Coal Prices in New Zealand Markets: 2011 Update

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1 Introduction

Covec provided MED with a report on coal prices in New Zealand in 2009.[1] It included an overview of current prices in different markets in New Zealand and projections of future prices. This report revisits and updates that analysis. We understand that it is intended to provide updated coal price forecasts as modelling assumptions for the 2011 Energy Outlook. The Outlook requires coal price forecasts for electricity, industrial and commercial consumers.

Since the release of our 2009 report, PB produced a similar study for the Electricity Authority.[2] The approaches differ. PB's projections are based on modelling coal prices using input assumptions for growth in demand and changes in extraction costs (in NZ and abroad); it resulted in much lower future price estimates.[3] Our approach used published reports by international coal analysts as the source of international prices and then developed a relationship between these and NZ prices, supplemented by discussions with NZ coal users to obtain a reality check. We have continued with our original approach; we believe that this provides MED with access to a wider industry view and that our price projections are closer to NZ industry expectations.

Our original study did not provide much information on prices of bituminous coal for industrial users apart from cement manufacture. However, we note that MED has more recently provided more information about use of coal types by industry division;[4] it

[1] Covec (2009) Coal Prices in New Zealand Markets. Report to Ministry of Economic Development
[2] PB (2009) Coal Price & Availability Study. Report for the Electricity Commission.
[3] eg. approximately $4/GJ currently increasing to approximately 4.50/GJ as a thermal coal price for electricity generation by 2020
[4] MED (2011) Energy Data File. Table C.5 Coal Consumption – Sectoral Breakdown for 2010

shows significant use of bituminous coal in cement (non-metallic mineral product) manufacturing, furniture and other manufacturing and in meat and dairy production.

A broad idea of coal prices in New Zealand can be gleaned from Solid Energy's 2010 Annual Report. It states that the introduction of the emissions trading system (ETS), with a price of approximately $12.50/t CO_2 has led to an average increase in price of coal of 17-40%.[5] Taking account of emission factors,[6] this implies average prices of approximately 6.40-6.60/GJ (bituminous/sub-bituminous) and $2.90/GJ (lignite). In the rest of this report we examine prices in individual industrial sectors.

All prices quoted in the report are exclusive of costs of carbon allowances (New Zealand Units). In most cases the prices are for 2010, but we would expect them to be reasonable estimates of 2011 prices also.

2 International Coal Prices

Because a number of the prices below are based on underlying international coal price projections, we firstly update our international price projections.

In the previous report we reported a growing consensus about the long run expected price of coal, with forecast prices higher than historical prices, largely because of a shift to higher costs of mining from deeper mines. In the shorter term, prices were expected to spike to relatively high levels before dropping down again.

Our original forecast prices are shown in Table 1 in $/tonne and $/GJ. Converting these to $/GJ prices we use the Australian export values published by ABARE: 29GJ/tonne for coking coal and 27GJ/tonne for thermal coal.[7]

Table 1 2009 International Price Forecasts

	Coking (Steel-making)		Thermal	
	US$/tonne	US$/GJ	US$/tonne	US$/GJ
2010	128	4.41	72	2.67
2015	200	6.90	100	3.70
2020	125	4.31	60	2.22
2025	125	4.31	60	2.22
2030	125	4.31	60	2.22

Source: Covec (2009) Coal Prices in New Zealand Markets. Report to Ministry of Economic Development

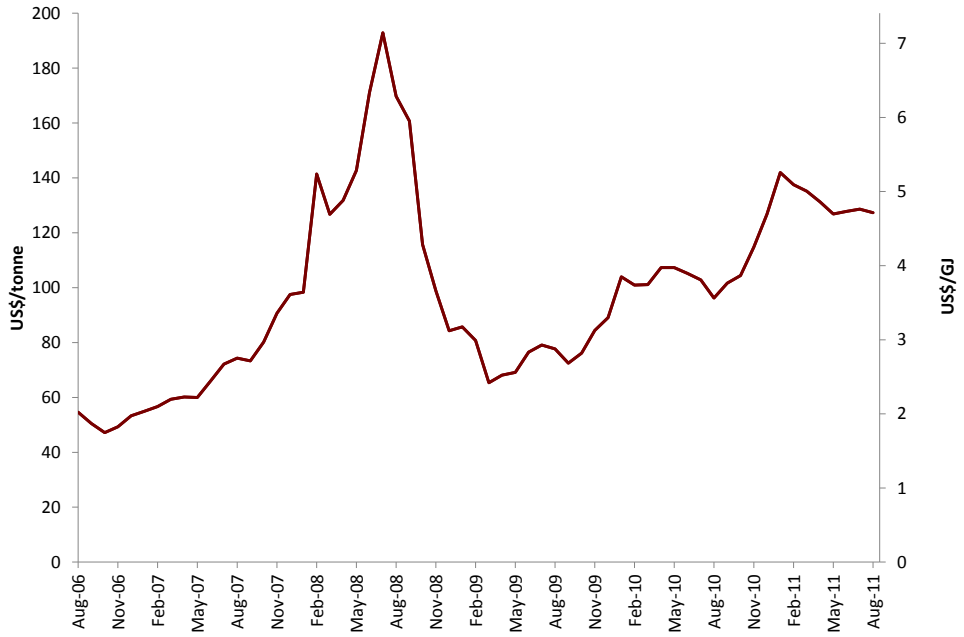
Currently thermal coal prices are higher than these projections: over $120/tonne (Figure 1) and coking coal prices are approximately US$285/t.

[5] Solid Energy Annual Report 2010, p10

[6] 87.0kg CO2/GJ for bituminous coal, 89.4kg CO2/GJ for sub-bituminous and 93.3kg CO2/GJ for lignite – MED (2010) New Zealand Energy Greenhouse Gas Emissions 2009 Calendar Year Edition

[7] ABARE (2009) Energy in Australia 2009. Appendix 2.

Figure 1Australian thermal coal Monthly Price (US$/tonne)



Source: index mundi (www.indexmundi.com/commodities/?commodity=coal-australian); $/GJ values based on 27GJ/t

Forecast prices are highly uncertain currently with analysts trying to interpret a number of underlying supply and demand factors, including shifts to higher cost supply sources and uncertain future global demand. We note that Citigroup, for example, has changed its forecast for thermal coal prices from US$90/t in 2014 (in a 2010 forecast)[8] to US$163/t in 2014 (in a 2011 forecast) and a long-term price forecast (beyond 2020) of US$105/t.[9] In revising these numbers, they note that thermal coal's share of electricity generation capacity is rising in Japan and Germany (after the nuclear crisis) and in developing countries (China and India where domestic production is lagging behind demand). Its coking coal price projection has risen to US$230/t for 2015 and to US$200/t as a long term projection. Other projections identified include those of the Commonwealth Bank of Australia that (in November 2010) projected a coking coal price of US$189/t for 2015 and a thermal price of US$91/t.[10]

The projections are higher than those reported previously and suggest that international coal prices used as inputs to our projections should be raised also. There is considerable future price uncertainty, particularly because of the uncertainty over whether China will be a net exporter or importer of coal. Therefore in Table 2 we provide an updated set of projections that include a wide range of possible future prices.

[8] Citigroup Global Markets Ltd (2010) Citi Commodity Price Forecasts. May 7, 2010
[9] Citigroup Global Markets (2011) ASX Coals: coal price changes. [Note Figure 1 in this report has lines for Thermal coal and LV-PCI labelled incorrectly – David Haddad, personal communication]
[10] AustCoal Consulting Alliance (2010) Australian Coal Export Forecast to 2015 – Response to Strong Demand from China and India. Client Briefing

Table 2 Revised International Price Forecasts

	Coking (Steel-making)		Thermal	
	US$/tonne	US$/GJ	US$/tonne	US$/GJ
2011	285	9.83	125	4.63
2015	200 - 250	6.9 - 8.62	100 - 150	3.7 - 5.56
2020-35	150 - 200	5.17 - 6.9	80 - 110	2.96 - 4.07

3 Huntly Electricity Generation

There are two sources of supply to Genesis Energy's Huntly plant:

- The coal field at Rotowaro. Genesis has a long term contract with Solid Energy for supply from this field;
- Imports of Indonesian coal.

3.1 Current Prices

In our previous report, we estimated the contract price to be approximately $4.40-4.60/GJ based on a published price from 2004 of $3-4/GJ,[11] escalated to current values using a producer price index (PPI); this is the pricing approach embedded in the contract.

PB used a different approach, based on the value provided in the Genesis Energy Annual Report for the value of its coal stockpile. This is a useful approach that we reproduce and update here (Table 3). It suggests a current (30 June 2010) price of $4.65/GJ; we note that the fuel stock value reported by Genesis Energy is "the lower of cost and net realisable value", where cost includes the cost of transporting the coal. Given the contractual link to the PPI, we might assume that this will stay broadly equal in real terms for the duration of the current contract (mid-2014).

Table 3 Estimated cost of domestic coal – Huntly (at 30 June 2010)

Year to 30 June	Stockpile (PJ)	Fuel stock value ($'000)	Coal price/value ($/GJ)
2009	19.6	86,645	4.42
2010	23.1	107,419	4.65

Source: stockpile size and value taken from Genesis Energy Annual Reports 2009 and 2010

Contact prices will be reassessed from 2014. There are two factors that would be expected to determine future prices: the price obtainable by Solid Energy in exporting its coal and the cost for Genesis Energy of importing. We examine these below.

3.2 Imports

The price of imports of coal from Indonesia can be estimated using data published by Statistics New Zealand (Table 4); we use a current domestic transport cost of $20/t (and reduce it in historical years) and assume an energy content of 22GJ/t. Prices have been

[11] Solid Energy (2004) Energy Options; Securing Supply in New Zealand. Available at: www.coalnz.com/index.cfm/3,138,370/nzier1-40.pdf

broadly similar to domestic production, eg $4.50/GJ for 2010. The price of imports in 2011 ($5.92/GJ) reflects recent increases in international prices.

The cost of imports provides a ceiling on domestic prices. Below we examine the range of prices that might determine future costs of imports from Indonesia and elsewhere and domestic New Zealand prices.

Table 4 Estimates of Import Costs for Indonesian Coal - Huntly

Calendar year	tonnes	PJ (@ 22GJ/t)	% of total[(1)]	cost (cif) ($/t)	Transport ($/t)	$/GJ
2007	608,987	13.40	51%	67.04	16	3.77
2008	509,274	11.20	26%	71.70	17	4.03
2009	638,941	14.06	51%	95.51	18	5.16
2010	198,804	4.37	32%	80.09	19	4.50
2011 (to June 30)	75,167	1.65		110.18	20	5.92

[(1)] PJ imported as percentage of coal consumption in electricity generation – MED (2011) Energy Data File, Table C.4

3.2.1 Australian Imports and Exports

We start with the Australian price as it is the international benchmark price. This provides us with a possible import cost and an export value (Table 5). The historical prices (to 30 June 2011) are annual averages from Figure 1. Transport to NZ is assumed to be US$15/t, and we convert to a $/GJ price using an assumed energy content of 27GJ/t. We convert this to a NZ landed price in NZ dollars and add an internal freight cost (using the values in Table 4) to provide a gate price. A similar approach is used in reverse (subtracting the domestic and international transport costs) to obtain an export value. The international transport costs are expected to be higher than for imports, because of the requirement for new export facilities at Tauranga and the greater requirement for one-way movement of ships (according to industry advice). However, set against this, exports would be to destinations for which there would be transport costs from Australia also, so the starting benchmark price should be higher also. The international transport costs here are thus the additional transport costs for transport from New Zealand relative to transport to market from Australia; we leave this at US$15/tonne.

Table 5 Import and Export Prices

	FOB price (US$/t)	Including transport to NZ (US$/t)	US$/GJ	Exchange rate (US$:NZ$)	Gate price (NZ$/GJ)	Export value ($/GJ)
2007	70	85	3.16	0.74	4.88	1.88
2008	136	151	5.6	0.71	8.48	5.34
2009	77	92	3.41	0.63	6.10	2.64
2010	106	121	4.48	0.72	6.91	3.63
2011	133	148	5.50	0.78	7.82	4.57
2015	100 - 150	115 - 165	4.26 - 6.11	0.70	6.83 - 9.47	3.41 - 6.05
2020-35	80 - 110	95 - 125	3.52 - 4.63	0.60	6.6 - 8.46	2.89 - 4.74

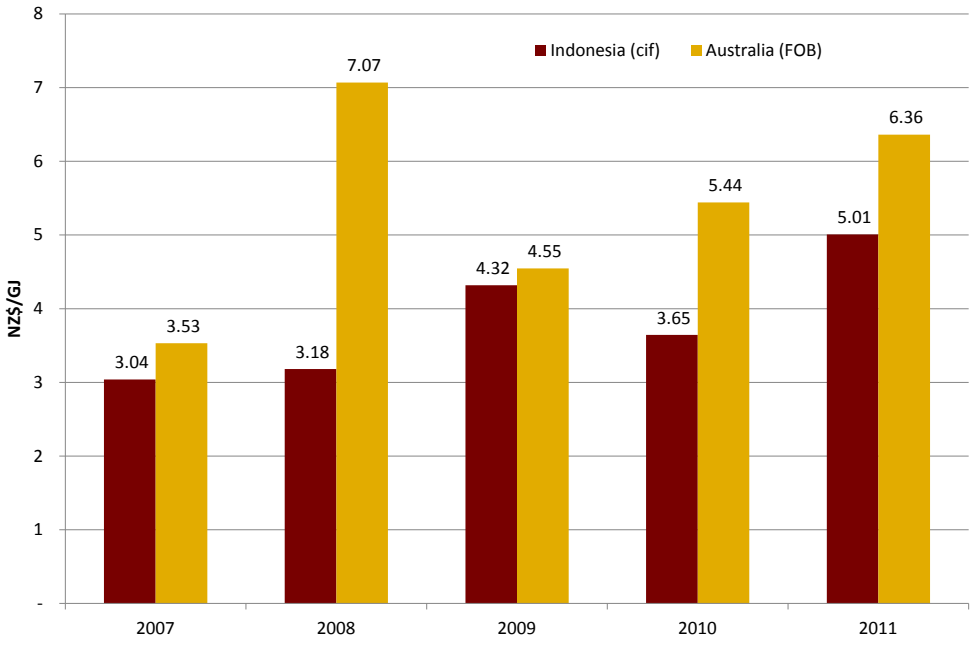
The gate price represents a maximum import price for thermal coal; below we explore the discount for Indonesian coals. The export value sets a minimum future price for domestic coal for thermal uses.

3.2.2 Indonesian Imports

There is not a clear link between the international price (Australian thermal export price ex Newcastle) and the import price from Indonesia. The comparisons are made in Figure 2; the Indonesian import price is landed in New Zealand (cif)[12], whereas the Australian price is FOB in an Australian port. Thus the differences reflect quality differences (we have converted the Indonesian data to $/GJ assuming 22GJ/t and the Australian exports assuming 27GJ/t) and freight costs. The differences are highly variable ranging from $0.23 to $3.89/GJ. For analysis below we assume the average of the last two years ($1.57/GJ).

We combine these data and assumptions to make the forecasts in Table 6. The Australian thermal prices are the FOB prices converted to NZ$ values. They are different from the values in Table 5 because they exclude the transport costs. The Indonesian import prices are the Australian thermal prices minus $1.57/GJ, plus the cost of transport from the port in NZ (NZ$20/t = $0.91/GJ). The export value is taken from Table 5 and the equilibrium is the average of the Indonesian import price and the export value. It assumes that the two players (Solid Energy and Genesis Energy) have equal market power; this is thus a Nash bargaining solution in which the alternative value that can be obtained by the seller (Solid Energy) is the export value and the alternative price that could be paid by the purchaser (Genesis Energy) is the Indonesian import price.

Figure 2 Imported Indonesian coal prices vs Australian thermal export prices



Source: Statistics NZ for Indonesian prices, converted to $/GJ assuming 22GJ/t; Australian prices from Figure 1 and assuming 27GJ/t; exchange rates from www.oanda.com

[12] Costs including insurance and freight

Table 6 Forecast Prices ($/GJ)

	US$:NZ$	Australian Thermal - FOB (NZ$/GJ)	Indonesian Import (NZ$/GJ)	Export Value (NZ$/GJ)	Equilibrium (NZ$/t)
2011	0.78	5.96	5.29		
2015	0.70	5.29 - 7.94	4.63 - 7.27	3.41 - 6.05	4.02 - 6.66
2020	0.60	4.94 - 6.79	4.27 - 6.12	2.89 - 4.74	3.58 - 5.43

3.3 Expected Future Prices

Suggested prices for modelling are included in Table 7. We suggest that the current value of the stockpile, as estimated in Table 3 is used as the current price and used for the price through to 2014. Following this, prices would be expected to reflect the contract position struck between Genesis and Solid Energy. The middle of the range is approximately $5.35/GJ, reflecting expectations of increased future international prices. There is huge uncertainty over future international prices however, which might result in a relatively short new supply contract. Expected longer run prices (from 2020 onwards) have been continued at the same price; although the estimated equilibrium price is below this estimate, we understand that the stock limitations in the Huntly fields and expected higher costs of extraction, mean that prices are increasingly likely over time to be set by import prices.

Table 7 Price recommendations for modelling – Huntly (2011 prices)

Period	Range ($/GJ)	Factors affecting price	Suggested price for modelling ($/GJ)
Current	$4.65	Contract with Solid Energy through to mid-2014; Price of Indonesian imports	$4.65
2015	$4.02 – 6.66	Contract position achieved (market power); expectations of future prices (China supply/demand)	$5.35
2020 forward	$3.58 – $5.43	Length of contract struck; Domestic coal availability; Expectation and evolution of future prices (China supply/demand)	$5.35

4 Other Electricity Generation

Other electricity generation plants burning coal are likely to be located either close to a coal field or to an import port. Prices for new plants are expected to be set by import parity prices. There is no bargaining option with exports as the coal mine would not be developed for export purposes (otherwise it would be likely to exist already); coal exports from New Zealand are from the West Coast, an unlikely location for new electricity plant. Thus the price is likely to be set by international (Australian) thermal import prices or possibly lower Indonesian prices.

To examine the options we present the two possible import sources in Table 8. Future prices (beyond 2015) are likely to be less than those in the immediate future (up to 2015). The main uncertainties relate to future international prices and particularly the supply demand balance in China.

Table 8 Forecast Import Prices – Sub-bituminous ($/GJ)

	US$:NZ$	Australia (NZ$/GJ)[1]	Indonesia (NZ$/GJ)[2]	Suggested price (NZ$/GJ)
2011	0.78	7.82	5.29	
2015	0.70	6.83 - 9.47	4.63 - 7.27	6
2020 forward	0.60	6.6 - 8.46	4.27 - 6.12	5.50

Source: [1] Table 5; [2] Table 6

Lignite prices will be set domestically and there is no expectation of any change from the previous price forecast, ie approximately $2.75/GJ.

5 Industrial Coal Prices

Industrial coal prices are provided for bituminous, sub-bituminous and lignite. In our 2009 report we separated out a number of large industrial users and provided individual prices for those. MED has requested a separation for dairy demand, in particular; this is provided below, followed by a breakdown by coal type.

5.1 Dairy Demand

5.1.1 Fonterra – Edendale

The Edendale dairy factory has a contract for coal supply through to 2025 at a low price. The coal is sourced from the Solid Energy-owned New Vale Mine located on the Waimumu lignite coal field east of Mataura, Southland. In 2009 we noted that the price is below $2/GJ but that the plant is looking to expand and would be expected to pay a more commercial rate for these new coal purchases, estimated at approximately $2.67/GJ as an ex-mine price (the factory is close to the mine).

In 2009 we predicted a price of $1.80/GJ for 2010 rising to $2.70/GJ by 2015 for marginal consumption. We have no data that would change these assumptions and Fonterra regard the contract prices as confidential.

In Table 9 we estimate the weighted average price paid. We take production figures for New Vale from Solid Energy's 2010 Annual Report and assume that 70% of consumption in 2009 was at Edendale based on industry information; we also note that production in 2010 had increased "to meet additional coal demand from the expansion of Fonterra's nearby Edendale plant."[13] We assume the increase over 2009 is for the plant expansion. Using the price estimates in our 2009 report, we estimate a weighted average price for the lignite of $1.95/GJ. Fonterra has opted in to the emissions trading system, so these prices do not include a carbon price.

[13] Solid Energy Annual Report 2010, p17

Table 9 Edendale Consumption from New Vale

	Consumption '000 tonnes 2010[1]	TJ[2]	$/GJ	Sales ($m)
Original contract	171.5	2,538	1.8	4.6
New contract	35.0	518	2.67	1.4
Total	206.5	3,056		6.0
Weighted average			1.95	

[1] Solid Energy Annual Report 2010 (we assume increase from 2009 to 2010 is for new contract); at 14.8GJ/t - Solid Energy (2007) New Vale Mine

5.1.2 Fonterra – Clandeboye (Sub-bituminous)

Clandeboye dairy factory has a contract with Eastern Corporation (that changed its name to Galilee Energy in 2010) for the supply of 130,000 tonnes per annum from 1 September 2008. The coal is transported by rail to the plant at Temuka, near Timaru.

In 2009 we obtained ex-mine prices from the Eastern Corporation financial reports. Galilee Energy has recently sold its New Zealand coal mining interests and the latest financial data identified are from the 6 months to December 2010. In it the sales from Takitimu are combined with those from the Cascade mine on the West Coast that sells to Holcim. We use a number of assumptions to estimate that the underlying price increase from the 2009 data is 27%; this is based on the increase in revenues from that which would result from using 2009 prices plus a carbon cost[14] divided by the estimated revenues using 2009 prices without a carbon cost.[15] We then apply this to the 2009 price estimates for Clandeboye, including industry estimates of transport costs ($0.10/tonne/km) to estimate a delivered price of $6.12/GJ (Table 11).

Table 10 Estimated increase in coal price sold by Galilee Energy

	Cascade	Takitimu	Total
Sales for 6 months to 30/12/10 (tonnes)	22,500[1]	102,909	125,409[2]
Sales ($)			$10,268,680[2]
Price ($) (2009)[3]	100.62	52	
Carbon cost ($/t coal) @ 2 for 1	25.41[4]		
Price with Carbon ($/t coal)	126.03		
Sales (@ 2009 prices + carbon cost) ($)	$2,835,755	$5,366,704	$8,202,460
Difference ($)			$2,066,220
Of which = carbon ($)			$571,805
Price increase			27%

[1] This is half the take or pay contract amount (Galilee Energy Ltd. Company Overview October 2010); [2] Galilee Interim Financial Report to 31 December 2010; [3] Covec (2009); [4] CO_2 emission factor of 87GJ/t and energy value of 29.96GJ/t and carbon price of $19.50/t CO_2 based on Covec (2011) Impacts of the NZ ETS: Actual vs Expected Effects. Report to MfE

[14] This measures the absolute increase in revenues as a result of the change in coal prices only (carbon costs are included in both the estimate using 2009 prices and current prices)
[15] $2,066,220/($8,202,460 - $571,805) = 27%

Table 11 Estimated price paid at Clandeboye Dairy Factory

Item	Value
Price ($/t)	52
Price ($/t)	66.27
GJ/t	19
$/GJ	3.49
Delivery ($/t)	50
Delivered ($/t)	116.27
Delivered ($/GJ)	6.12

5.2 Bituminous

The main domestic industrial user of bituminous coal is Golden Bay Cement (GBC). Costs can be estimated from import costs published by Statistics NZ (Table 11). In our earlier report we provided an estimate of costs building up from the different components. We reproduce this as an updated set of data in Table 12. Note, that the GBC imports are bituminous but at an energy value of 27GJ/t; the pricing is based on a thermal fuel price, in the same way as for imports for electricity generation above.

Table 12 Estimates of import costs for Golden Bay Cement

Year	Tonnes	Costs (cif $)	$/t	$/GJ (@27GJ/t)
2007	111,622	9,018,621	80.80	2.99
2008	89,261	13,509,187	151.34	5.61
2009	62,726	10,331,455	164.71	6.10
2010	50,804	8,179,671	161.00	5.96
2011	30,960	5,120,826	165.40	6.13

Source: Statistics NZ Infoshare (imports of bituminous coal from Australia)

The current cost estimate in Table 12 is higher than StatsNZ data on costs in Table 11, although it includes a domestic transport cost – adding a transport cost to the Table 11 numbers would increase the costs for 2011 to $6.31/GJ. Given the similarity between these two figures (our estimate in Table 12 is approximately 8% higher than the adjusted values), the future estimates appear to be reasonable.

Table 13 Golden Bay Cement Coal Costs Estimate

	2011	2015	2020
Coal price (Newcastle thermal) (US$/t)	125	100 - 150	80 - 110
Freight to Whangarei/Marsden Point (US$/t)	15	15	15
Landed price (US$/t)	140	115 - 165	95 - 125
Exchange Rate	0.78	0.7	0.6
Landed price (NZ$/t)	179	164 - 236	158 - 208
Gross energy value (GJ/t)	27	27	27
Local transport cost	5	5	5
Total ($/t)	184	169 - 241	163 - 213
$/GJ	**6.83**	**6.27 - 8.92**	**6.05 - 7.9**

GBC is located close to the import port; other users will face additional costs for transport. For example, an additional $15/t (or $20/t in total, which is the amount assumed above for transporting coal from Tauranga to Huntly), would add approximately $0.55/GJ to the cost.

5.3 Sub-Bituminous

Industrial costs for sub-bituminous coals are likely to be similar to those for new electricity generation. We use the forecast Australian and Indonesian import costs and take an average; our best estimate is the mid-point of this range (Table 13). These both include a $20/t internal transport cost.

Table 14 Sub-bituminous Import costs ($/GJ)

	US$:NZ$	Australia	Indonesia	Average	Midpoint
2011	0.78	7.82	5.29	6.56	6.56
2015	0.70	6.83 - 9.47	4.63 - 7.27	5.73 - 8.37	7.05
2020	0.60	6.6 - 8.46	4.27 - 6.12	5.44 - 7.29	6.36

5.4 Lignite

Lignite prices are set domestically. As low value fuels, we would expect industrial plants using lignite to be located close to mines. Transport costs are a significant component of total costs. Our 2009 estimates for large industrial users ranged from $3.34/GJ in Southland to $6/GJ in Timaru. These still appear to be reasonable estimates.

5.5 Summary of Industrial Prices

A summary of the industrial prices is given in Table 14. We have assumed the same price for bituminous and sub-bituminous. Both are used for thermal purposes and are defined with reference to the same international benchmark prices.

We have included a separate estimate of the price for lignite paid by dairy factories as this is dominated by the one plant (Edendale) and is at a substantially lower price. The price paid by the Clandeboye factory for sub-bituminous is sufficiently close to the general industry number included here that we have not included this as a separate category.

Table 15 Estimated Industrial Coal Prices ($/GJ)

	US$:NZ$	Bituminous	Sub-bituminous	Lignite	Dairy Lignite
2011	0.78	6.50	6.50	3.50	1.95
2015	0.70	7.00	7.00	3.50	1.95
2020 - 35	0.60	6.50	6.50	3.50	2.67[(1)]

[(1)] From 2026

6 Commercial Coal Prices

In the 2009 report, commercial prices were approximately $1-1.50/GJ above industrial prices. We have continued that assumption on the basis that there has been no fundamental change in the sectors.

Table 16 Estimated Industrial Coal Prices ($/GJ)

	US$:NZ$	Bituminous	Sub-bituminous	Lignite
2011	0.78	7.50	7.50	4.67
2015	0.70	8.00	8.00	4.67
2020 - 35	0.60	7.50	7.50	4.67

7 Price Projections

The price projections for the individual uses are provided in the Annex. The sources for the different projections are noted below. The prices shown are delivered based on broad assumptions about location of customers relative to supply sources (mines and import ports). A good "rough and ready" estimate used by industry is for transport costs to be $10/100km/tonne. In our projections, with the exception of the Huntly price prior to 2020, the bituminous and sub-bituminous price projections all include an assumed internal transport cost of $0.91/GJ; this is based on $20/t applied to sub-bituminous coal prices, but we have assumed the same price for both coal types as they are competing with each other in the local coal markets for thermal purposes and firms will purchase whichever is lower cost. If we assume a systematic difference, modelling might suggest a preference for one type.

In Table 16 we note the source for the projections provided and a possible range of values. The range does not cover the full potential range; within industrials, for example, the range from small to large firms will be quite significant, but the majority of consumption will be by a few large firms. So our range here is best explained as follows:

- Industrial demand represents demand by customers with a greater demand than the largest commercial customer;
- Commercial demand represents demand by large institutions, eg hospitals, schools.

Table 17 Source of projections and range of values

Type	Source	Possible range
Industrial – sub-bituminous	Table 14 & adapted from Table 13	+$1.50/GJ / -$0.50/GJ
Industrial –bituminous	Table 14, taking account of Table 12[(1)]	+$1.50/GJ / -$0.50/GJ
Industrial - lignite	Table 14	+$1.00/GJ / -1.00/GJ
Dairy - lignite	Table 14	
Commercial – sub bituminous	Table 15	+$1.00/GJ / -1.00/GJ
Commercial –bituminous	Table 15	+$1.00/GJ / -1.00/GJ
Commercial – lignite	Table 15	+$1.00/GJ / -1.00/GJ
Electricity - Huntly	Table 7	$4.00-$6.67 (2015) $3.60-$5.40 (2020 on)
Electricity – NI sub-bituminous	Table 8	+ $0.50 / -$0.50
Electricity – SI sub-bituminous	Table 8	+ $0.50 / -$0.50
Electricity – SI lignite	See previous report and Section 4	+$0.75 / - $0.25

[(1)] we assume that users can use either bituminous or sub-bituminous

The price projections rise up to 2015 and fall again after that reflecting expected trends in international prices (Table 2).

Annex: Price Projections Table

	Industrial forecasts ($/GJ)				Commercial forecasts ($/GJ)			Electricity forecasts ($/GJ)			
	Industrial (excluding NZ Steel, elec gen) – Sub bit	Industrial (excluding NZ Steel, elec gen) -Bit	Industrial (excluding NZ Steel, elec gen, dairy) - Lignite	Dairy Lignite	Commercial - Sub bit	Commercial - Bit	Commercial - Lignite	Huntly – Sub bit	New NI electricity generation - Sub bit	New SI electricity generation - Sub bit	New SI electricity generation - Lignite
2011	6.50	6.50	3.50	1.95	7.50	7.50	4.67	4.65	6.00	6.00	2.75
2012	6.75	6.75	3.50	1.95	7.75	7.75	4.67	4.65	6.00	6.00	2.75
2013	7.00	7.00	3.50	1.95	8.00	8.00	4.67	4.65	6.00	6.00	2.75
2014	7.00	7.00	3.50	1.95	8.00	8.00	4.67	4.65	6.00	6.00	2.75
2015	7.00	7.00	3.50	1.95	8.00	8.00	4.67	5.35	6.00	6.00	2.75
2016	7.00	7.00	3.50	1.95	8.00	8.00	4.67	5.35	6.00	6.00	2.75
2017	7.00	7.00	3.50	1.95	8.00	8.00	4.67	5.35	6.00	6.00	2.75
2018	6.75	6.75	3.50	1.95	7.75	7.75	4.67	5.35	6.00	6.00	2.75
2019	6.50	6.50	3.50	1.95	7.50	7.50	4.67	5.35	6.00	6.00	2.75
2020	6.50	6.50	3.50	1.95	7.50	7.50	4.67	5.35	5.50	5.50	2.75
2021	6.50	6.50	3.50	1.95	7.50	7.50	4.67	5.35	5.50	5.50	2.75
2022	6.50	6.50	3.50	1.95	7.50	7.50	4.67	5.35	5.50	5.50	2.75
2023	6.50	6.50	3.50	1.95	7.50	7.50	4.67	5.35	5.50	5.50	2.75
2024	6.50	6.50	3.50	1.95	7.50	7.50	4.67	5.35	5.50	5.50	2.75
2025	6.50	6.50	3.50	1.95	7.50	7.50	4.67	5.35	5.50	5.50	2.75
2026	6.50	6.50	3.50	2.67	7.50	7.50	4.67	5.35	5.50	5.50	2.75
2027	6.50	6.50	3.50	2.67	7.50	7.50	4.67	5.35	5.50	5.50	2.75
2028	6.50	6.50	3.50	2.67	7.50	7.50	4.67	5.35	5.50	5.50	2.75
2029	6.50	6.50	3.50	2.67	7.50	7.50	4.67	5.35	5.50	5.50	2.75
2030	6.50	6.50	3.50	2.67	7.50	7.50	4.67	5.35	5.50	5.50	2.75

2031	6.50	6.50	3.50	2.67	7.50	7.50	4.67	5.35	5.50	5.50	2.75
2032	6.50	6.50	3.50	2.67	7.50	7.50	4.67	5.35	5.50	5.50	2.75
2033	6.50	6.50	3.50	2.67	7.50	7.50	4.67	5.35	5.50	5.50	2.75
2034	6.50	6.50	3.50	2.67	7.50	7.50	4.67	5.35	5.50	5.50	2.75
2035	6.50	6.50	3.50	2.67	7.50	7.50	4.67	5.35	5.50	5.50	2.75
2036	6.50	6.50	3.50	2.67	7.50	7.50	4.67	5.35	5.50	5.50	2.75
2037	6.50	6.50	3.50	2.67	7.50	7.50	4.67	5.35	5.50	5.50	2.75
2038	6.50	6.50	3.50	2.67	7.50	7.50	4.67	5.35	5.50	5.50	2.75
2039	6.50	6.50	3.50	2.67	7.50	7.50	4.67	5.35	5.50	5.50	2.75
2040	6.50	6.50	3.50	2.67	7.50	7.50	4.67	5.35	5.50	5.50	2.75