0.3	Hot Water		5	1.6128	1.6128		90	Gas			0.5		
TIMARU GIRLS HIGH SCHOOL	TIMARU	HAMILTON HEATPAK		1979	0.513				0.64638	0.64638			coal OHAI PEAS			1		
TIRIMOANA PRIMARY SCHOOL	Te Atatu South, AUCKLAND	H&P	Watertube	1969	0.15	Hot Water		1.4	0.06	0.06		80	Coal			0.5		
TISBURY SCHOOL	Invercargill	RADCO	Watertube			Hot Water		6.9				38	coal OHAI PEAS			0.7		
TKKM RUAMATA SCHOOL	TKKM RUAMATA SCHOOL		No Boiler - electrical heating	2008														
TOKOMAIRIRO HIGH SCHOOL	Milton, OTAGO	HAMILTON	Watertube	2000	0.25	Hot Water		5	0.2	0.2		66	coal OHAI PEAS	0.6	401800	0.75	1.20	109
TOKOROA CENTRAL SCHOOL	TOKOROA	HOVAL	Waterwall	1988		Hot Water						70	Gas			0.5		

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
TOLAGA BAY AREA SCHOOL	TOLOGA BAY		No Boiler - Heatpumps	2008														
TONGARIRO SCHOOL	Turangi	BOAG 48/10	Watertube	1988				3				70	Coal	0.85		0.5		
TRENTHAM PRIMARY SCHOOL	TRENTHAM UPPER HUTT	PENSOTTI E60 SANGIORIO REGENCY			0.07	Hot Water		4				90	Gas					
TRENTHAM PRIMARY SCHOOL	TRENTHAM UPPER HUTT			2008														
TUAKAU PRIMARY SCHOOL	TUAKAU	BEACON	Watertube	1978	0.165	Hot Water		2	0.08663	0.08663		80	coal OHAI PEAS			0.5		
TUATAPERE COMMUNITY COLLEGE	TUATAPERE	BOAG 48/10	Watertube	1983		Hot Water						65	Coal			0.5		
TUI GLEN SCHOOL	Stokes Valley, LOWER HUTT	REGENCY GBS SERIES 2	Watertube	1998	0.2	Hot Water			0.064	0.064		80	Gas	0.8		1	0.29	15
UNIVERSITY OF AUCKLAND	110 BOILER #3	ALLEN YGNIS			0.746	Hot Water							Gas					
UNIVERSITY OF AUCKLAND	201E BOILER	HOVAL			1.5	Hot Water							Gas					
UNIVERSITY OF AUCKLAND	201E BOILER	HOVAL			1.5	Hot Water							Gas					
UNIVERSITY OF AUCKLAND	301 LPHW BOILER	YGNIS			1.2	Hot Water							Gas					
UNIVERSITY OF AUCKLAND	301 LPHW BOILER	YGNIS			1.2	Hot Water							Gas					
UNIVERSITY OF AUCKLAND	301 LPHW BOILER	YGNIS			0.7	Hot Water							Gas					
UNIVERSITY OF AUCKLAND	311 HW BOILER	YGNIS			1.5	Hot Water							Gas					
UNIVERSITY OF AUCKLAND	401 BOILER	YGNIS			0.75	Hot Water							Gas					

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
UNIVERSITY OF AUCKLAND	421 BOILER	AQUATHERM YGNIS			1.2	Hot Water							Gas					
UNIVERSITY OF CANTERBURY	CHRISTCHURCH	MAXITHERM	Watertube	2000	12	Hot Water			36.288	36.288		115	Coal			1		
UNIVERSITY OF CANTERBURY	CHRISTCHURCH	ANDERSON	Firetube 3 pass	1962	5.7	Saturated Steam		7	19.152	19.152			Coal	0.7		0.85	98.50	8983
UNIVERSITY OF CANTERBURY	CHRISTCHURCH	ANDERSON			5.7								Coal	0.7				
UNIVERSITY OF OTAGO	CHEMISTRY DEPT		Firetube	2001	2.3	Hot Water						115	Oil/Diesel					
UNIVERSITY OF OTAGO	CHEMISTRY DEPT		Firetube	2001	2.3	Hot Water						115	Oil/Diesel					
VALLEY SCHOOL	Pukekohe, AUCKLAND	H&P	Waterwall		0.1	Hot Water		1.7	0.04	0.04		70	coal OHAI PEAS			0.6		
VERDON COLLEGE	Invercargill	AQUATHERM	Watertube	1985	0.9	Hot Water		2.2	0.8505	0.8505		110	Electricity					
WA ORA MONTESSORI SCHOOL	Lower Hutt		No Boiler - gas heaters	2008														
WAIKITE VALLEY SCHOOL	Rotorua	HEATSERVE		2008		Hot Water		4.8				70	Coal					
WAIKOHU COLLEGE	Te Karaka	RADCO	Waterwall	1978		Hot Water							coal OHAI PEAS			0.5		
WAIKOUAITI SCHOOL	WAIKOUAITI	ROBIN HOOD		1955		Hot Water		0.7				43	coal OHAI PEAS					
WAIMATE HIGH SCHOOL	WAIMATE	TAYMAC	Waterwall	2007		Hot Water		4.4				40	COAL - Blend 2					
WAIPAHIHI PRIMARY SCHOOL	Taupo	RENDAMAX R30		2007	0.12	Hot Water		6	0.066	0.066			Gas					
WAIPU PRIMARY SCHOOL	WAIPU Whangarei		No boiler - nightstores and heaters	2008														

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
WAIROA COLLEGE	WAIROA		No Boiler - Heatpumps	2008														
WAITAKERE COLLEGE	Henderson, AUCKLAND	AQUATHERM YGNIS		2006	0.95	Hot Water		0.35	0.38	0.38			Gas					
WAITAKERE PRIMARY SCHOOL	WAITAKERE Auckland	CUDDON	Waterwall	1970		Hot Water		1				55	coal OHAI PEAS			0.5		
WAITAKI GIRLS HIGH SCHOOL	Oamaru	TAYMAC		2005	1.229	Hot Water		2	0.4916	0.4916		82	coal OHAI PEAS	0.75		0.75	2.36	215
WAITARA EAST SCHOOL	WAITARA		No Boiler - Heatpumps	2008														
WAKAARANGA SCHOOL	Pakuranga, AUCKLAND	FERROLI		2003		Hot Water		0.025				78	Gas					
WANGANUI EAST PRIMARY SCHOOL	WANGANUI	AQUATHERM	Waterwall	1988		Hot Water		5				75	Gas			0.5		
WANGANUI HIGH SCHOOL	WANGANUI HIGH SCHOOL - boiler 1	SANGIORGIO	Watertube	1995	0.084	Hot Water		5	0.0546	0.0546		90	Gas	0.8		0.75	0.25	13
WANGANUI HIGH SCHOOL	WANGANUI HIGH SCHOOL - boiler 2	INFINITY 24 plus RINNAI	Watertube	2000	0.053	Hot Water			0.10335	0.10335		60	Gas			0.75		
WATERLEA PRIMARY SCHOOL	Mangere Bridge, AUCKLAND	HAMILTON	Watertube	1988	0.16	Hot Water			0.0384	0.0384		78	Coal	0.68		0.75	0.20	19
WAVERLEY PARK SCHOOL	Invercargill	CRANE WHITEHALL No.26 SECTIONAL BOILER	Waterwall	1955	0.207	Hot Water			0.26496	0.26496		49	coal OHAI PEAS	0.6			1.59	145
WELBOURN SCHOOL	New Plymouth	SANGIORGIO		2008	0.27	Hot Water		5	0.0324	0.0324			Gas			0.5		
WESTBRIDGE RESIDENTIAL SCHOOL	MASSEY, AUCKLAND	HOVAL	Waterwall	1983									Gas			0.75		
WESTBURN SCHOOL	Ilam, CHRISTCHURCH	AQUATHERM YGNIS	Waterwall	2000	0.2	Hot Water		5	0.07	0.07		68	Oil/Diesel					
WESTERN SPRINGS COLLEGE	Westmere	Energy Products International	Reverse Flame Fire Tube	2008	0.6	Hot Water		1	0.153	0.153		76	Gas	0.92		0.5	0.60	32

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
WESTPORT SOUTH SCHOOL	WESTPORT SOUTH SCHOOL	TAYMAC		1996	0.3	Hot Water		4.4	0.06	0.06		60	Coal					
WEYMOUTH INTERMEDIATE SCHOOL	Manurewa, AUCKLAND	HSV 75 CROSSWATER TUBE TYPE	Waterwall	1988	0.3	Hot Water		0.6	0.08925	0.08925		76	HUNTLY PEA COAL	0.72		0.5	0.45	41
WHARENUI SCHOOL	Christchurch	TAYLOR		1993		Hot Water		0.7				72	Coal			0.25		
WHITIARA SCHOOL	Hamilton		No Boiler - electrical and gas heating	2006														
WILLIAM COLENSO COLLEGE	Napier	VEKOS POWERMASTER	Watertube	1975	0.98	Hot Water		3.4	0.4704	0.4704		75	Coal			0.25		
WILLOW PARK SCHOOL	Northcote, AUCKLAND	HSV 75 CROSSWATER TUBE TYPE	Watertube	1967	0.22	Hot Water		1	0.0924	0.0924		80	Coal	0.6		0.75	0.55	51
WINDSOR SCHOOL	WINDSOR SCHOOL		No Boiler - Heatpumps	2008														
WINDY RIDGE PRIMARY SCHOOL	Glenfield, AUCKLAND	BEACON	Watertube	1993		Hot Water						60	coal OHAI PEAS			0.75		
WIRI CENTRAL SCHOOL	WIRI	CUDDON	Watertube	1979		Hot Water		0.85				75	coal OHAI PEAS			0.7		
WOODLAND PARK SCHOOL	WOODLAND PARK SCHOOL	BRITANNIA		2008		Hot Water							Coal			0.5		
WOODLANDS FULL PRIMARY SCHOOL	Invercargill	FERROLI	Watertube	2003		Hot Water							Oil/Diesel			1		
WOOLSTON SCHOOL	WOOLSTON CHRISTCHURCH		No Boiler - electrical heating	2008														

## Appendix 3. Food and Beverage Processing Heating Plant

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
BAKELS EDIBLE OILS	BAKELS EDIBLE OILS	SCOTT		2006	5.3	Saturated Steam	6.81	12	44.52	44.52			Gas			1		
BAKELS EDIBLE OILS	BAKELS EDIBLE OILS	EASTEEL		2004	2.1	Saturated Steam	2.72	10	17.64	17.64			Gas			1		
BAKELS EDIBLE OILS	BAKELS EDIBLE OILS	EASTEEL		2002	1.4	Saturated Steam	1.81	10	11.76	11.76			Gas			1		
BAKELS EDIBLE OILS	BAKELS EDIBLE OILS			2007	1.2	Saturated Steam		100	10.08	10.08			Gas			1		
BAKELS EDIBLE OILS	BAKELS EDIBLE OILS	EASTEEL		1996	0.7	Heated Oil			5.88	5.88			Gas			1		
BARKERS	BARKERS	ANDERSON	Firetube	2001	1	Saturated Steam		2.6	7.488	7.488		140	Oil/Diesel				0.5	
BIOFARM PRODUCTS	BIOFARM PRODUCTS	HOVAL		1986	0.36	Hot Water			3.14496	3.14496		95	Oil/Diesel				0.5	
CANARY ENTERPRISES	CANARY ENTERPRISES				0.21	Hot Water			0.84	0.84		90	Gas					
CEDENCO FOODS	GISBORNE LYTTON RD	ANDERSON			1.4	Saturated Steam	1.81	10	4.2336	4.2336			Gas				1	
CEDENCO FOODS	GISBORNE INNES ST	ANDERSON	Firetube	1970	5.4	Saturated Steam	7.03	10	24.948	24.948		184	Gas	0.79		0.74	113.69	6003
CEDENCO FOODS	GISBORNE INNES ST	ANDERSON	Firetube	1987	2.3	Saturated Steam	2.95	10	11.9784	11.9784		184	Gas	0.8		0.74	53.90	2846
CEDENCO FOODS	GISBORNE INNES ST	ANDERSON	Firetube	1980	3.6	Saturated Steam	4.7	10	16.632	16.632		184	Gas	0.8		0.74	74.84	3952

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
CEDENCO FOODS	GISBORNE INNES ST	FOSTER WHEELER (MCKENZIE & RIDLEY) EASTEEL	Watertube	1970	14	Saturated Steam		10	30.576	30.576			Gas	0.8		1	137.59	7265
CEDENCO FOODS	WHAKATAU HASTINGS	EASTEEL		1989	1.4	Saturated Steam	1.81	10	4.3008	4.3008			Gas	0.7		0.75	22.12	1168
CEDENCO FOODS	WHAKATAU HASTINGS	EASTEEL		1987	1.4	Saturated Steam	1.81	10	2.184	2.184			Gas				0.5	
CEDENCO FOODS	WHAKATAU HASTINGS	EASTEEL		1991	1.1	Saturated Steam		8	3.96	3.96			Gas	0.7		1	20.37	1075
CLOVER EXPORT	CLOVER EXPORT	CUDDON	Watertube	1983	0.4	Hot Water			1.152	1.152		96	Coal			1		
COCA COLA AMATIL	COCA COLA AMATIL	ANDERSON		1974	1.4	Saturated Steam	1.81	10.5	12.2304	12.2304			Gas				0.5	
COCA COLA AMATIL	COCA COLA AMATIL	AQUATHERM YGNIS		1999	1.8	Hot Water		2	15.7248	15.7248		84	Gas				0.3	
DB & TUI	DB & TUI	BABCOCK		1985	7.5	High Pressure Hot Water		10	63	63		165	Dual gas/diesel	0.81		0.2	280.00	14784
DB BREWERIES	SOUTH AUCKLAND	EASTEEL	Watertube	1999	6	Saturated Steam		10	51.408	51.408			Gas	0.82		0.4	225.69	11917
DB BREWERIES	SOUTH AUCKLAND	EASTEEL	Watertube	1999	6	Saturated Steam		10					Gas					
DB BREWERIES	SOUTH AUCKLAND	YGNIS		1992	3.5	Hot Water		4.5	10.192	10.192		124	Gas				0.5	
DB MAINLAND BREWERY	MAINLAND	ANDERSON	Firetube	1976	5	Saturated Steam	6.5	10	30.6	30.6		184	Coal				0.2	
DB MAINLAND BREWERY	MAINLAND	ANDERSON	Firetube	1976	5	Saturated Steam	6.5	10				184	Coal	0.82				
DEEP SOUTH ICE CREAM	Invercargill	ANDERSON	Watertube	1980	0.42	Steam	0.54	3.5	0.9828	0.9828			Oil/Diesel				0.05	

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
ENZA FOOD	ENZA FOOD	EASTEEL - STEAMPAC	Firetube	1996	6	Saturated Steam		10.4	44.64	44.64			Gas				0.8	
ENZA FOOD	ENZA FOOD	EASTEEL - STEAMPAC	Firetube	1980	5.6	Saturated Steam		10.1	41.664	41.664			Gas				0.8	
FRUCOR BEVERAGES	FRUCOR BEVERAGES	ANDERSON		1984	1.4	Steam	1.81						Gas					
FRUCOR BEVERAGES	FRUCOR BEVERAGES	ANDERSON		1984	1.4	Hot Water	0.45		8.064	8.064			Gas					
FRUCOR BEVERAGES	FRUCOR BEVERAGES	BABCOCK & WILCOX		1998	1.2	Saturated Steam		10	4.608	4.608			Gas					
FRUCOR BEVERAGES	FRUCOR BEVERAGES	EASTEEL		2003	2.3	Saturated Steam		10	18.5472	18.5472			Gas					
GOODMAN FIELDER	EAST TAMAKI	WANSON VAPOURAX		1996	3.1	Saturated Steam	1.81	15	14.88	14.88		200	Gas					
GOODMAN FIELDER	EAST TAMAKI	ANDERSON	Firetube	1974	1.4	Saturated Steam	1.81	8	7.896	7.896			Gas				0.85	
GOODMAN FIELDER	EAST TAMAKI	GEKA	Watertube	1994	1.5	Saturated Steam	1.945	75				291	Gas					
GOODMAN FIELDER	EAST TAMAKI		Heating plant less than 1 MWth															
GOODMAN FIELDER	EAST TAMAKI			2006	4.5													
HARRAWAY & SONS LTD	HARRAWAY & SONS LTD	ANDERSON	Firetube	1964	1.4	Saturated Steam	1.81	10	3.5	3.5				0.78		0.25	16.15	0
HARRAWAY & SONS LTD	HARRAWAY & SONS LTD	SCOTT	Firetube	1991	1.2	Saturated Steam		10	6.72	6.72				0.76		0.6	31.83	0
HEALTHERIES OF NZ LTD	HEALTHERIES OF NZ LTD				0.063	Steam												



Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
HEINZ WATTIES	HEINZ WATTIES	MAXITHERM	Watertube	1999	8		14	11	67.2	67.2			Gas				0.7	
HEINZ WATTIES	HEINZ WATTIES	MAXITHERM	Watertube	1999	8		14	11					Gas					
HEINZ WATTIES	HEINZ WATTIES	EASTEEL	Firetube	1999	6	Steam		11	33.048	33.048			Gas				0.3	
HEINZ WATTIES	HEINZ WATTIES	FOSTER WHEELER (MCKENZIE & RIDLEY)	Watertube	1974	7	Saturated Steam	13	11				190	Gas					
HEINZ WATTIES	HEINZ WATTIES	FOSTER WHEELER (MCKENZIE & RIDLEY)	Watertube	1974	7	Saturated Steam	13	11	16.464	16.464		190	Dual gas/diesel				0.7	
HEINZ WATTIES	HEINZ WATTIES	FOSTER WHEELER (MCKENZIE & RIDLEY)	Watertube	1974	7	Saturated Steam	13	11	16.464	16.464		190	Dual gas/diesel				0.7	
HEINZ WATTIES	HEINZ WATTIES	EASTEEL	Watertube	1998	10	Saturated Steam	15	11	84	84			Gas				0.7	
HEINZ WATTIES	HEINZ WATTIES	EASTEEL	Watertube	1998	10	Saturated Steam	15	11	84	84			Gas				0.3	
HI TECH FOODS	HI TECH FOODS	SCOTT	Firetube	1979	1.2	Saturated Steam	1.81	10	8.8128	8.8128			LPG/Butane				0.75	
HUBBARD FOODS	HUBBARD FOODS	EASTEEL	Watertube	1990	1.4	Saturated Steam	1.81	10.4	8.568	8.568			Gas				0.75	
HUBBARD FOODS	HUBBARD FOODS	EASTEEL	Watertube	1990	1.4	Saturated Steam	1.81	10.4	8.568	8.568			Gas				0.75	
JH WHITTAKER	JH WHITTAKER			1988	0.15	Saturated Steam		10.34	0.27	0.27			Electricity				0.6	
KAPITI FINE FOODS	KAPITI	AQUATHERM		2001	2.3	Hot Water		3.5	19.7064	19.7064		98	Gas				0.15	
KAPITI FINE FOODS	Palmerston North	AQUATHERM		2006	0.95	Hot Water			8.2992	8.2992		97	Gas				0.33	

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
KAPITI FINE FOODS	Palmerston North	AQUATHERM		2006	0.95	Hot Water			8.2992	8.2992		97	Gas			0.33		
KIWI ICECREAM	Kiwi Icecream	YGNIS		1990	0.4	Hot Water			2.4	2.4		90	Gas			1		
KIWI ICECREAM	Kiwi Icecream	YGNIS		2006	0.3	Hot Water			1.8	1.8		90	Gas			0.4		
LEAN MEATS OAMARU LTD	LEAN MEATS OAMARU LTD	TAYLOR		1984	0.75	Hot Water		4.4	6.048	6.048		90	Coal	0.82		0.6	26.55	2422
LION BREWERIES	DUNEDIN	SCOTT		1920	1				1.92	1.92			Coal				0.6	
LION BREWERIES	DUNEDIN	SCOTT		1984	1.4				2.688	2.688			Coal				0.6	
LION BREWERIES	DUNEDIN	SCOTT		1984	1.4								Coal					
LION BREWERIES	DUNEDIN	SCOTT		1920	1.4								Coal					
LION NATHAN	LION BREWERIES AUCKLAND	EASTEEL		1997	6	Saturated Steam	9	10.5	44.928	44.928		186	Gas				0.75	
LION NATHAN	LION BREWERIES AUCKLAND	EASTEEL		1999	3	Saturated Steam	4	10.5				186	Gas					
LION NATHAN	CHRISTCHURCH	BABCOCK	Firetube 3 pass	1982	4.55	Saturated Steam		4	24.57	24.57		159	Coal	0.81		0.65	109.20	9959
LION NATHAN	CHRISTCHURCH	BABCOCK	Firetube	1982	4.55	Saturated Steam		8	24.57	24.57		175	Coal	0.78		0.65	113.40	10342
LION NATHAN	COMPANY SHED 22 BREWING CO	AQUAHEAT	Watertube	2001	0.625	Saturated Steam	1	37	2.7625	2.7625		240	Gas			0.4		
LION NATHAN	LION BREWERIES AUCKLAND	AQUAHEAT		2006	0.9	Hot Water			6.7392	6.7392			Gas				0.75	

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
LION NATHAN	LION BREWERIES AUCKLAND			1986	0.9	Hot Water							Gas					
LION NATHAN	LION BREWERIES AUCKLAND	AQUAHEAT		2006	1.758	Hot Water			13.163904	13.163904			Gas			0.75		
LION NATHAN	LION BREWERIES AUCKLAND				1.76	Hot Water							Gas					
MCCAIN	MCCAIN	SCOTT		1989	1.2	Saturated Steam		8	6.048	6.048			Gas			0.75		
MCCAIN	MCCAIN	SCOTT		1989	1.4	Saturated Steam		8					Gas					
MCCAIN	MCCAIN	SCOTT		1989	1.4	Saturated Steam		8					Gas					
MCCAIN	MCCAIN	SCOTT		1989	1.4	Saturated Steam		8					Gas					
MCCAIN	MCCAIN	EASTEEL - STEAMPAC			1.4	Saturated Steam		8	7.056	7.056			Gas			0.75		
MCCAIN	MCCAIN	EASTEEL - STEAMPAC			1.4	Saturated Steam		8	7.056	7.056			Gas			0.75		
MCCAIN	MCCAIN	EASTEEL		2004	2.3	Steam			11.592	11.592			Gas			0.75		
MCCASHINS BREWERY	NELSON	SCOTT		1982	1.3		1.8	10.34	2.6	2.6			LPG/Butane			0.5		
MEADOW LEA FOODS	MEADOW LEA FOODS	GEKA		1994		Saturated Steam		80					Gas			1		
MEADOW LEA FOODS	MEADOW LEA FOODS	AQUAHEAT	Watertube	2004	3.1	Saturated Steam	4.5	20					Gas					
MEADOW LEA FOODS	MEADOW LEA FOODS	ANDERSON	Firetube	1979	2.3	Saturated Steam	3	10				184	Gas					

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
MEADOW LEA FOODS	MEADOW LEA FOODS	GEKA		1989	3.4	Saturated Steam	6.3	20					Gas					
MEADOW LEA FOODS	MEADOW LEA FOODS	EASTEEL - STEAMPAC	Watertube	2006	8	Saturated Steam	12	17	67.2	67.2			Gas			0.75		
MILLIGANS FOOD	MILLIGANS FOOD	SCOTT	Firetube	1972	0.9	Saturated Steam		7	1.872	1.872		170	Oil/Diesel			0.625		
MONTEITHS BREWING COMPANY	MONTEITHS BREWING COMPANY	ANDERSON	Firetube	1960	2.1	Saturated Steam	2.72	10	9.072	9.072		184	Coal	0.78		0.3	41.87	3819
MONTEITHS BREWING COMPANY	MONTEITHS BREWING COMPANY			1950	1.7	Saturated Steam		8.6				178	Coal	0.87				
NESTLE	NESTLE	ANDERSON		1988	3.5	Saturated Steam	4.54	10	19.32	19.32			Gas			0.2		
NZ SUGAR	AUCKLAND	BABCOCK & WILCOX	Watertube	1949	7	Saturated Steam	25	10	42	42			Gas	0.82		0.7	184.39	9736
NZ SUGAR	NZ SUGAR CHRISTCHURCH	AQUATHERM		1995	0.1	Hot Water			0.0576	0.0576		90	Electricity			1		
NZ SUGAR	AUCKLAND	BABCOCK & WILCOX	Watertube	1949	7	Saturated Steam	25	10	42	42			Gas	0.82		0.7	184.39	9736
PERNOD RICARD	GLEN INNES	ANDERSON		1974	1		1.36	10.34	8.4	8.4		186	Gas	0.82		0.75	36.88	1947
PERNOD RICARD	GLEN INNES	ANDERSON		1974	1		1.36	10.34	8.4	8.4		186	Gas			0.75		
PREPARED FOODS PROCESSING	PREPARED FOODS PROCESSING	ANDERSON	Firetube	1982	0.9	Steam	1.81	6.2	1.656	1.656		128	Gas			0.55		
PREPARED FOODS PROCESSING	PREPARED FOODS PROCESSING	ANDERSON	Firetube	1977	0.9	Steam	1.81	6.2	1.656	1.656		128	Gas			0.55		
SANITARIUM	SANITARIUM	EASTEEL	Watertube	1990	3	Steam	4.78	9	19.008	19.008		180	Gas			0.78		

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
SANITARIUM	SANITARIUM	ANDERSON	Firetube	1969	1	Steam		40				250	Gas					
SEALORD GROUP LTD	BIRCH ST DUNEDIN	ANDERSON	Firetube	1973	1	Saturated Steam	1.25	10				184.13	Oil/Diesel					
SEALORD GROUP LTD	NELSON	SCOTT	Firetube	1986	9.8	Saturated Steam	4.545	8.5	56.448	56.448			Oil/Diesel	0.75		0.65	270.95	18831
SEALORD GROUP LTD	PARRY ST			2008														
SEALORD GROUP LTD	NELSON	ANDERSON		1975	1.4	Saturated Steam	1.81	10	2.016	2.016			light oil				0.85	
SERRA NATURAL FOODS	SERRA NATURAL FOODS	ANDERSON	Firetube	1970	1.1	Saturated Steam		7.5	3.432	3.432			Oil/Diesel				0.7	
TALLEYS	TALLEYS	SCOTT		1980	1.4	Saturated Steam	1.81		9.6768	9.6768			Oil/Diesel				0.8	
TALLEYS	TALLEYS	SCOTT		1980	1.4		1.81		9.6768	9.6768			Oil/Diesel				0.8	
TALLEYS	TALLEYS	SCOTT		1980	1.4		1.81		9.6768	9.6768			Oil/Diesel				0.8	
TALLEYS	TALLEYS	SCOTT		1980	1.4		1.81		3.6288	3.6288			Oil/Diesel				0.8	
TALLEYS	TALLEYS	SCOTT		1980	1.4		1.81		3.6288	3.6288			Oil/Diesel				0.8	
TALLEYS	TALLEYS	SCOTT		1980	1.4		1.81		3.6288	3.6288			Oil/Diesel				0.8	
TALLEYS	TALLEYS	SCOTT		1980	1.4		1.81		3.6288	3.6288			Oil/Diesel				0.8	
TIP TOP	AUCKLAND	EASTEEL	Firetube	1998	2.4	Saturated Steam		10.4					Gas					

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
TIP TOP	AUCKLAND	SCOTT		1989	1.8	Hot Water		6				140	Oil/Diesel					
TIP TOP	CHRISTCHURCH			2008														

## Appendix 4. Hospital Heating Plant

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
AUCKLAND DHB	AUCKLAND HOSPITAL	MAXITHERM	Watertube	1999	12.8	Saturated Steam	12	9	109.67	109.67		236	Dual gas/diesel			0.5		
AUCKLAND DHB	AUCKLAND HOSPITAL	EASTEEL	Firetube	2002	6	Saturated Steam		10				184	Gas					
AUCKLAND DHB	AUCKLAND HOSPITAL	MAXITHERM		1999	6	Saturated Steam		10				184	Gas					
AUCKLAND DHB	GREENLANE HOSPITAL	MAXITHERM	Watertube	1994	5	Saturated Steam		8.5	42.84	42.84		178	Gas			0.6		
AUCKLAND DHB	GREENLANE HOSPITAL	EASTEEL - STEAMPAC	Firetube	1999	2.98	Saturated Steam		8.5				178	Gas					
BAY OF PLENTY DHB	WHAKATANE HOSPITAL	EASTEEL	Firetube	1994	1.2	Steam		1.5	5.2416	5.2416		128	Gas			0.4		
BAY OF PLENTY DHB	WHAKATANE HOSPITAL	EASTEEL	Firetube	2001	1.7	Saturated Steam		1.5	14.8512	14.8512		128	Gas			0.9		
BAY OF PLENTY DHB	TAURANGA HOSPITAL	SCOTT	Firetube	1992	1.2		1.8	10	10.4832	10.4832			Gas	0.8		0.8	47.17	2491
BAY OF PLENTY DHB	TAURANGA HOSPITAL	SCOTT	Firetube	1992	1.2		1.8	10					Gas	0.8				
CANTERBURY DHB	PRINCESS MARGARET HOSPITAL CHCH	SCOTT	Firetube	1970	1.4	Saturated Steam	1.81					187						
CANTERBURY DHB	PRINCESS MARGARET HOSPITAL CHCH			2004	1.6	Hot Water		4.5				145	Electricity					
CANTERBURY DHB	PRINCESS MARGARET HOSPITAL CHCH			2004	1	Steam		10.34					Electricity					
CANTERBURY DHB	CHRISTCHURCH HOSPITAL	ANDERSON	Firetube	1966	1.4	Saturated Steam	7.2	8	12.2304	12.2304		175	Coal	0.7		0.5	62.90	5736
CANTERBURY DHB	CHRISTCHURCH HOSPITAL	ANDERSON	Firetube	1966	1.4	Saturated Steam	7.2	8				175	Coal	0.75				

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
CANTERBURY DHB	BURWOOD HOSPITAL		Firetube	1970	0.925	Saturated Steam	1.2	8.5	8.0808	8.0808		178	Coal			0.4		
CANTERBURY DHB	BURWOOD HOSPITAL		Firetube	1970	0.925	Saturated Steam	1.2	8.5	8.0808	8.0808		178	Coal	0.8			36.36	3316
CANTERBURY DHB	HILLMORTON HOSPITAL	JAYMAC	Firetube	2001	1.5	Hot Water		3	13.104	13.104		100	LPG/Butane					
CANTERBURY DHB	HILLMORTON HOSPITAL	JAYMAC	Firetube	2001	1.5	Hot Water		3	13.104	13.104		100	LPG/Butane					
CANTERBURY DHB	CHRISTCHURCH HOSPITAL	ANDERSON	Firetube	1966	1.5	Saturated Steam	7.2	8	13.104	13.104		175	Coal	0.75		0.5	62.90	5736
CANTERBURY DHB	CHRISTCHURCH WOMENS HOSPITAL																	
CAPITAL COAST DHB	WELLINGTON HOSPITAL	BABCOCK	Watertube	1974	7.325	Hot Water		7	63.9912	63.9912		120	Dual gas/diesel	0.82		0.5	280.94	14833
CAPITAL COAST DHB	WELLINGTON HOSPITAL	BABCOCK	Watertube	1974	7.325	Hot Water		7	63.9912	63.9912		120	Gas	0.82		0.5	280.94	14833
CAPITAL COAST DHB	KENEPURU HOSPITAL	ALLEN YGNIS	Watertube		1.02	Hot Water							Gas					
CAPITAL COAST DHB	KENEPURU HOSPITAL	ALLEN YGNIS	Watertube		1.02	Hot Water							Gas					
CAPITAL COAST DHB	KENEPURU HOSPITAL	ALLEN YGNIS	Watertube		1.02	Hot Water							Gas					
CAPITAL COAST DHB	KENEPURU HOSPITAL	HOVAL	Watertube		0.29	Hot Water							Gas					
CAPITAL COAST DHB	KENEPURU HOSPITAL	Energy Products International	Watertube		0.103	Hot Water							Gas					
CAPITAL COAST DHB	KENEPURU HOSPITAL	ALLEN YGNIS	Watertube		0.482	Hot Water	0.727					100	Gas					
CAPITAL COAST DHB	KENEPURU HOSPITAL	ALLEN YGNIS	Watertube		0.482	Hot Water	0.727					100	Gas					



Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
CAPITAL COAST DHB	WELLINGTON HOSPITAL	AQUATHERM	Watertube		0.24	Hot Water							Gas					
CAPITAL COAST DHB	WELLINGTON HOSPITAL	MAXITHERM	Watertube		0.35	Steam							Gas					
CAPITAL COAST DHB	WELLINGTON HOSPITAL	MAXITHERM	Watertube	1999	1.6	Steam		10.5					Gas					
CAPITAL COAST DHB	WELLINGTON HOSPITAL	AQUATHERM YGNIS	Watertube	1999	0.75	Hot Water		7.5					Gas					
CAPITAL COAST DHB	WELLINGTON HOSPITAL	HOVAL	Watertube		0.235	Hot Water							Gas					
CAPITAL COAST DHB	WELLINGTON HOSPITAL	HOVAL	Watertube		0.085	Hot Water							Gas					
CAPITAL COAST DHB	WELLINGTON HOSPITAL		Watertube			Hot Water		11				99	Gas					
CAPITAL COAST DHB	WELLINGTON HOSPITAL		Watertube		0.06	Steam	0.092	0.7					Gas					
CAPITAL COAST DHB	WELLINGTON HOSPITAL				0.055	Hot Water						75	Gas					
CAPITAL COAST DHB	WELLINGTON HOSPITAL				0.055	Hot Water							Gas					
CAPITAL COAST DHB	PORIRUA HOSPITAL	HOVAL	Watertube		0.147	Hot Water							Gas					
CAPITAL COAST DHB	PORIRUA HOSPITAL	CUDDON	Watertube		0.2	Hot Water							Gas					
CAPITAL COAST DHB	PORIRUA HOSPITAL	uncertain	Watertube		0.06	Hot Water							Gas					
CAPITAL COAST DHB	PORIRUA HOSPITAL	ALLEN YGNIS	Watertube		0.337	Hot Water							Gas					
CAPITAL COAST DHB	PORIRUA HOSPITAL	ALLEN YGNIS	Watertube		0.337	Hot Water							Gas					

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
CAPITAL COAST DHB	PORIRUA HOSPITAL	ALLEN YGNIS	Watertube		0.337	Hot Water							Gas					
CAPITAL COAST DHB	PORIRUA HOSPITAL	HOVAL	Watertube		0.21	Hot Water							Gas					
CAPITAL COAST DHB	PORIRUA HOSPITAL	RADCO	Watertube		0.65	Hot Water							Gas					
CAPITAL COAST DHB	PORIRUA HOSPITAL	RADCO	Watertube		0.65	Hot Water							Gas					
CAPITAL COAST DHB	PORIRUA HOSPITAL	RADCO	Watertube		0.65	Hot Water							Gas					
CAPITAL COAST DHB	PORIRUA HOSPITAL	CUDDON	Watertube			Hot Water							Gas					
CAPITAL COAST DHB	PORIRUA HOSPITAL	CUDDON	Watertube		0.337	Hot Water							Gas					
CAPITAL COAST DHB	PORIRUA HOSPITAL	CUDDON	Watertube		0.337	Hot Water							Gas					
CAPITAL COAST DHB	PORIRUA HOSPITAL	ALLEN YGNIS	Watertube			Hot Water							Gas					
CAPITAL COAST DHB	PARAPARAUMU HOSPITAL	uncertain	Watertube	1990	0.65	Hot Water							Gas					
CAPITAL COAST DHB	PARAPARAUMU HOSPITAL	HOVAL	Watertube		0.235	Hot Water							Gas					
CAPITAL COAST DHB	PARAPARAUMU HOSPITAL	HOVAL	Watertube		0.235	Hot Water							Dual gas/diesel					
CAPITAL COAST DHB	PARAPARAUMU HOSPITAL	HOVAL	Watertube		0.235	Hot Water							Dual gas/diesel					
CAPITAL COAST DHB	FORENSIC				0.15	Hot Water							Gas					
CAPITAL COAST DHB	FORENSIC	AQUAHEAT	Watertube		0.6	Hot Water							Gas					

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
CAPITAL COAST DHB	FORENSIC	AQUAHEAT	Watertube		0.6	Hot Water							Gas					
CAPITAL COAST DHB	FORENSIC	YGNIS	Watertube		0.125	Hot Water		0.5					Gas					
COUNTIES MANAKAU DHB	MIDDLEMORE HOSPITAL	HOVAL	Firetube	1990	2.05	Hot Water			17.5644	17.5644			Dual gas/diesel			0.5		
COUNTIES MANAKAU DHB	MIDDLEMORE HOSPITAL	HOVAL	Firetube	1990	2.05	Hot Water			17.5644	17.5644			Dual gas/diesel			0.5		
COUNTIES MANAKAU DHB	MIDDLEMORE HOSPITAL	HOVAL	Firetube	1980	0.762	Hot Water			6.52882	6.52882			Dual gas/diesel			0.5		
COUNTIES MANAKAU DHB	MIDDLEMORE HOSPITAL	HOVAL	Firetube	1980	0.762	Hot Water			6.52882	6.52882			Dual gas/diesel			0.5		
COUNTIES MANAKAU DHB	MIDDLEMORE HOSPITAL	HOVAL	Firetube	1990	1.465	Hot Water			12.5521	12.5521			Dual gas/diesel			0.5		
COUNTIES MANAKAU DHB	MIDDLEMORE HOSPITAL	HOVAL	Firetube	1990	1.465	Hot Water			12.5521	12.5521			Dual gas/diesel			0.5		
COUNTIES MANAKAU DHB	MIDDLEMORE HOSPITAL	SCOTT	Firetube	1980	0.63	Saturated Steam	0.816	10	5.39784	5.39784		184	Dual gas/diesel			0.5		
COUNTIES MANAKAU DHB	MIDDLEMORE HOSPITAL	SCOTT	Firetube	1980	0.63	Saturated Steam	0.816	10	5.39784	5.39784		184	Dual gas/diesel			0.5		
ENERGY FOR INDUSTRY	DUNEDIN ENERGY CENTRE	DANIEL ADAMSON	Waterwall	1958	6.83	Saturated Steam	10.5	10.3	59.6669	59.6669		185	Coal			0.33		
ENERGY FOR INDUSTRY	DUNEDIN ENERGY CENTRE	DANIEL ADAMSON	Waterwall	1958	6.83	Saturated Steam	10.5	10.3				185	Coal					
ENERGY FOR INDUSTRY	DUNEDIN ENERGY CENTRE	JOHN THOMPSON	Waterwall	1967	7.39	Saturated Steam	11.8	10.3				185	Coal					
ENERGY FOR INDUSTRY	DUNEDIN ENERGY CENTRE	JOHN THOMPSON	Waterwall	1980	7.65	Saturated Steam	12.2	10.3				185	Coal					
ENERGY FOR INDUSTRY	AUCKLAND HOSPITAL COGEN	DEUTZ		2005	2.1	Hot Water						105	Gas					

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
ENERGY FOR INDUSTRY	NELSON HOSPITAL	SCOTT	Firetube	2006	1.6	Saturated Steam	2.4	10	13.44	13.44		184	Biogas	0.75		0.7	64.51	0
ENERGY FOR INDUSTRY	AUCKLAND HOSPITAL COGEN	DEUTZ		2005	2.1	Hot Water						105	Gas					
GILLIES HOSPITAL	GILLIES HOSPITAL	YGNIS		1984	0.365	Hot Water			3.18864	3.18864		60	Gas			0.8		
GILLIES HOSPITAL	GILLIES HOSPITAL	BURNS AND FERRAL		1989	0.092	Steam		4.5	0.80371	0.80371		135	Electricity			0.7		
GILLIES HOSPITAL	GILLIES HOSPITAL	YGNIS		1984	0.365	Hot Water			3.18864	3.18864		60	Gas			0.8		
GUARDIAN	SUNSET	HOVAL		1975	0.264	Hot Water			2.3063	2.3063		80	Gas					
GUARDIAN	SUNSET	HOVAL		1975	0.264	Hot Water			2.3063	2.3063		80	Gas					
HAWKES BAY DHB	HAWKES BAY HOSPITAL	SCOTT		2001	1.2	Steam	1.82	10.35	10.4832	10.4832		180	Gas			0.45		
HAWKES BAY DHB	HAWKES BAY HOSPITAL	AQUATHERM		2004	2.3	Hot Water		7.5	20.0928	20.0928		105	Gas			0.5		
HAWKES BAY DHB	HAWKES BAY HOSPITAL	AQUATHERM		2004	2.3	Hot Water		7.5				105	Gas					
HUTT VALLEY DHB	HUTT VALLEY HOSPITAL	AQUAHEAT	Watertube		1	Hot Water						85	Gas					
HUTT VALLEY DHB	HUTT VALLEY HOSPITAL	AQUAHEAT	Watertube	0	1	Hot Water						85	Gas					
HUTT VALLEY DHB	HUTT VALLEY HOSPITAL	AQUAHEAT	Watertube		1	Hot Water						80	Gas					
HUTT VALLEY DHB	HUTT VALLEY HOSPITAL	AQUAHEAT	Waterwall		1	Hot Water						80	Gas					
HUTT VALLEY DHB	HUTT VALLEY HOSPITAL	AQUAHEAT	Watertube		1	Hot Water						85	Gas					

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
LAKES DHB	ROTORUA HOSPITAL	EAST COAST STEAM - AUSTRALIA, BRISBANE	Watertube	2006	0.25	Saturated Steam	0.4	7	2.184	2.184			Gas			0.2		
LAKES DHB	ROTORUA HOSPITAL	VEKOS			3	Hot Water		10.5					Coal					
LAKES DHB	ROTORUA HOSPITAL	EAST COAST STEAM - AUSTRALIA, BRISBANE		1997	0.25	Saturated Steam			2.184	2.184			Gas			0.2		
MERCY HOSPITAL	AUCKLAND	ANDERSON	Firetube	1979	1.4	Saturated Steam	1.814	6				100	Gas	0.7				
MERCY HOSPITAL	AUCKLAND	ANDERSON	Firetube	1979	1.4	Saturated Steam	1.814	7				100	Dual gas/diesel	0.85				
MERCY HOSPITAL	AUCKLAND	AQUATHERM		2001	0.6	Hot Water			5.2416	5.2416		80	LPG/Butane	0.85		1	22.20	1341
MERCY HOSPITAL	AUCKLAND	AQUATHERM		1968	0.45	Hot Water							LPG/Butane					
MERCY HOSPITAL	AUCKLAND	ANDERSON	Firetube	1979	1.4	Saturated Steam	1.814	7	12.2304	12.2304			Dual gas/diesel			0.75		
MIDCENTRAL DHB	PALMERSTON NORTH	BABCOCK & WILCOX	Firetube	1971	6	Saturated Steam		10.34	52.416	52.416		186	Gas	0.81		0.5	232.96	12300
MIDCENTRAL DHB	PALMERSTON NORTH	BABCOCK & WILCOX	Firetube	1971	6	Saturated Steam		10.34	8.97	8.97		186	Gas	0.81		0.5	39.87	2105
MIDCENTRAL DHB	PALMERSTON NORTH	BABCOCK & WILCOX	Firetube	1974	6.2								Coal	0.8				
NELSON MARLBOROUGH DHB	NELSON HOSPITAL	BABCOCK & WILCOX	Firetube	1986	4	Saturated Steam		10				185	Coal					
NELSON MARLBOROUGH DHB	NELSON HOSPITAL	JOHN THOMPSON	Firetube	1981	2.9	Saturated Steam		10				185	Coal					
NORTHLAND DHB	BAY OF ISLANDS HOSPITAL				1				8.736	8.736			Coal			0.4		
NORTHLAND DHB	BAY OF ISLANDS HOSPITAL				1								Coal					

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
NORTHLAND DHB	WHANGAREI HOSPITAL	EASTEEL	Firetube	1985	1.4	Saturated Steam	1.8	10	12.2304	12.2304		184	Dual gas/diesel	0.7		0.65	62.90	3321
NORTHLAND DHB	WHANGAREI HOSPITAL	EASTEEL	Firetube	1985	1.4	Saturated Steam	1.8	10	12.2304	12.2304		184	Dual gas/diesel	0.7		0.65	62.90	3321
NORTHLAND DHB	WHANGAREI HOSPITAL	EASTEEL	Firetube	1985	1.4	Saturated Steam	1.8	10				184	Dual gas/diesel	0.65				
NORTHLAND DHB	WHANGAREI HOSPITAL	EASTEEL	Firetube	1985	1.4	Saturated Steam	1.8	10				184	Dual gas/diesel	0.65				
NORTHLAND DHB	DARGAVILLE HOSPITAL	EASTEEL		1992	0.77	Saturated Steam	1	10	6.72672	6.72672		184	Oil/Diesel			0.65		
NORTHLAND DHB	DARGAVILLE HOSPITAL	EASTEEL		1992	0.77	Saturated Steam	1	10				184	Oil/Diesel					
NORTHLAND DHB	KAITAIA HOSPITAL	EASTEEL		1992	0.77	Saturated Steam	1	10	6.72672	6.72672		184	Oil/Diesel			0.65		
NORTHLAND DHB	KAITAIA HOSPITAL	EASTEEL		1992	0.77	Saturated Steam	1	10				184	Oil/Diesel					
NURSE MAUDE	NURSE MAUDE CHRISTCHURCH	HOVAL	Watertube	2001	0.21	Hot Water		2	1.83456	1.83456		85	LPG/Butane	0.816		0.75	8.09	489
NURSE MAUDE	NURSE MAUDE CHRISTCHURCH	HOVAL	Watertube	2001	0.21	Hot Water		2	1.83456	1.83456		85	LPG/Butane	0.816		0.75	8.09	489
OTAGO DHB	WAIKARE HOSPITAL	SCOTT	Firetube	1991	1.5	Hot Water		3	13.104	13.104		75	LPG/Butane	0.8		0.5	58.97	3562
OTAGO DHB	LESLIE GROVES HOSPITAL																	
PARKHAVEN HOSPITAL	PARKHAVEN HOSPITAL	RAYPAK Atmospheric Boiler		1990	0.043	Hot Water			0.37565	0.37565			Gas			0.5		
PARKHAVEN HOSPITAL	PARKHAVEN HOSPITAL			1990	0.275	Hot Water			2.4024	2.4024			Gas			0.8		
PARKHAVEN HOSPITAL	PARKHAVEN HOSPITAL			19990	0.028	Hot Water			0.24024	0.24024			Gas			0.4		

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
SOUTH CANTERBURY DHB	TIMARU HOSPITAL	ANDERSON	Firetube	1984	1.7	Saturated Steam	2.3	10.4	14.8512	14.8512		186	Coal			0.6		
SOUTH CANTERBURY DHB	TIMARU HOSPITAL	ANDERSON	Firetube	1984	1.7	Saturated Steam	2.3	10.4				186	Coal					
SOUTHERN CROSS HOSPITAL	NORTH HARBOUR	EAST COAST STEAM - AUSTRALIA, BRISBANE		1999	0.1	Hot Water	0.157		0.624	0.624			Gas			0.75		
SOUTHERN CROSS HOSPITAL	NORTH HARBOUR	EAST COAST STEAM - AUSTRALIA, BRISBANE		1999	0.1	Hot Water			0.624	0.624			Gas			0.75		
SOUTHERN CROSS HOSPITAL	BRIGHTSIDE			2000	0.056	Hot Water			0.46099	0.46099			Electricity			0.5		
SOUTHERN CROSS HOSPITAL	BRIGHTSIDE			2004	0.04	Hot Water			0.32928	0.32928			Electricity			0.5		
SOUTHERN CROSS HOSPITAL	AUCKLAND SURGICAL CENTRE	EAST COAST STEAM - AUSTRALIA, BRISBANE		2007	0.2	Steam	0.309	10	1.6464	1.6464		130	Gas			0.5		
SOUTHERN CROSS HOSPITAL	AUCKLAND SURGICAL CENTRE	EAST COAST STEAM - AUSTRALIA, BRISBANE		2007	0.2	Hot Water	0.309	10	1.6464	1.6464		130	Gas			0.5		
SOUTHLAND HOSPITAL	SOUTHLAND HOSPITAL	ANDERSON	Firetube	1966	5.1	Saturated Steam		10	44.5536	44.5536		184	Lignite			0.55		
SOUTHLAND HOSPITAL	SOUTHLAND HOSPITAL	VEKOS	Watertube	2006	4.5	Saturated Steam		10					Lignite	0.84				
ST GEORGE'S HOSPITAL	ST GEORGE'S HOSPITAL	SCOTT	Firetube	2002	0.7	Saturated Steam	0.9	10				182	LPG/Butane					
ST GEORGE'S HOSPITAL	ST GEORGE'S HOSPITAL	SCOTT	Firetube	2002	0.7	Saturated Steam	0.9	10				182	LPG/Butane					
ST JOANS HOSPITAL	ST JOANS HOSPITAL	YGNIS			0.175	Hot Water						50	Gas					
TAIRAWHITI DISTRICT HEALTH	GISBORNE HOSPITAL	EASTEEL	Firetube	1986	1.4	Saturated Steam		10	12.2304	12.2304		185	Dual gas/diesel	0.78		0.5	56.45	2980
TAIRAWHITI DISTRICT HEALTH	GISBORNE HOSPITAL	EASTEEL	Firetube	1986	1.4	Saturated Steam		10	12.2304	12.2304		185	Gas			0.5		

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
TAIRAWHITI DISTRICT HEALTH	GISBORNE HOSPITAL	EASTEEL	Firetube	1986	1.4	Saturated Steam		10				185	Gas					
TAIRAWHITI DISTRICT HEALTH	GISBORNE HOSPITAL	EASTEEL	Firetube	1986	1	Hot Water			2.912	2.912		110	Gas			0.55		
TAIRAWHITI DISTRICT HEALTH	GISBORNE HOSPITAL	EASTEEL	Firetube	1986	1	Hot Water						110	Gas					
TARANAKI DHB	TARANAKI BASE HOSPITAL	EASTEEL - STEAMPAC	Firetube	1998	2.2	Saturated Steam		9.9	19.2192	19.2192		184	Dual gas/diesel	0.84		0.6	82.37	4349
TARANAKI DHB	TARANAKI BASE HOSPITAL	EASTEEL - STEAMPAC	Firetube	1998		Saturated Steam		9.9				184	Dual gas/diesel	0.84				
WAIKATO HOSPITAL	WAIKATO HOSPITAL	JOHN THOMPSON	Firetube	1969	7	Saturated Steam	9.1	10.34	9.408	9.408		100	Coal	0.75		0.65	45.16	4118
WAIKATO HOSPITAL	WAIKATO HOSPITAL	JOHN THOMPSON	Firetube	1969	7	Saturated Steam	9.1	10.3				100	Coal	0.75				
WAIKATO HOSPITAL	WAIKATO HOSPITAL	DANIEL ADAMSON		1956	3.2	Saturated Steam	4.1	10.3	27.9552	27.9552			Coal	0.75		0.8	134.18	12238
WAIRARAPA DHB	MASTERTON HOSPITAL	EASTEEL - STEAMPAC	Firetube	1993	1.2	Saturated Steam		10.3	10.4832	10.4832		186	Coal	0.65		0.1	58.06	5295
WAIRARAPA DHB	MASTERTON HOSPITAL	EASTEEL - STEAMPAC	Firetube	1993	1.2	Saturated Steam		10.3				186	Coal	0.75				
WAITEMATA DHB	NORTH SHORE HOSPITAL	ALLEN YGNIS	Firetube	1979	2.5	Hot Water	309.6	4.25	21.84	21.84		90	Dual gas/diesel			0.5		
WAITEMATA DHB	NORTH SHORE HOSPITAL	ALLEN YGNIS	Firetube	1979	2.5	Hot Water		4.25				90	Dual gas/diesel					
WAITEMATA DHB	NORTH SHORE HOSPITAL	ALLEN YGNIS	Firetube	1979	2.5	Hot Water		4.25				90	Dual gas/diesel					
WAITEMATA DHB	NORTH SHORE HOSPITAL	ALLEN YGNIS	Firetube 3 pass	1979	1	Saturated Steam	1.588	9.5	8.736	8.736		180	Dual gas/diesel			0.5		
WAITEMATA DHB	NORTH SHORE HOSPITAL	ALLEN YGNIS	Firetube 3 pass	1979	1	Saturated Steam	1.588	9.5				180	Dual gas/diesel					



Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
WAITEMATA DHB	NORTH SHORE HOSPITAL	ALLEN YGNIS	Firetube 3 pass	1979	1	Saturated Steam	1.588	9.5				180	Dual gas/diesel					
WAITEMATA DHB	WAITAKERE HOSPITAL	AQUATHERM YGNIS		2003	0.95	Hot Water		1.75	8.2992	8.2992		80	Dual gas/diesel			0.5		
WAITEMATA DHB	WAITAKERE HOSPITAL	AQUATHERM YGNIS		2003	0.95	Hot Water		1.75				80	Dual gas/diesel					
WAITEMATA DHB	WAITAKERE HOSPITAL	ALLEN YGNIS		1974	0.73	Hot Water						80	Dual gas/diesel					
WAITEMATA DHB	MASON CLINIC	AQUATHERM YGNIS	Heating plant less than 1 MWth	1992	0.35	Hot Water						80	Gas					
WAITEMATA DHB	MASON CLINIC	AQUATHERM YGNIS	Heating plant less than 1 MWth	1994	0.25	Hot Water						80	Gas					
WAKEFIELD HOSPITAL	WAKEFIELD HOSPITAL	EASTEEL		2006	0.6	Steam			5.2416	5.2416			Dual gas/diesel			0.15		
WAKEFIELD HOSPITAL	WAKEFIELD HOSPITAL			1974	180	Hot Water			1572.48	1572.48			Gas			0.7		
WAKEFIELD HOSPITAL	WAKEFIELD HOSPITAL			1974	0.12	Hot Water			1.04832	1.04832			Gas			0.7		
WAKEFIELD HOSPITAL	WAKEFIELD HOSPITAL			2002	0.09	Hot Water			0.78624	0.78624			Gas			0.5		
WAKEFIELD HOSPITAL	WAKEFIELD HOSPITAL			2002	0.09	Hot Water			0.78624	0.78624			Gas			0.5		
WAKEFIELD HOSPITAL	WAKEFIELD HOSPITAL			2002	0.124	Saturated Steam	0.16	10				180	Gas					
WAKEFIELD HOSPITAL	WAKEFIELD HOSPITAL			2002	0.124	Saturated Steam	0.16	10				180	Gas					
WANGANUI HOSPITAL	WANGANUI HOSPITAL			2008		Saturated Steam							Gas					
WEST COAST DHB	GREY HOSPITAL	BABCOCK	Firetube	1982	1.4	Saturated Steam	1.85	10	12.2304	12.2304		184	Coal			0.4		

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
WEST COAST DHB	GREY HOSPITAL	BABCOCK	Firetube	1982	1.4	Saturated Steam	1.85	10				184	Coal					
WEST COAST DHB	BULLER HOSPITAL	HEATSERVE		1985	0.88	Hot Water			7.68768	7.68768			Coal	0.8		0.7	34.59	3155
WEST COAST DHB	BULLER HOSPITAL	HEATSERVE		1985	0.88	Hot Water	23.4						Coal	0.8				
WEST COAST DHB	REEFTON HOSPITAL	HEATSERVE		1980	0.44	Hot Water			3.84384	3.84384		100	Coal			0.75		
WEST COAST DHB	REEFTON HOSPITAL	HEATSERVE		1980	0.44	Hot Water						100	Coal					
WHANGANUI DHB	WANGANUI HOSPITAL					Steam							Gas					
WHANGANUI DHB	WANGANUI HOSPITAL					Steam							Oil/Diesel					

## Appendix 5. Meat Processing Heating Plant

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
					MW		t/h	bar	GWh	GWh	kWh	Deg C					TJ	t
A W VERKERK	CHRISTCHURCH	ANDERSON	Firetube	1999	1.4	Steam	1.81	9.5	12.2304	12.2304		180	Tallow			0.5		
AFFCO	WIRI	SCOTT COMBUSTION	Firetube	2002	0.63	Steam	0.816	10.35	3.1752	3.1752			Gas			0.5		
AFFCO	HOROTIU	FOSTER WHEELER (MCKENZIE & RIDLEY)	Watertube	1970	10	Steam	18	13	74.88	74.88			Gas			0.67		
AFFCO	WAIROA	JOHN THOMPSON	Watertube	1970	11.3	Saturated Steam	18.15	10.5	71.5968	71.5968		185	Coal			0.5		
AFFCO	IMLAY WANGANUI	COCKRAM	Firetube	1982	5	Saturated Steam		11	40.32	40.32			Coal			0.5		
AFFCO	IMLAY WANGANUI	BABCOCK & WILCOX (EASTEEL)	Firetube	1972	5.5	Steam			38.016	38.016			Gas	0.8		0.67	171.07	9033
AFFCO	IMLAY WANGANUI	BABCOCK & WILCOX (EASTEEL)	Firetube	1972	5.5	Steam			38.016	38.016			Gas	0.8		0.67	171.07	9033
AFFCO	CASINGS PLANT (SOUTH AUCKLAND)	CARBOFUEL	Firetube	1992	1.186	Hot Water		4.57	2.39098	2.39098		120	Gas			0.75		
AFFCO	MANAWATU	AQUATHERM		1972	1.85	Hot Water			12.21	12.21		100	Gas			0.8		
AFFCO	MOEREWA	JOHN THOMPSON	Watertube	1980	14	Saturated Steam	22	8	67.2	67.2			Coal	0.8		0.36	302.40	27579
AFFCO	WIRI	HOVAL			0.77	Hot Water			6.468	6.468			Gas			0.6		
AFFCO	WIRI	HOVAL			0.77	Hot Water			6.468	6.468			Gas			0.6		

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
AFFCO	RANGIRURU (TE PUKE)	JOHN THOMPSON		1961	5.3	Saturated Steam	7.3	9				175	Gas			0.75		
AFFCO	RANGIRURU (TE PUKE)	JOHN THOMPSON		1961	5.3	Saturated Steam	7.3	9				175	Gas			0.75		
ALLIANCE GROUP	LORNEVILLE	FOSTER WHEELER (MCKENZIE & RIDLEY)	Watertube	1976	13	Hot Water	20	17	62.8992	62.8992		207	Lignite	0.72		0.75	314.50	29940
ALLIANCE GROUP	LORNEVILLE	BABCOCK & WILCOX	Watertube	1983	18	Saturated Steam	27	11	87.0912	87.0912		186	Lignite	0.72		0.75	435.46	41455
ALLIANCE GROUP	SOCKBURN	ANDERSON	Firetube	1978	6	Saturated Steam	5.5	8.5	23.04	23.04			Coal	0.85		0.5	97.58	8899
ALLIANCE GROUP	SOCKBURN	ANDERSON	Firetube	1978	1.2	Saturated Steam	1.8	8.5					Oil/Diesel	0.71				
ALLIANCE GROUP	DANNEVIRKE	AQUAHEAT		2003	1.5	Hot Water			8.64	8.64		95	Gas			0.85		
ALLIANCE GROUP	MATAURA	BABCOCK & WILCOX	Watertube	1955	3.8	Saturated Steam	6	10	16.416	16.416			Lignite	0.8		0.9	73.87	7033
ALLIANCE GROUP	MATAURA	BABCOCK & WILCOX	Watertube	1962	9.4		15	10	60.912	60.912			Lignite			0.9		
ALLIANCE GROUP	MATAURA TANNERY	TRIWAY	Firetube	2002	1	Hot Water			7.2	7.2		95	Lignite			0.9		
ALLIANCE GROUP	SMITHFIELD	JOHN THOMPSON	Watertube	1985	13	Saturated Steam	22	18	80.496	80.496		180	Coal	0.8		0.5	362.23	33036
ALLIANCE GROUP	STOKE	AQUAHEAT	Firetube	2000	1.2	Hot Water			5.76	5.76		120	Oil/Diesel	0.88		1	23.56	1638
ALLIANCE GROUP	PUKEURI	BABCOCK & WILCOX	Watertube	1936	1.2		1.6	14.2					Coal					
ALLIANCE GROUP	PUKEURI	BABCOCK & WILCOX	Watertube	1955	7.8		10	14.2	53.5392	53.5392			Coal			0.7		
ALLIANCE GROUP	PUKEURI	FOSTER WHEELER (MCKENZIE & RIDLEY)	Watertube	1986	15.9		20.5	14.2	109.138	109.138			Coal			0.7		

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne	
ALLIANCE GROUP	SOCKBURN	ANDERSON		2006	1.6	Saturated Steam	2.72						Oil/Diesel						
ALLIANCE GROUP	MAKAREWA	BABCOCK & WILCOX	Watertube	1952	6.1	Superheated Steam		8	37.0392	37.0392			Lignite	0.65		0.55	205.14	19529	
ALLIANCE GROUP	MAKAREWA	BABCOCK & WILCOX	Watertube	1956	6.1	Superheated Steam		8	37.0392	37.0392			Lignite	0.72		0.55	185.20	17631	
ALLIANCE GROUP	MATAURA				0.2	Hot Water			1.344	1.344			Oil/Diesel				1		
ALLIANCE GROUP	MATAURA				0.2	Hot Water			1.344	1.344			Oil/Diesel				1		
ASHBURTON MEAT PROCESSORS	Ashburton	ANDERSON	Firetube	1989	1	Steam	1.36	10	6.24	6.24		180	Oil/Diesel				0.77		
AUCKLAND MEAT PROCESSORS	AUCKLAND	JOHN THOMPSON	Firetube	1965	4.6		5.9		15.456	15.456			Coal	0.83			0.6	67.04	6114
AUCKLAND MEAT PROCESSORS	AUCKLAND	JOHN THOMPSON	Firetube	1969	4.6		5.9	10	15.456	15.456			Coal				0.6		
AUCKLAND MEAT PROCESSORS	AUCKLAND	DANIEL ADAMSON	Firetube	1953	3.5		4.31						Coal						
AUCKLAND MEAT PROCESSORS	AUCKLAND			1960	1.4		1.81	10					Gas						
BERNARD MATTHEWS NZ LTD	WAIPUKERAU	EASTEEL	Watertube	1997	1.1	Saturated Steam		8	4.752	4.752		90	Gas	0.8		0.5	21.38	1129	
BERNARD MATTHEWS NZ LTD	GISBORNE	AQUATHERM	Firetube		0.5	Hot Water			3.36	3.36		105	Gas				0.7		
BERNARD MATTHEWS NZ LTD	GISBORNE	AQUATHERM		1999	0.4	Hot Water			2.688	2.688			Gas				0.7		
BERNARD MATTHEWS NZ LTD	FIELDING	YGNIS		1998	0.4	Hot Water			1.728	1.728			Gas	0.8			0.5	7.78	411
BLUE SKY MEATS	BLUE SKY MEATS	ANDERSON VEKOS	Firetube	1984	2.35	Hot Water		2	15.9037	15.9037		100	Lignite	0.79		0.814	72.47	6899	

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
BRINKS CHICKEN	BRINKS CHICKEN	AQUATHERM		1989	0.4	Hot Water			2.88	2.88		88	Gas			1		
BRINKS CHICKEN	BRINKS CHICKEN	AQUATHERM		1989	0.4	Hot Water			2.88	2.88		93	Gas			1		
CANTERBURY MEAT PACKERS	SEAFIELD	JOHN THOMPSON	Firetube	1980	4.5	Saturated Steam	1.81	8.5	29.7	29.7			Coal			0.4		
CANTERBURY MEAT PACKERS	SEAFIELD		Firetube	1980	7.5	Saturated Steam		8.5	49.5	49.5			Coal			0.55		
CANTERBURY MEAT PACKERS	BLENHEIM	TAYLOR	Watertube	1982	0.75			2	5.04	5.04		95	Coal			0.8		
CANTERBURY MEAT PACKERS	BLENHEIM	TAYLOR	Watertube	1982	0.75	Hot Water			5.04	5.04		95	Coal	0.85		0.8	21.35	1947
CANTERBURY MEAT PACKERS	KOKIRI (WESTLAND)	BABCOCK & WILCOX	Watertube	1989	7	Saturated Steam		10	22.176	22.176			Coal	0.75		0.75	106.44	9708
CRUSADER MEATS	CRUSADER MEATS	Energy Products International	Watertube	1993	2.3	Hot Water		3.5	9.315	9.315		115	LPG/Butane			0.74		
FRASERTOWN MEAT COY	FRASERTOWN MEAT COY	YGNIS		2006	0.45	Hot Water			0.972	0.972		116	LPG/Butane			1		
FRESH MEATS NZ LTD	NAPIER	HOVAL	Firetube	2002	0.95	Hot Water			2.052	2.052		97	Gas			0.95		
FRESH PORK BAY CITY	FRESH PORK BAY CITY	ANDERSON	Firetube	1973	2.3	Saturated Steam	2.95	10.3	7.038	7.038		185	Oil/Diesel	0.8		0.7	31.67	2201
GRAEME LOWE HAWERA LTD	GRAEME LOWE HAWERA LTD	MAXITHERM	Watertube	2002	3.15	Steam		10.5	13.23	13.23		186	Gas			0.8		
GRAEME LOWE HAWERA LTD	GRAEME LOWE HAWERA LTD	ANDERSON	Waterwall	1960	1.6	Steam		10.5	6.72	6.72		186	Gas			0.8		
GREENLEA PREMIER MEATS LTD	GREENLEA PREMIER MEATS LTD	AQUATHERM	Waterwall	2000	0.95	Hot Water		5				100	Gas					
GREENLEA PREMIER MEATS LTD	MORRINSVILLE	AQUATHERM		1993	0.95	Hot Water			5.2668	5.2668		82	Gas	0.75		1	25.28	1335

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
HEARTLAND PRIME MEAT (NZ)	HEARTLAND PRIME MEAT (NZ)	HOVAL		1960	1	Hot Water		7				100	Oil/Diesel					
INGHAMS ENTERPRISES	INGHAMS ENTERPRISES		Firetube	2004	2.2	Hot Water		1.5	13.464	13.464		92	Gas			0.8		
INGHAMS ENTERPRISES	INGHAMS ENTERPRISES		Firetube	2004	2.2	Hot Water		1.5	13.464	13.464		92	Gas			0.8		
LAMB PACKERS	LAMB PACKERS FIELDING	AQUATHERM		1988	0.5	Hot Water			4.032	4.032		95	Gas			0.33		
LAND MEAT NZ LTD	LAND MEAT NZ LTD	AQUATHERM	Watertube	2007	1.8	Hot Water			6.3	6.3		95	Gas	0.79		0.75	28.71	1516
LOWE CORPORATION	G.L HASTINGS TANNERY	RAYPAK Atmospheric Boiler	Watertube	2000	0.6	Hot Water			4.9392	4.9392		60	Gas			0.38		
LOWE CORPORATION	G.L HASTINGS TANNERY	ANDERSON	Firetube	1972	1.4	Saturated Steam							Gas	0.67				
LOWE CORPORATION	G.L HASTINGS TANNERY	SCOTT	Firetube	1983	1.4	Saturated Steam	1.818	7	11.5248	11.5248			Gas	0.67	3715	0.25	61.92	3270
LOWE CORPORATION	G.L HASTINGS TANNERY	RAYPAK Atmospheric Boiler	Watertube	1997	0.428	Hot Water			3.5233	3.5233		60	Gas			0.38		
LOWE CORPORATION	G.L HASTINGS TANNERY	RAYPAK Atmospheric Boiler	Watertube	1997	0.313	Hot Water			2.57662	2.57662		60	Gas			0.38		
LOWE CORPORATION	HAWERA	ANDERSON	Watertube	1977	2.8	Saturated Steam	4.7	10.3	14.56	14.56			Gas			1		
LOWE CORPORATION	HAWERA	MAXITHERM	Watertube	2001	3.25	Saturated Steam	5.44	10.3	16.9	16.9			Gas			1		
LOWE CORPORATION	WAIKATO (TAKAPAU)	EASTEEL	Firetube 3 pass	1993	6	Saturated Steam	9.565	11	37.44	37.44		185	Gas			0.77		
LOWE CORPORATION	CHRISTCHURCH	BABCOCK	Watertube		0.9			10.5	4.095	4.095		160	Coal			0.4		
LOWE CORPORATION	ASTLEY LEATHERS	ANDERSON	Firetube	1975	1.2	Saturated Steam	1.81	7	10.4832	10.4832		100	Gas			0.66		

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
LOWE CORPORATION	AUCKLAND	YGNIS	Watertube	1980	0.65	Hot Water		2.4	5.2416	5.2416		90	Gas	0.8		0.85	23.59	1245
LOWE CORPORATION	AUCKLAND	HOVAL	Watertube	1983	0.65	Hot Water		0.5	5.2416	5.2416		90	Gas	0.85		0.75	22.20	1172
PPCS	BELFAST	BABCOCK & WILCOX	Watertube	1918	5.4	Steam	7	10				184	Coal	0.76				
PPCS	BELFAST	BABCOCK & WILCOX	Watertube	1918	3.1	Steam	4	10				180	Coal	0.64				
PPCS	BELFAST	JOHN THOMPSON	Firetube	1962	6.2	Steam	8	10				180	Coal	0.64				
PPCS	CANTERBURY	BABCOCK & WILCOX	Watertube	1959	3.1	Steam	4	10				180	Coal	0.75				
PPCS	CANTERBURY	BABCOCK & WILCOX	Watertube	1959	3.1	Steam	4	10				180	Coal	0.7				
PPCS	CANTERBURY	BABCOCK & WILCOX	Firetube	1970	6.2	Steam	8	10				180	Oil/Diesel	0.7				
PPCS	FAIRTON		Firetube	1965	5.4	Steam	7	10				180	Coal	0.73				
PPCS	FAIRTON		Firetube	1965	5.4	Steam	7	10				180	Coal	0.77				
PPCS	PAREORA	JOHN THOMPSON	Firetube	1961	2.7	Steam	3.5	10				180	Coal	0.77				
PPCS	PAREORA	JOHN THOMPSON	Firetube	1961	4.2	Steam	5.5	10				180	Coal	0.75				
PPCS	PAREORA	JOHN THOMPSON	Firetube	1961	4.2	Steam	5.5	10				180	Coal	0.79				
PPCS	PAREORA	JOHN THOMPSON	Firetube	1971	6.2	Steam	8	10				180	Oil/Diesel	0.8				
PPCS	FINEGAND	BABCOCK & WILCOX	Watertube	1962	6.9	Steam	9.9	10				180	Coal	0.74				



Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
PPCS	FINEGAND	JOHN THOMPSON	Watertube	1980	17.4	Steam	22.5	15				180	Coal	0.65				
PPCS	WAITANE	BABCOCK & WILCOX	Firetube	1960	1.8	Steam	2.4	10				180	Coal	0.71				
PPCS	WAITANE	SCOTT TAYLOR	Firetube	1960	1.4	Steam	1.8	10				180	Coal	0.8				
PRIME RANGE MEATS	PRIME RANGE MEATS	VEKOS	Firetube	1980	4.7	Saturated Steam	6.13	10	32.906	32.906		720	Lignite			0.97		
PRIME RANGE MEATS	PRIME RANGE MEATS	STEAMBLOC		2004	4		4.99											
PROGRESSIVE MEATS NZ LTD	Hastings	YGNIS		1998	0.6	Hot Water			3.672	3.672		100	Gas			1		
PROGRESSIVE MEATS NZ LTD	Hastings	YGNIS		2006	0.25	Hot Water						100	Gas					
RICHMOND LTD	TAKAPAU	ANDERSON	Firetube	1964	5.6	Saturated Steam	7.26	10.3	20.944	20.944			Gas			0.8		
RICHMOND LTD	TAKAPAU	HOVAL	Firetube	1983	1.2	Hot Water			4.488	4.488		120	Gas	0.76		0.8	21.26	1122
RICHMOND LTD	TAKAPAU	HOVAL	Firetube	1981	1.2	Hot Water			4.488	4.488		120	Gas			0.8		
RICHMOND LTD	TAKAPAU	EASTEEL - STEAMPAC	Firetube	2003	1.2	Saturated Steam		10	4.488	4.488			Gas			0.8		
RICHMOND LTD	TIRAU	AQUATHERM YGNIS	Waterwall	1996	1.85	Hot Water						100	Gas					
RICHMOND LTD	RICHMOND LTD TE AROHA	TRIWAY	Firetube	1992	2	Steam		1.2	14.4	14.4		120	Coal			0.4		
RICHMOND LTD	RICHMOND LTD PAEROA	TRIWAY	Firetube	1992	1.5				3.276	3.276			Coal			1		
RICHMOND LTD	RICHMOND LTD WAITOTARA	YGNIS	Watertube	1989	3	Hot Water			25.704	25.704			Gas			0.5		

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
RICHMOND LTD	RICHMOND LTD HAWERA	YGNIS	Firetube	1995	1.2	Hot Water			5.04	5.04			Gas	0.8		0.6	22.68	1198
RICHMOND LTD	RICHMOND LTD HAWERA	ANDERSON	Firetube	1970	1	Hot Water	1.8		4.2	4.2			Gas	0.8		0.8	18.90	998
RICHMOND LTD	RICHMOND LTD DARGAVILLE	TAYMAC HEATPAK 4807		2004	1.5	Hot Water			10.368	10.368		90	Coal	0.76		0.9	49.11	4479
RICHMOND LTD	Te Kawhata			2006	1				1.2	1.2			Gas	0.8		0.6	5.40	285
RIVERLANDS	MANAWATU/ELTHAM	MAXITHERM	Watertube	2002	3	Hot Water			25.2	25.2		120	Gas	0.7		0.8	129.60	6843
RIVERLANDS	MANAWATU/ELTHAM	PARKINSON COWAN	Watertube	1954	1	Steam		6.5	8.4	8.4		162	Gas			0.8		
SOUTH PACIFIC MEATS	AWARUA	ANDERSON	Firetube	2008	4.5	Saturated Steam		10	27.216	27.216			Coal			1		
SOUTH PACIFIC MEATS	AWARUA	SCOTT		1973	1.2	Saturated Steam		9					light oil					
SOUTH PACIFIC MEATS	AWARUA	YGNIS		2004	1.5	Hot Water							LPG/Butane					
SOUTH PACIFIC MEATS	MALVERN	AQUAHEAT	Firetube	1999	0.6	Hot Water	0.27	3.1				116	LPG/Butane					
TARANAKI ABATTOIR	TARANAKI ABATTOIR	SCOTT	Firetube	1994	1	Saturated Steam		10.3	3.84	3.84		186	Gas			0.85		
TARANAKI ABATTOIR	TARANAKI ABATTOIR	ANDERSON	Firetube	1994	1	Saturated Steam		10.3	2.16	2.16		186	Gas	0.8		0.85	9.72	513
TAYLOR PRESTON LTD	KIWI POINT	SCOTT		1994	1	Steam	1.81	10.34	8.568	8.568			Gas	0.73		1	42.25	2231
TAYLOR PRESTON LTD	KIWI POINT	ELCO			2.2	Hot Water			18.8496	18.8496		60	Gas	0.73		1	92.96	4908
TAYLOR PRESTON LTD	KIWI POINT	AQUATHERM		1990	0.97	Hot Water		5	8.31096	8.31096		91	Gas	0.73		1	40.99	2164

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
TAYLOR PRESTON LTD	KIWI POINT	AQUATHERM		1990	0.97	Hot Water		5	8.31096	8.31096		91	Gas	0.73		1	40.99	2164
TAYLOR PRESTON LTD	KIWI POINT	HOVAL		1992	2.68				22.512	22.512		108	Gas	0.73		1	111.02	5862
TAYLOR PRESTON LTD	KIWI POINT	HOVAL		1992	2.68				22.512	22.512		108	Gas	0.73		1	111.02	5862
TE KUITI MEAT PROCESSORS LTD	TE KUITI MEAT PROCESSORS LTD	ANDERSON		1997	6	Saturated Steam		8	30.24	30.24			Gas			0.5		
TE KUITI MEAT PROCESSORS LTD	TE KUITI MEAT PROCESSORS LTD				2	Hot Water							Gas					
TEGEL FOODS	TAIHAPE BOILERS	VEKOS POWERMASTER	Firetube		1.7	Saturated Steam	2.72	4.5				156	Coal					
TEGEL FOODS	TAIHAPE BOILERS	ANDERSON	Firetube		1.1	Saturated Steam	1.81	4.5				156	Coal					
TEGEL FOODS	CARMEN ROAD CHCH	SCOTT COMBUSTION	Firetube	1970	1.4	Saturated Steam	1.81	10	5.824	5.824		184	Oil/Diesel	0.75		0.75	27.96	1943
TEGEL FOODS	FEEDMILL & PROCESSING PLANT	ANDERSON		1978	0.4	Saturated Steam		10	2.7456	2.7456			light oil			0.8		
TEGEL FOODS	TEGEL FOODS BELL BLOCK	ANDERSON	Watertube	1987	1	Steam		10.34	6.24	6.24		185	Gas			0.6		
TEGEL FOODS	TEGEL FOODS BELL BLOCK	ANDERSON	Watertube	1973	1.4	Saturated Steam	1.8	10.3				186	Gas					
TEGEL FOODS	TEGEL FOODS HENDERSON			2006	2.8	Heated Oil			24.4608	24.4608		280	Gas			0.35		
TEGEL FOODS	TEGEL FOODS HENDERSON	YGNIS		1998	0.9	Hot Water		2	5.616	5.616		90	Gas			1		
TEGEL FOODS	TEGEL FOODS HENDERSON	YGNIS	Watertube	1998	0.3	Hot Water			0.78	0.78		77	Gas			0.95		
TEGEL FOODS	CARMEN ROAD CHCH	SCOTT	Firetube	1970	1.4	Saturated Steam	1.81	10	5.824	5.824		184	Oil/Diesel	0.75		0.75	27.96	1943

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
TEGEL FOODS	CARMEN ROAD CHCH	SCOTT	Firetube	1970	1.4	Saturated Steam	1.81	10	5.824	5.824		184	Oil/Diesel	0.75		0.75	27.96	1943
TEGEL FOODS	CARMEN ROAD CHCH	SCOTT	Firetube	1970	1.4	Saturated Steam	1.81	10	5.824	5.824		184	Oil/Diesel	0.75		0.75	27.96	1943
TEGEL FOODS	CARMEN ROAD CHCH	SCOTT	Firetube	1970	1.4	Saturated Steam	1.81	10	5.824	5.824		184	Oil/Diesel	0.75		0.75	27.96	1943
TEGEL FOODS	CARMEN ROAD CHCH	SCOTT	Firetube	1970	1.4	Saturated Steam	1.81	10	5.824	5.824		184	Oil/Diesel	0.75		0.75	27.96	1943
UNIVERSAL BEEF PACKERS	UNIVERSAL BEEF PACKERS	AQUAHEAT	Firetube	2004	0.6	Hot Water			3.672	3.672		82	Gas			0.5		
UNIVERSAL BEEF PACKERS	UNIVERSAL BEEF PACKERS	AQUATHERM	Firetube	2000	0.75	Hot Water			5.508	5.508		90	Gas			0.5		
WALLACE CORP	WAITOA	AQUATHERM	Firetube	1988	2.25	Hot Water			13.284	13.284		88	Gas			0.5		
WALLACE CORP	THAMES	AQUATHERM	Firetube	2003	3	Hot Water			9.504	9.504		88	LPG/Butane			0.25		
WALLACE CORP	THAMES	AQUATHERM	Firetube	2002	1.1	Hot Water						88	LPG/Butane					

## Appendix 6. Other Manufacturing Heating Plant

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
ALSCO	ALSCO INVERCARGILL	VEKOS	Watertube	2006	4.5	Saturated Steam		10	11.7	11.7			Lignite	0.84		0.45	50.14	4774
ALSTOM POWER	X																	
BALLANCE AGRI NUTRIENTS LTD	KAPUNI	DELTEK	Waterwall	2004	18	Saturated Steam	36	28	157.248	157.248		232				1		
BALLANCE AGRI NUTRIENTS LTD	KAPUNI	UNKNOWN USA	Watertube	1982	11	Saturated Steam	21.6	28	96.096	96.096		232	Gas			1		
BALLANCE AGRI NUTRIENTS LTD	KAPUNI	ANDERSON	Watertube	1982	19	Saturated Steam	25.2	32	165.984	165.984		293	Gas			1		
BALLANCE AGRI NUTRIENTS LTD	KAPUNI		Waterwall	1995	6		10.8	2				120						
BALLANCE AGRI NUTRIENTS LTD	MT MAUNGANUI	JOHN THOMPSON	Firetube	1984	20	Superheated Steam		50	164.64	164.64	32930000	390	Sulphur			0.75		
BALLANCE AGRI NUTRIENTS LTD	MT MAUNGANUI	EASTEEL - STEAMPAC	Firetube	1981	1.4	Saturated Steam		7			32930000		Oil/Diesel					
CANTERBURY CLAY BRICKS	CANTERBURY CLAY BRICKS			1999	2.4				20.9664	20.9664			Oil/Diesel			1		
CANTERBURY WOOL SCOURERS LTD	CANTERBURY WOOL SCOURERS LTD	VEKOS	Watertube	2004	6	Saturated Steam		10	49.392	49.392			Coal	0.8		0.9	222.26	20270
CANTERBURY WOOL SCOURERS LTD	CANTERBURY WOOL SCOURERS LTD	SCOTT TAYLOR		1995	1.4	Saturated Steam		8	3.0576	3.0576			Coal	0.7		0.9	15.72	1434
CANTERBURY WOOL SCOURERS LTD	CANTERBURY WOOL SCOURERS LTD	SCOTT TAYLOR		1993	1.4	Saturated Steam		8	3.0576	3.0576			Coal	0.7		0.9	15.72	1434
CARTER HOLT HARVEY	KAWERAU TASMAN	COMBUSTION ENGINEERING	Waterwall	1969	160	Superheated Steam	185	44	1344	1344	121800000	385	Black liquor			0.9		
CARTER HOLT HARVEY	KAWERAU TASMAN	INTERNATIONAL COMBUSTION	Waterwall	1955	63	Superheated Steam	70	45	539.784	539.784	121800000	400	Hog fuel	0.55		0.3	3533.13	0

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
CARTER HOLT HARVEY	KAWERAU TASMAN	FOSTER WHEELER (MCKENZIE & RIDLEY)	Waterwall	1955	63	Superheated Steam	70	45	539.784	539.784	121800000	400	Hog fuel	0.55		0.3	3533.13	0
CAVALIER BREMWORTH	AWATOTO	VEKOS	Firetube	1980	4.9	Saturated Steam	7.71	10	28.224	28.224			Coal	0.5		0.15	203.21	18533
CAVALIER BREMWORTH	AWATOTO	VEKOS	Firetube	1980	4.9	Saturated Steam	7.71	10	28.224	28.224			Coal	0.5		0.15	203.21	18533
CLIFTON WOOL SCOUR	CLIFTON WOOL SCOUR	Hamilton Heatpak Taylors clone	Watertube	1982	2	Saturated Steam		5.42	15.456	15.456		150	Lignite			0.75		
CLIFTON WOOL SCOUR	CLIFTON WOOL SCOUR	Hamilton Heatpak Taylors clone	Watertube	1982	2	Saturated Steam		5.42	15.456	15.456		150	Lignite			0.75		
CLIVE SCOURING COY	CLIVE SCOURING COY	EASTEEL		1998	2.9	Saturated Steam		10	21.7152	21.7152		181	Gas			0.8		
COLGATE PALMOLIVE	PETONE			2008														
CONTRACT BOTTLING	CONTRACT BOTTLING	EASTEEL		1998	5	Saturated Steam		8	42.84	42.84			Gas			0.5		
DOMINION SALT	MT MANGANUI	EASTEEL	Watertube	1998	6	Superheated Steam		16	48.384	48.384	2830000	290	Gas			0.8		
DOMINION SALT	MT MANGANUI			2004	0.42				1.6128	1.6128	2830000		Gas	0.85		0.4	6.83	361
DOMINION SALT	DOMINION SALT GRASSMERE	EASTEEL	Firetube	1996	2.75	Saturated Steam		10.3	20.79	20.79		185	Coal	0.84		0.6	89.10	8126
ENERGY FOR INDUSTRY	WPI, KARIOI	EASTEEL		2004	12	Heated Oil			98.784	98.784		275	Wood waste & pulp sludge	0.58		0.85	613.14	0
GL BOWRON	GL BOWRON	MAXITHERM	Watertube	2003	8	Saturated Steam		8.6	47.04	47.04			Coal			0.3		
HAWKES BAY WOOL SCOURERS	HAWKES BAY WOOL SCOURERS	EASTEEL		1971	1.1	Saturated Steam		8	7.656	7.656			Gas			1		
HAWKES BAY WOOL SCOURERS	HAWKES BAY WOOL SCOURERS	EASTEEL		1971	1.1	Saturated Steam		8	7.656	7.656			Gas			1		

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
INTERNATIONAL FINE FOODS	INTERNATIONAL FINE FOODS	ANDERSON	Firetube	1980	2	Saturated Steam	1.818	8	12	12			Gas			0.75		
INTERNATIONAL FINE FOODS	INTERNATIONAL FINE FOODS	ANDERSON	Firetube	1980	1.46	Saturated Steam	1.818	8					Gas					
KAPUTONE WOOL SCOUR	KAPUTONE WOOL SCOUR	TAYLOR		1997	2.4	Hot Water		10	16.128	16.128		155	Coal			0.75		
KAPUTONE WOOL SCOUR	KAPUTONE WOOL SCOUR	TAYLOR		1999	2.4	Hot Water		10	16.128	16.128		155	Coal			0.75		
MCCALLUM INDUSTRIES LTD	MCCALLUM INDUSTRIES LTD	ANDERSON	Firetube	1967	1.4		1.81	8				170	Gas					
MCCALLUM INDUSTRIES LTD	MCCALLUM INDUSTRIES LTD	SCOTT		2002	3.5	Saturated Steam		10.3	21	21		185	Gas	0.74		0.75	102.16	5394
RAVENSDOWN	AWATOTO	BABCOCK	Firetube	1976	25.3		32.5	45	191.268	191.268	30240000	415	Sulphur			0.7		
RAVENSDOWN	AWATOTO	BABCOCK & WILCOX	Firetube	1976	10.8	Saturated Steam	14	6.5			30240000		Oil/Diesel					
RAVENSDOWN	RAVENSBOURNE	BABCOCK & WILCOX		1970	1.4	Saturated Steam		9.65					Oil/Diesel					
RAVENSDOWN	RAVENSBOURNE	BABCOCK & WILCOX	Firetube	1967	9.2	Superheated Steam	11.8	21.4	74.1888	74.1888		400	Sulphur			0.6		
RAVENSDOWN	HORNBY	COCHRANE DESIGN	Firetube	1967	11.7	Superheated Steam	14.97	30	94.3488	94.3488	8870400	400	Sulphur			0.65		
RCR EASTEEL ENERGY SYSTEMS	RCR EASTEEL ENERGY SYSTEMS	EASTEEL - STEAMPAC		2006	1.137	Steam	1.814	10										
RCR EASTEEL ENERGY SYSTEMS	RCR EASTEEL ENERGY SYSTEMS	EASTEEL - STEAMPAC		2006	1.137	Steam	1.814	10										
RCR EASTEEL ENERGY SYSTEMS	RCR EASTEEL ENERGY SYSTEMS	EAST COAST STEAM - AUSTRALIA, BRISBANE		2006	1.44		2.3											
RCR EASTEEL ENERGY SYSTEMS	RCR EASTEEL ENERGY SYSTEMS	EASTEEL - STEAMPAC		2006	0.75		1.2											

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
UNILEVER	UNILEVER	EASTEEL	Firetube	2003	1.7	Saturated Steam		10	13.4232	13.4232			Gas	0.81		0.6	59.66	3150
WHAKATU WOOL SCOURERS LTD	WHAKATU WOOL SCOURERS LTD			2005	1.8	Hot Water			3.024	3.024			Gas			1		



## Appendix 7. Wood Processing Heating Plant

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
					MW		t/h	bar	GWh	GWh	kWh	Deg C					TJ	t
AHEAD LUMBER	POKENO	SCOTT	Watertube		3.5				29.4	29.4			Wood waste, dry sawdust, shavings	0.82		1	129.07	0
ALAN JOHNSTON SAWMILLING	TUATAPERE		Heating plant less than 1 MWth															
ARBOR REMANUFACTURING	MOUNT MAUNGANUI	SCOTT		2000	5.5	Hot Water			46.2	46.2		160	Gas			0.4		
ASHBURTON TIMBER	ASHBURTON	MORROW ENGINEERING, CHCH		2000	3	Steam			24.192	24.192			Sawdust, wet sawdust (pre dried drying loop), coal	0.6		0.85	145.15	0
ATS TIMBER WHOLESALERS	LEVIN		Heating plant less than 1 MWth															
BELFAST TIMBER KILNS LTD	BELFAST	ANDERSON		1964	3.5	High Pressure Hot Water			26.46	26.46		167	Coal or waste wood			0.5		
BRIGHTWOOD	OTAUTAU	EASTEEL	Watertube	2003	7	Hot Water			40.32	40.32			Shavings & sawdust			0.9		
CAINS TIMBER	KAMO		Heating plant less than 1 MWth															
CARTER HOLT HARVEY	TAUPO	EASTEEL	Firetube	1988	3.4	Hot Water						180	Gas	0.8				
CARTER HOLT HARVEY	MARSDEN POINT LVL	BABCOCK & WILCOX (EASTEEL)	Watertube	2002	18	Steam	32	26	154.224	154.224		228	Reject wood, veneer LVL, MDF, bark			0.7		
CARTER HOLT HARVEY	ASHLEY	JOHN THOMPSON	Heated oil heat exchanger	1994	18	Heated Oil			151.2	151.2			Wood waste	0.8		0.75	680.40	0
CARTER HOLT HARVEY	WHAKATANE	JOHN THOMPSON	Watertube	1953	16	Superheated Steam	20.5	31	134.4	134.4		370	Coal and hog fuel	0.78		0.5	620.31	56572
CARTER HOLT HARVEY	WHAKATANE	JOHN THOMPSON	Watertube	1937	14	Superheated Steam	18	31	117.6	117.6		370	Coal	0.78		0.5	542.77	49501

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
CARTER HOLT HARVEY	WHAKATANE	JOHN THOMPSON	Watertube	1937	14	Superheated Steam	18	31	117.6	117.6		350	Coal	0.78		0.5	542.77	49501
CARTER HOLT HARVEY	WHAKATANE	FOSTER WHEELER (MCKENZIE & RIDLEY)	Watertube	1973	34	Superheated Steam	38.6	31				370	Gas	0.82				
CARTER HOLT HARVEY	KOPU	EASTEEL	Firetube	1989	3.6	Hot Water		1.4	29.6352	29.6352		180	Gas			0.75		
CARTER HOLT HARVEY	TOKOROA	SCOTT	Horizontal 2 pass dryback	1994	2.8	Steam	3.63	10.34	17.472	17.472		140	Gas					
CARTER HOLT HARVEY	CHH ECOPINE NELSON	VULCANO	Heated oil heat exchanger	1986	15	Heated Oil						275	Sawdust & dry shaving					
CARTER HOLT HARVEY	PUTARURU	MAXITHERM	Firetube	1988	6	Saturated Steam		11	48.384	48.384			Sawdust & dry shaving			0.75		
CARTER HOLT HARVEY	PUTARURU	MAXITHERM	Firetube	1988	6	Saturated Steam		11	48.384	48.384			Dry wood shavings			0.75		
CARTER HOLT HARVEY	PENROSE		No heating plant															
CARTER HOLT HARVEY	TAUPO		Geothermal steam		10								Gas					
CARTER HOLT HARVEY	KAWERAU PROCESSING YARD		Geothermal steam															
CARTER HOLT HARVEY	ROTORUA BOILER	SCOTT	Firetube	1983	1	Saturated Steam		9				180	Gas					
CARTER HOLT HARVEY	ROTORUA BOILER	EASTEEL	Firetube	1998	3	Saturated Steam		10				184	Gas					
CARTER HOLT HARVEY	ROTORUA BOILER	EASTEEL	Firetube	1998	3	Saturated Steam		10				184	Gas					
CARTER HOLT HARVEY	ROTORUA BOILER	SCOTT	Firetube	1983	1	Saturated Steam		9				180	Gas					
CARTER HOLT HARVEY	RAINBOW MOUNTAIN KILNS	EASTEEL			10													

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne	
CARTER HOLT HARVEY	Mt Maunganui Plywood	ANDERSON	Watertube	1983	1.2	Steam	1.8	9	7.2	7.2		180	Gas			1			
CARTER HOLT HARVEY	Mt Maunganui Plywood	ANDERSON	Watertube	1983	1.2	Steam	1.8	9	7.2	7.2		180	Gas			1			
CARTER HOLT HARVEY	Mt Maunganui Plywood	SCOTT	Watertube	2002	1.2	Steam	1.8	9	7.2	7.2		180	Gas			1			
CARTER HOLT HARVEY	Mt Maunganui Plywood	SCOTT	Watertube	1990	1.2	Steam	1.8	9				180	Gas						
CARTER HOLT HARVEY	Mt Maunganui Plywood	JOHN THOMPSON		1978	3	Steam	4.54		17.28	17.28			Wood waste				0.67		
CARTER HOLT HARVEY	LAMINEX GROUP KUMEU				20				171.36	171.36			Wood waste						
CARTER HOLT HARVEY	TAUPO				10								Gas						
CARTER HOLT HARVEY	LAMINEX GROUP KUMEU	KONUS			0.7	Heated Oil			5.9976	5.9976			Oil/Diesel	0.7	5831473	0.99	30.84	2144	
CARTER HOLT HARVEY	ROTORUA SAWMILL			2008															
CARTER HOLT HARVEY	Roundwood Tokoroa	MAXITHERM			3	Steam			25.2	25.2			Gas				0.75		
CARTER HOLT HARVEY	Roundwood Tokoroa	EASTEEL			3	Steam			25.2	25.2			Gas				0.75		
CARTER HOLT HARVEY	KOPU	EASTEEL	Firetube	2004	6	Hot Water		10				140	Gas						
CARTER HOLT HARVEY & NORSKE SKOG JV	ENERGYCO	FOSTER WHEELER (MCKENZIE & RIDLEY)	Watertube	1956	60	Superheated Steam	68	44.8	504	504		380	Hog and Fuel oil				0.5		
CARTER HOLT HARVEY & NORSKE SKOG JV	ENERGYCO	COMBUSTION ENGINEERING	Watertube	1956	60	Superheated Steam	68	44.8	504	504		380	Hog and Fuel oil	0.8			0.5	2268.00	0
CARTER HOLT HARVEY KINLEITH	CHH KINLEITH COGEN	JOHN THOMPSON	Eckrohrkesel, bottom supported, corner tubeboiler	1998	160	Superheated Steam	180	45	1344	1344	280000	400	Woodwaste & gas	0.61			0.67	7931.80	198295

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
CARTER HOLT HARVEY KINLEITH	KINLEITH RECOVERY BOILER	COMBUSTION ENGINEERING	Watertube		180	Steam	140	45	1512	1512		400	Black liquor	0.62		0.85	8779.35	0
CARTER HOLT HARVEY KINLEITH	KINLEITH RECOVERY BOILER	COMBUSTION ENGINEERING	Waterwall		160		188	45	1344	1344		400	Black liquor	0.56		0.75	8640.00	0
CARTER HOLT HARVEY KINLEITH	KINLEITH BOILER NO 1	COMBUSTION ENGINEERING	Waterwall	1970	89	Steam	110	24	747.6	747.6		256	Gas	0.82		0.13	3282.15	173297
CARTER HOLT HARVEY KINLEITH	BOILER 1	KONUS	Heated oil heat exchanger	1984	6	Heated Oil		2				230	Gas					
CARTER HOLT HARVEY KINLEITH	KINLEITH KILNS		Direct fired heater	1987	10								Gas					
CARTER HOLT HARVEY KINLEITH	KINLEITH		No heating plant															
CITY FORESTS MILTON	CITY FORESTS MILTON	VEKOS		2004	4.5	Hot Water			33.264	33.264			Coal or waste wood			0.5		
CLAYMARK	KATIKATI	EASTEEL		2003	7	High Pressure Hot Water			56.448	56.448			Wood waste			1		
COASTPINE	COASTPINE	JOHN THOMPSON		2000	6	Hot Water		10	51.408	51.408		150	Shavings & sawdust	0.5		0.8	370.14	0
COLVILLE SAWMILLING	COLVILLE SAWMILLING		Direct fired heater	2008									Wood waste					
CRAIGPINE TIMBER	WINTON	VULCANO	Watertube	2001	7	High Pressure Hot Water			57.624	57.624		170	Wood waste, dry sawdust, shavings			1		
CRAIGPINE TIMBER	WINTON	VULCANO	Watertube	2001	7	High Pressure Hot Water						170	Wood waste, dry sawdust, shavings					
DASHWOOD TIMBER	RENWICK		Heating plant less than 1 MWth											0.71				
DAVIS SAWMILLING	Davis Sawmilling			1978	1	Hot Water			6.72	6.72		145	Wood waste	0.65		0.2	37.22	0
DONELLEY SAWMILLERS	REPOROA	WATERWIDE HEAT EXCHANGER	Watertube	2003	1.76	High Pressure Hot Water			14.1926	14.1926		120	Shavings & sawdust			0.7		

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
DONGWHA PATINNA NZ LTD	MATAURA	EASTEEL		1997	34	Saturated Steam		13	285.6	285.6		180	Waste bark, reject MDF, sander dust			0.85		
E H FAZACKERLEY	STRATFORD		No heating plant															
EARNSLAW ONE	BLUE MOUNTAIN LUMBER TAPANUI	EASTEEL	Waterwall	2000	10	Superheated Steam	12	28.5	80.64	80.64	4840000	400	Wood waste			0.75		
EAST COAST LUMBER	WAIROA		Heating plant less than 1 MWth															
EASTOWN TIMBER	EASTOWN TIMBER	ANDERSON		1978	1.1	Saturated Steam	1.81	10					Gas					
ECOWOOD	ECOWOOD	MORROW ENGINEERING, CHCH		1982	1.2	Hot Water			7.056	7.056		60	Dry wood shavings			0.3		
EUROCELL SAWMILLING	UPPER HUTT	ANDERSON		1993	3.8	Hot Water			31.92	31.92		160	Gas	0.8			143.64	7584
EUROCELL SAWMILLING	MASTERTON			2002	1.5								Oil/Diesel					
FINDLATER SAWMILLING	WINTON	JOHN THOMPSON	Triple pass economic wet back	1968	6	Hot Water		10.5				170	Wood waste					
FINDLATER SAWMILLING	WINTON	BABCOCK & WILCOX	Triple pass economic wet back	1986	4	Steam		10.5				170	Wood waste					
FLIGHT TIMBERS	BLENHEIM	VEKOS	Firetube	1982	6	Hot Water		10.4	47.376	47.376		170	Wood waste			0.75		
FOGARTY INDUSTRIES	INVERCARGILL	FOGARTY	Coiled pipe	2002	1	Hot Water		7				120	Lignite					
FOREST LUMBER		ANDERSON		1978	1.2	Hot Water			0.48	0.48		100	Coal			0.5		
FOXTON SAWMILLING	FOXTON		Heating plant less than 1 MWth										Coal	0.75				
GLOBAL FOREST PARTNERS	KAITUNA MILL	SCOTT	Firetube	1981	4.2	Saturated Steam		9.5	35.9856	35.9856			Wood waste	0.65		0.8	199.30	0

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
GLOBAL FOREST PARTNERS	KAITUNA MILL	SCOTT	Firetube	1967	2.5	Saturated Steam		9.5	21.42	21.42			Wood waste	0.65		0.6	118.63	0
GREAT SOUTHERN	INVERCARGILL	SCOTT	Firetube	1988	1.2	Hot Water		10.4	2.88	2.88		186	Oil/Diesel			1		
GREAT SOUTHERN	OAMARU		Heating plant less than 1 MWth	1985	0.2	Hot Water			1.6128	1.6128			Lignite			1		
GUYCO	GUYCO			2008		Hot Water							Wood waste			0.6		
HERBERT SAWMILLING	WAIATAKARUA		No heating plant							0								
HERMAN TIMBER	HIKURANGI		Heating plant less than 1 MWth															
HEWVAN TIMBER	HEWVAN TIMBER	VEKOS		1968	1	Hot Water		8	3.864	3.864		148	Coal or waste wood			0.3		
HOLLOWS TIMBER	HOLLOWS TIMBER			2008														
HUNTER HILLS LUMBER	WAIMATE	SCOTT	Watertube	2003	5	Steam			40.32	40.32		150	Sawdust & dry shaving			0.5		
HUNTERS (1998) LTD	HUNTERS (1998) LTD	ANDERSON VEKOS		1984	0.9	Steam	1.36	10.34	1.728	1.728		186	Dry wood shavings			90		
INANGAHUA SAWMILLING	INANGAHUA SAWMILLING				1													
J F TOWNSEND LOGGING	MANGAWEKA		No heating plant															
JENKIN TIMBER	HENDERSON		No heating plant															
JUKEN NISSHO	MASTERTON LVL	JOHN THOMPSON		1992	29	Steam	40	26	243.6	243.6		228	Reject wood, veneer LVL, MDF, bark			0.8		
JUKEN NISSHO	GISBORNE LVL	JOHN THOMPSON	Watertube	1994	32	Saturated Steam	40	24	258.048	258.048			Reject wood, veneer LVL, MDF, bark	0.82		0.7	1132.89	0

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
JUKEN NISSHO	KAITAIA LVL	BABCOCK & WILCOX (EASTEEL)	Watertube	2001	18	Steam	32	26	136.08	136.08		228	Reject wood, veneer LVL, MDF, bark			0.7		
JUKEN NISSHO	NORTHLAND MILL KAITAIA LVL	EASTEEL - STEAMPAC	Watertube	2001	18	Saturated Steam		27	136.08	136.08		230	Woodwaste and coal			0.75		
JUKEN NISSHO	GISBORNE LVL	EASTEEL		1997	5	Steam							Gas					
KAIHU VALLEY SAWMILL	KAIHU VALLEY		No heating plant															
KAIMATA	KAIMATA			1996	0.2				1.68	1.68			Coal			1		
KEIGHLEYS TIMBER	KAIAPOI		Heating plant less than 1 MWth															
KERIKERI STEAM SAWMILL	KERIKERI STEAM SAWMILL	BABCOCK & WILCOX	Firetube	1965	0.84	Steam	3.86	10	1.8753	1.8753	150000		Wood waste	0.55		0.5	12.27	0
KIWI LUMBER	DANNEVIRKE	SCOTT	Triple pass watertube	2006	4.8	High Pressure Hot Water		15	40.32	40.32		160	Shavings & sawdust			0.85		
KIWI LUMBER	DOMAIN RD PUTARURU	BABCOCK	Watertube	1985	4.2	Hot Water		18					Gas					
KIWI LUMBER	MASTERTON	EASTEEL	Watertube	2000	5	Hot Water			41.16	41.16			Wet sawdust, dry shavings	0.6		1	246.96	0
KIWI LUMBER	DOMAIN RD PUTARURU	SCOTT		2008	7	Hot Water			58.8	58.8		165	Sawdust & dry shaving	0.76		0.5	278.53	0
KLC	ROTORUA	VEKOS		2001	6	Hot Water			38.016	38.016		165	Wood waste	0.65		0.75	210.55	0
KLC	ROTORUA	VEKOS		1998	4	Hot Water			25.344	25.344		165	Wood waste	0.65		0.75	140.37	0
KOWHAI TIMBER	KOWHAI TIMBER		No heating plant							0								
LES O'LEARY	TOKOROA		Heating plant less than 1 MWth															

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
LINDSAY & DIXON	TUATAPERE	VEKOS		1963	1.2	Steam		10	10.08	10.08		160	Wood waste			0.75		
LUMBERCORP NZ	TE KAUWHATA		Heating plant less than 1 MWth															
LUMBERCORP NZ	OHINEWAI		Watertube	2006	4	Steam		10	33.6	33.6			Coal			0.5		
LUMBERCORP NZ	OHINEWAI			1998	2	Steam		10	16.8	16.8			Coal			1		
MAMAKU SAWMILLING	MAMAKU SAWMILLING	VEKOS	Watertube	1998	2.75	Hot Water		10.34	22.638	22.638		188	Dry wood shavings			1		
MAMAKU SAWMILLING	NGONGOTAHA	VEKOS		1980	1.25	Hot Water		10.34				188	Dry wood shavings					
MAX BIRT SAWMILL	MAX BIRT SAWMILL	MORROW ENGINEERING, CHCH			2.2	Hot Water			16.632	16.632		160	Wood waste	0.6		0.67	99.79	0
MCALPINES	RANGIORA	VEKOS	Watertube	1976	2.75	Hot Water	4.32	9	23.1	23.1		170	Coal			1		
MCALPINES	RANGIORA	VEKOS	Firetube	1985	0.9	Hot Water	1.59	10.3	7.56	7.56		127	Coal			0.5		
MCALPINES	RANGIORA	VEKOS	Watertube	1982	2	Hot Water	3.45	9	16.8	16.8		170	Wood waste			0.5		
MCALPINES	ROTORUA	COMBUSTION ENGINEERING		1978	2	Hot Water			16.128	16.128		160	Green sawdust			1		
MCALPINES	ROTORUA	VEKOS	Watertube	1978	2	Hot Water			16.128	16.128		160	Coal			0.5		
MIKE LAMBERT LTD	MT MAUNGANUI STH		Heating plant less than 1 MWth															
MITCHELL BROS SAWMILLERS	DARFIELD	VEKOS		1960	1.2	Hot Water		9	10.08	10.08		160	Coal			1		
MITCHELL BROS SAWMILLERS	DARFIELD	FOGARTY		2008	3								Wood waste					



Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
MITCHPINE PRODUCTS	MITCHPINE PRODUCTS	VEKOS		1988	4	Saturated Steam		10	23.04	23.04			Wood waste			0.5		
MITCHPINE PRODUCTS	MITCHPINE PRODUCTS	SCOTT		1988	1	Saturated Steam		10					Oil/Diesel					
MOTUEKA LUMBER	MOTUEKA LUMBER	VEKOS		1963	6.4	Hot Water			51.6096	51.6096		130	Wood waste			1		
MOUTERE TIMBER	MOUTERE	ANDERSON	Firetube	1997	5	Hot Water		9	41.16	41.16		155	Sawdust & dry shaving			0.9		
NASEBY LUMBER	NASEBY		Heating plant less than 1 MWth															
NELSON PINE INDUSTRIES	NELSON	EASTEEL		2001	20	Saturated Steam		15	161.28	161.28		201	Wood waste			0.8		
NELSON PINE INDUSTRIES	FURNACE	JOHN THOMPSON	Heated oil heat exchanger	1986	20	Heated Oil			168	168			Reject wood, veneer LVL, MDF, bark			0.6		
NELSON PINE INDUSTRIES	FURNACE		Heated oil heat exchanger	1991	20	Heated Oil			168	168			Reject wood, veneer LVL, MDF, bark			0.6		
NELSON PINE INDUSTRIES	FURNACE	KONUS	Heated oil heat exchanger	1997	35	Heated Oil			294	294			Reject wood, veneer LVL, MDF, bark			0.6		
NEW ZEALAND WOOD MOULDINGS	TAERI	SCOTT	Watertube	1993	8	Hot Water		10	67.2	67.2		160	Dry wood shavings			0.67		
NEW ZEALAND WOOD MOULDINGS	TAERI	SCOTT		1993		Hot Water		10					Dry wood shavings					
NGAHERE SAWMILLING	GORE	JOHN THOMPSON	Watertube	1983	3	Hot Water			23.184	23.184		150	Lignite			0.8		
NGAHERE SAWMILLING	GORE	SCOTT TAYLOR	Watertube	2002	1	Steam	4.54	8	7.896	7.896		160	Lignite			0.5		
NIAGARA SAWMILLING	INVERCARGILL	VEKOS, MORROW ENGINEERING FURNACE		2001	10	Hot Water			78.96	78.96		100	Wood waste			0.75		
NORTH OTAGO SAWMILLING	OAMARU		No heating plant															

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
NORTHERN PALLETS	HIKURANGI		Heating plant less than 1 MWth			Hot Water		4.5				77						
NORTHPIKE LTD	WAIPU	VEKOS		2008	4.2	Saturated Steam		10	35.28	35.28			Wood waste			0.65		
NORTHPIKE LTD	SILVERDALE	VEKOS		1978	1	Hot Water		10	8.4	8.4		160	Gas	0.8		0.5	37.80	1996
NZ SAWN PRODUCTS	NZ SAWN PRODUCTS	EASTEEL		1992	1.5	High Pressure Hot Water			12.6	12.6		150	Gas			1		
OTAGO LUMBER	OTAGO LUMBER	MORROW ENGINEERING, CHCH		1985	3.5	Hot Water			29.988	29.988		154	Sawdust & dry shaving	0.5		0.75	215.91	0
P F OLSEN & CO	P F OLSEN		No heating plant															
PACIFIC PINE INDUSTRIES	PUTARARU	WATERWIDE HEAT EXCHANGER		1997	2.5	Hot Water			20.16	20.16		160	Shavings & sawdust			0.3		
PAN PAC FOREST PRODUCTS LTD	WHIRINAKI	EASTEEL	Waterwall	2002	42	Superheated Steam		60	352.8	352.8	58800000	450	Wood waste			1		
PAN PAC FOREST PRODUCTS LTD	WHIRINAKI	FOSTER WHEELER (MCKENZIE & RIDLEY)		1977	19	Saturated Steam		60	159.6	159.6	58800000	277	Waste bark, sawdust			1		
PAPAKURA TIMBER PROCESSORS LTD	PAPAKURA	EASTEEL	Firetube	1998	2.5	Hot Water			12	12		164	Gas			0.3		
PINEPAC	PINEPAC	ANDERSON VEKOS	Watertube	1982	1	Steam		10	8.4	8.4		160	Planer shavings, sawdust			0.85		
PINEPAC	PINEPAC	ANDERSON VEKOS	Watertube	1981	1			10	8.4	8.4		160	Planer shavings, sawdust	0.7		0.85	43.20	0
PINEPAC	PINEPAC	ANDERSON VEKOS	Watertube	1981	1			10	8.4	8.4		160	Planer shavings, sawdust	0.7		0.85	43.20	0
PINEPAC	PINEPAC	ANDERSON VEKOS	Watertube	1981	1			10	8.4	8.4		160	Planer shavings, sawdust	0.7		0.85	43.20	0
PITZAC	WANGANUI	EASTEEL	Heating plant less than 1 MWth	1980		Saturated Steam		1				120	Gas	0.7				

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
PRESTIGE LUMBER	OHINEWAI		No heating plant															
PRIME PINE LTD	MOTUEKA	MORROW ENGINEERING, CHCH	Triple pass watertube	2001	2.3	Hot Water		10	19.32	19.32		160	Sawdust & dry shaving			0.7		
PRIME PINE LTD	KAIKOURA	VEKOS		2004	0.9	Steam		8	7.56	7.56			Shavings & sawdust			1		
PRIME SAWMILLS	PRIME SAWMILLS	KONUS		1978	5	Heated Oil			39.48	39.48			Wood waste	0.6		0.85	236.88	0
PUKEPINE SAWMILLS	SAWMILL	SCOTT	Watertube	1999	4	Hot Water		7	33.6	33.6		160	Green sawdust	0.5		0.7	241.92	0
PUKEPINE SAWMILLS	MOULDING	VEKOS	Watertube	1983	6	Hot Water		7	50.4	50.4		150	Dry wood shavings	0.73		0.7	248.55	0
PUKEPINE SAWMILLS	SAWMILL BACK UP	EASTEEL HEAT EXCHANGER "WYSUP" BURNER	Watertube	1988	2	Hot Water		7				160	Gas					
R H TREGOWETH	R H TREGOWETH	SCOTT	Watertube	1996	2	Hot Water	6.5	10				160	Gas					
R H TREGOWETH	R H TREGOWETH	SCOTT		2004	4	High Pressure Hot Water		12				170	Wood waste, dry sawdust, shavings	0.83				
R H TREGOWETH	R H TREGOWETH	DENTTINGER (USA)	Watertube	2005	5	Hot Water		8	42	42		160	Wood waste, green sawdust			0.75		
REDSTAG TIMBER (WAIPA SAWMILL)	WAIPA SAWMILLS				3.5	Steam							Hog fuel	0.75				
REDSTAG TIMBER (WAIPA SAWMILL)	PLANT 1	BABCOCK & WILCOX	Watertube	1985	20	Superheated Steam	28	42	164.64	164.64	24700000	482	Wood waste					
REDSTAG TIMBER (WAIPA SAWMILL)	PLANT 1	JOHN THOMPSON	Watertube	1992	20	Superheated Steam	28	42	164.64	164.64	24700000	482	Waste bark, sawdust					
REYLAND TIMBER	WANGANUI		No heating plant															
ROSVALL SAWMILL	WHANGAREI	VEKOS	Firetube 3 pass	1982	2.74	Saturated Steam		11				188	Dry wood waste					

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
ROSVALL SAWMILL	WHANGAREI	VEKOS	Firetube	1982	4.25	Saturated Steam		10	35.7	35.7		184	Wood waste	0.7		0.65	183.60	0
RUAHINE TIMBER	RUAHINE TIMBER	SCOTT		1983	1.4	Saturated Steam		10	4.2	4.2			Oil/Diesel			0.5		
RURAL SAWMILLING	NIGHTCAPS		Heating plant less than 1 MWth															
SELWYN SAWMILLS	SELWYN		No heating plant															
SHANDS ROAD SAWMILLS now SRS	CHRISTCHURCH	VEKOS, MORROW ENGINEERING FURNACE	Firetube	2001	8	High Pressure Hot Water			63.168	63.168		160	Wood waste, green sawdust			0.75		
SOUTH PINE	NELSON	VEKOS	Firetube	2000	3.75	Hot Water		12				165	Dry wood shavings					
SOUTH PINE	NELSON	SCOTT COMBUSTION	Firetube	1992	4	High Pressure Hot Water		12				165	Sawdust, wet sawdust (pre dried drying loop), coal	0.8				
SOUTHERN CROSS FOREST PRODUCTS	MILTON	JOHN THOMPSON	Waterwall	1995	4.2	Hot Water		12	33.8688	33.8688		150	Waste bark, sawdust	0.8		0.5	152.41	0
SOUTHERN CROSS FOREST PRODUCTS	THAMES TIMBER	EASTEEL	Firetube		8	Hot Water		8				160	LPG/Butane					
SOUTHERN CROSS FOREST PRODUCTS	THAMES TIMBER	VIDAMAX	Firetube	2007	4.5	Hot Water		11	38.556	38.556		160	Wood waste			0.5		
SOUTHERN CROSS FOREST PRODUCTS	THAMES TIMBER	VIDAMAX	Firetube	2007	4.5	Hot Water		11	38.556	38.556		160	Wood waste			0.5		
SOUTHERN LUMBER CO	INVERCARGILL		No heating plant											0.75				
SOUTHERN PINE PRODUCTS	Greymouth	COCKRAM		2006	2.5				12.6	12.6			Wood waste					
SOUTHERN PINE PRODUCTS	Greymouth	COCKRAM		2006	2.5				12.6	12.6			Wood waste					
SOUTHLAND VENEERS LTD	SOUTHLAND VENEERS	ANDERSON	Firetube	1968	5	Steam	9.091	11.03				188	Coal			0.75		

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
SOUTHLAND VENEERS LTD	SOUTHLAND VENEERS	ANDERSON	Firetube	1968	5	Steam	9.091	11.03				188	Coal	0.6				
SOUTHLAND VENEERS LTD	SOUTHLAND VENEERS	ANDERSON	Firetube	1968	3	Steam	5.989	10.34				184	Lignite	0.6				
SOUTHWOOD MILLING	MOTUEKA		No heating plant											0.44				
STILLWATER LUMBER	STILLWATER LUMBER	COCKRAM	Watertube	1970	3	Saturated Steam		6	24.192	24.192		140	Wood waste					
STUART TIMBER COMPANY LTD	TAPANUI	FOGARTY	Direct fired heater	1999	0.5				3.78	3.78			Lignite					
SUTHERLAND & CO	KAIAPOI	ANDERSON VEKOS	Waterwall	2001	2.75	Steam		7	24.024	24.024		135	Shavings & sawdust	0.6		0.6	144.14	0
T & J McILWAINE	T & J McILWAINE			2008									Gas					
T C MILLING LTD	WAIPAWA		No heating plant															
TACHIKAWA FOREST PRODUCTS	ROTORUA	EASTEEL	Waterwall	1999	8	Hot Water		13	64.512	64.512		160	Wood waste			0.75		
TANNER SAWMILLS	Tairua		No heating plant	2008						0								
TANNER SAWMILLS	Kaitia		No heating plant															
TANNER SAWMILLS	KEREPEHI	KONUS	Heated oil heat exchanger	1974	4.5	Heated Oil						270	Wood waste					
TARANAKI SAWMILLS	TARANAKI SAWMILLS	VEKOS	Watertube	1973	4	Hot Water		10	32.256	32.256		165	Dry shavings & hog fuel			0.75		
TARANAKI SAWMILLS	TARANAKI SAWMILLS	VEKOS	Watertube	1973	4	Hot Water		10	32.256	32.256		165	Dry shavings & hog fuel			0.75		
TARANAKI SAWMILLS	TARANAKI SAWMILLS	ENTEC	Watertube	2008	2.3	Hot Water		10	18.5472	18.5472		165	Green sawdust			0.75		

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
TENON (previously FLETCHER CHALLENGE FORESTS)	FLETCHER CHALLENGE FORESTS	EASTEEL	Firetube	1998	2.2	Saturated Steam		9.9				184	Gas	0.84				
TIMBERLANDS WEST COAST LTD	TIMBER LANDS WC		No heating plant															
W CRIGHTON & SON	W CRIGHTON & SON	SCOTT	Watertube	1999	3	Hot Water		10	24.192	24.192		160	Gas			0.5		
WAIMATE TIMBER	WAIMATE		Heating plant less than 1 MWth															
WAIMEA SAWMILLERS	WAIMEA SAWMILLERS	VEKOS	Watertube	1982	6	Hot Water		11	45.36	45.36		162	Sawdust & dry shaving			0.75		
WAIMEA SAWMILLERS	WAIMEA SAWMILLERS			2006	2				15.12	15.12			Shavings & sawdust			0.5		
WAIPAWA TIMBER SUPPLIES	WAIPAWA TIMBER SUPPLIES	EASTEEL		1996	3	Hot Water		12	25.704	25.704		135	Gas			0.3		
WAIPAWA TIMBER SUPPLIES	WAIPAWA TIMBER SUPPLIES	SCOTT		2008	1	Saturated Steam		8	8.568	8.568			Gas			1		
WAIROA TIMBER PROCESSORS	WAIROA TIMBER PROCESSORS	FOGARTY		2007	2	Hot Water			16.8	16.8		130	Wood waste, dry sawdust, shavings			1		
WAIROA TIMBER PROCESSORS	WAIROA TIMBER PROCESSORS	FOGARTY		2007	2	Hot Water			16.8	16.8		130	Wood waste, dry sawdust, shavings			1		
WAITETI SAWMILLS	WAITETI SAWMILLS	EASTEEL	Watertube	2001	3	Hot Water		7	24.192	24.192		160	Sawdust & dry shaving			0.75		
WATTS TO MILL	WAIPUKURAU		No heating plant															
WAVERLEY SAWMILLS	WAVERLEY	EASTEEL		1997	2	Steam			16.8	16.8			Gas			0.65		
WE WHILEY & SON	WE WHILEY & SON	JOHN THOMPSON	Watertube	2002	4.5	Hot Water			37.8	37.8		150	Planer shavings, sawdust			0.9		
WENITA FOREST PRODUCTS	ROSEBANK SAWMILL, BALCLUTHA	SCOTT	Firetube	1994	2	Hot Water		10	16.128	16.128		165	Coal			0.75		

Company	Plant Name	Boiler Make	Boiler Type	Year Installed	Capacity MW	Output Type	Output t/h	Pressure bar	Boiler Annual Heat Output GWh	Annual Process Heat GWh	Cogen Elec Output kWh	Temp Heat Deg C	Fuel Type	Boiler Effy	Fuel use	Load Factor	Annual Energy Use TJ	Annual CO2e Emission tonne
WESTCO LAGAN	WESTCO LAGAN	SCOTTPAC BOILER	Firetube	2001	4.5	Steam	7.2	10	37.8	37.8		184	Wood waste	0.78		1	174.46	0
WHITTAKER SAWMILLING	MASTERTON	EASTEEL	Watertube		1	Hot Water		10				160	Wood waste					
WILSON BROS TIMBER	TIMARU		No heating plant							0								
WINSTONE PULP INTERNATIONAL	TANGIWAI	EASTEEL	Watertube	2001	5	Hot Water		8	40.32	40.32		160	Sawdust & dry shaving			1		
WINSTONE PULP INTERNATIONAL	TANGIWAI	BABCOCK		1987	2	Steam			0	0			Coal	0.7			0.00	0