Ai Group Survey: Business picks up carbon tax bill

June 2013

Introduction: the first year of Australia's carbon tax

This latest Australian Industry Group survey was conducted to evaluate the impact on business of the carbon tax as it approaches its first anniversary. The survey found that low levels of domestic demand and strong international competition have made it difficult for businesses to pass on their cost increases related to the carbon tax.

The survey also found that the ability of businesses to rapidly reduce their energy intensity or to mitigate their energy costs is limited and their readiness to do so has been tempered by the expectation of lower, or no, carbon prices in coming years.

A central finding in the survey was that:

- 70 per cent of businesses surveyed had not reduced their carbon intensity in response to the carbon tax since its introduction in July 2012.

Reasons for businesses not reducing their carbon intensity over the past year include:

- That they had already adopted energy efficiency measures in response to several years of high energy costs and anticipated carbon constraints.
- Their expectations that the carbon price would fall, possibly to zero, through flotation or abolition over the next couple of years, which would call into question the return on further expenditure to improve energy efficiency.
- They faced difficulty in accessing funds for new carbon reduction measures in their businesses due to the fact that they were either cash-strapped or had difficulty accessing government grants.
- Reducing energy intensity was not a high priority because their businesses were low energy users.

Of the businesses that were able to reduce their carbon intensity:

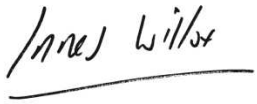
- Close to 77% had adopted more energy efficient practices; 38% had made their products or services more energy efficient; and 20% had invested in more energy efficient equipment.

The survey also found that the vast majority of businesses have not been able to pass on to their customers the cost increases related to the carbon tax. In fact:

- Across all businesses, just 6 per cent of carbon costs are estimated to have been passed on to customers.

- Of the three quarters of businesses that were able to estimate how much of their increased cost they were able to pass on to their customers, 70% said they had not been able to pass on any energy cost increases.

These findings show that a large share of the carbon tax burden has been absorbed by Australian businesses in the first year of its operation, squeezing their profit margins further.



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Contents

The Context

The Australian Government introduced a price on greenhouse gas emissions at $23 per tonne of carbon dioxide equivalent from 1 July 2012. This came at a challenging time for Australian businesses that were already struggling to compete internationally due to the historically high level of the exchange rate, fierce global competition and weak domestic demand. Previous Ai Group research indicates that the carbon tax has increased electricity and gas prices for industrial customers by around 15%.[1] The carbon price faced by Australian businesses is now both higher and more widely felt than those in most other advanced economies. For example, at the time of publication the carbon price in the European Union Emissions Trading System was around AUD$6.50.

While highly emissions-intensive industries have received significant free allocation of carbon permits, and manufacturers have been offered capital grants for energy efficiency, the vast majority of Australian businesses have not received any compensation. Apart from cutting production, these businesses have had two options to reduce their exposure to the carbon tax: (i) reduce their carbon intensity; or (ii) pass on additional costs to their customers. This report, the third in a series examining the impact of the carbon tax, looks at the extent to which businesses have reduced their exposure to the carbon tax to date. It presents the results of a multi-stage research project which comprised of two cross-sector surveys undertaken in May and April 2013.

[1] Ai Group, *Ai Group Survey: business pricing responses to Australia's carbon tax, the first six months*, 2013. Carbon related price increases for smaller electricity users and households, which pay higher base prices, have been around 10%.

Key Findings

Low levels of domestic demand and strong international competition have made it difficult for businesses to pass on their cost increases related to the carbon tax. Further, the ability of businesses to rapidly reduce their energy intensity or to mitigate their energy costs is limited and their readiness to do so has been tempered by the expectation of lower, or no, carbon prices in coming years. This has meant that a large share of the carbon tax burden has been absorbed by Australian businesses in the first year of its operation, squeezing their profit margins further. In particular:

Around three-quarters of the businesses surveyed reported that they had been affected by the carbon tax and were able to estimate the extent they had been able to pass on related input cost increases to their customers.

Of these businesses:

- **Close to 70 per cent reported that they have not yet been able to pass on any energy cost increases related to the carbon tax;**
- **A further 20 per cent of businesses reported that they have only been able to pass on between 1 per cent and 20 per cent of energy cost increases related to the carbon tax; and**
- **Across manufacturing, services and construction businesses, an estimated 6 per cent of carbon costs have been passed on to customers.** [2]

These results are consistent with the long standing expectation that trade-exposed businesses would be unable to raise their selling prices beyond international levels. However, they also highlight that low levels of domestic demand over the past 12 months have meant that even businesses without international competition have not generally been in a position to pass on cost increases of any sort to their customers.

Just under 70 per cent of businesses surveyed had not reduced their carbon intensity in response to the carbon tax since July 2012. Of these businesses:

- **Close to 50 per cent reported that this was in part due to a lack of worthwhile options;**
- **Just under 40 per cent reported that this was in part due to a lack of funding; and**
- **Just under 40 per cent reported that the carbon tax was not currently a high priority.**

Of those businesses that had reduced their carbon intensity:

- **Close to 77 per cent had adopted more energy-efficient practices; 38 per cent had made their products or services more energy efficient; and 20 per cent had invested in more energy efficient equipment.**

Electricity and gas prices rose by roughly 40 per cent over the four years leading up to the introduction of the carbon tax. Businesses were keenly aware of these price rises and the impending introduction of a carbon price and took action to reduce their energy intensity. In a separate Ai Group survey conducted in 2012[3], before the introduction of the carbon price, close to 85% of respondents indicated that they had taken measures to improve their energy intensity over the preceding three years.

[2] The surveys conducted by Ai Group focussed on these sectors; others, such as agriculture or mining, were not included. In narrow but important subsectors such as electricity generation and retail pass-throughs will have been much higher- those pass-throughs are the source of carbon-related cost pressure for most other businesses - but these do not constitute a significant share of the sample.

[3] Ai Group, *Energy Shock: Pressure mounts for energy action*, July 2012.

For the majority of businesses, this involved investigation of opportunities, making simple and inexpensive changes to work practices and minor investments. For these businesses, further reductions in energy intensity following the introduction of the carbon tax require more significant expenditure and capital investment. This has proved difficult for many businesses due to a lack of funds; difficulty identifying worthwhile investment options beyond what they have already done; uncertainty surrounding the future of the carbon tax (which has reduced the incentive to invest); and the need to manage many other business pressures.

Over time, selling prices for non-traded products and services can be expected to reflect adequate returns on the cost of production or provision. Trade-exposed industries will continue to be extremely vulnerable to a loss of competitiveness unless the current assistance arrangements are maintained in full for as long as necessary, or key international competitors are subject to comparable carbon constraints. The research highlights that in its first year of operation, for most businesses the carbon price shock has hit profits rather than bringing about an immediate adjustment in selling prices, behaviour or investment.

With most businesses expecting a dramatic fall in the carbon price either when it floats in 2015 or if it is abolished, the impact on future investment of the current high fixed price is likely to be limited. An early move to internationally linked emissions trading, which would see carbon prices adjust to a European level likely below $10, would substantially lower impacts on business, preserve a viable long-term policy framework and meet emissions reduction commitments at least cost. The case for such a move is strong.

Section A: Findings from our business surveys

1. Have businesses been able to reduce their carbon intensity?

In April 2013, we asked 372 businesses from the manufacturing, services, and construction sectors:

In 2012-13, have you done anything to help offset the impact of the carbon tax or rising energy prices?

We found that:

- Just over 30% of businesses reported they had taken positive action to reduce their carbon intensity since the introduction of the carbon tax (Table 1);

- Manufacturers were more likely to have reduced their carbon intensity (36%), than services (31%) and construction (25%) businesses. This reflects the fact that manufacturers are typically more capital intensive and trade exposed than businesses in other sectors, and thus have greater incentives to reduce their carbon intensity. Manufacturers are also the focus of efficiency grants and permit allocation programs, which will have further encouraged investment; and

- Large businesses were more likely to have reduced their carbon intensity (52%), than small (32%) or medium (33%) businesses.

Table 1. Proportion of businesses that reduced their carbon intensity in 2012-13

% of all respondents

	Yes	No
Manufacturing	36	64
Services	31	69
Construction	25	75
Small*	32	68
Medium*	33	67
Large*	52	48
New South Wales	35	65
Victoria	32	68
Queensland	27	73
Rest of Australia**	30	70
Total	31	69

* Small businesses have less than 20 staff; medium businesses have between 20 and 100 staff; large businesses have more than 100 staff.
** Includes South Australia, Western Australia, Tasmania
Source: Ai Group, April 2013

Note that lower production in some sectors will have reduced absolute energy use without changing energy intensity. Many businesses have also reduced their energy intensity over the past several years, largely in response to energy prices but also in anticipation of a carbon constraint.[4]

2. What have businesses done to reduce their carbon intensity?

Respondents that indicated a reduction in their carbon intensity since the introduction of the carbon tax were asked what measures they had taken. Five non-exclusive options were provided:

- Adopt more energy efficient practices;
- Invest in energy efficient equipment;
- Produce more energy efficient products;
- Take advantage of Government efficiency incentives such as grants and credits; and
- Other.

We found that, of the businesses that have reduced their carbon intensity since 1 July 2012 (31 per cent of all respondents):

- 77% have **adopted more energy efficient practices**, such as monitoring electricity usage to reduce carbon intensity (Table 2)
    - This was found to be more common among manufacturers (76.1%) and large businesses (81.5%)
- 38% have made their **products or services more energy efficient**
- 28% have taken advantage of **government energy efficiency incentives**
    - These include grants like the Clean Technology Program, credit schemes like the NSW Energy Savings Scheme, instant asset write offs and more.
    - Including those businesses that had made no improvement in 2012-13, 8.6% of respondents had taken advantage of government incentives this year. This may seem a modest take-up given the interest in potential efficiency grants programs expressed by 75% of businesses in a 2012 Ai Group survey.[5] Other respondents to that earlier survey in 2012 cited a mix of concerns (Chart 1) that may play a role in the current take-up. Some of the current programs for business are relatively new, and some are narrowly targeted. Given this and the limits on business capital, options and priority discussed in Section 3 below, this level of take-up may not be unexpected.
    - Despite relatively high profile efficiency programs focussed on manufacturing and small business, take-up was strongest in the construction sector (39.2%).
- 20% of businesses have **invested in energy efficient equipment**
    - This was found to be more common among manufacturers and large businesses that are more capital intensive, trade exposed, and have greater access to financial

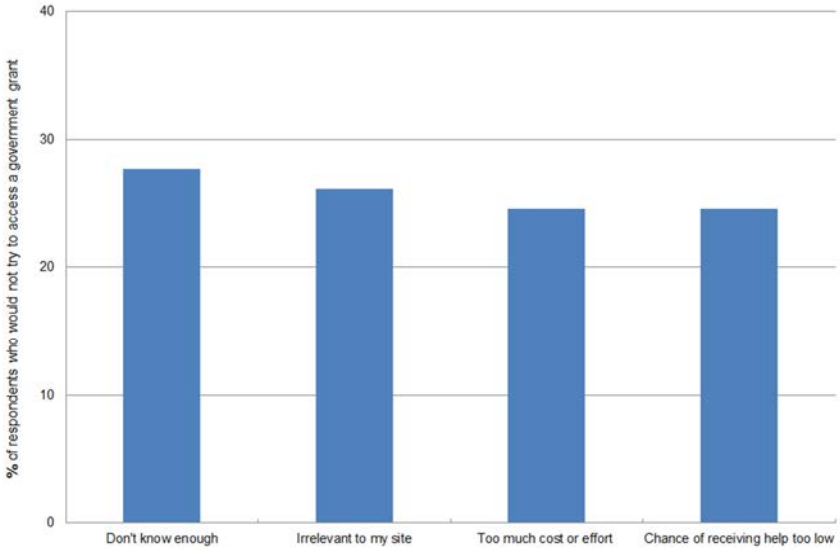
[4] See Ai Group above n1.

[5] Ai Group, *Energy Shock: Pressure mounts for energy action*, July 2012.

capital. These businesses are also more likely to benefit from the Jobs and Competitiveness Program, whose design sharply reduces carbon costs while maintaining abatement incentives.

- A number of businesses also reported that they have conducted an **energy audit**, hired an **external consultant**, **renegotiated energy contracts**, or engaged in **Ai Group's Energy Efficiency Assist Program or related energy services.**

Chart 1. Barriers to Applying for Government Grants



Source: Ai Group, July 2012[6]

Table 2. Business activities to reduce carbon intensity

% of respondents that have reduced carbon intensity since 1 July 2012

	Adopted more energy-efficient practices	Invested in energy efficient equipment	Products are more energy efficient	Government efficiency incentives	Other
Manufacturing	76.1	24.7	37.2	23.1	8.9
Services	76.1	15.8	44.5	26.1	2.6
Construction	69.6	13.2	26.0	39.2	4.4
Small*	71.9	10.0	32.2	29.7	5.0
Medium*	73.6	23.6	34.2	23.6	10.6
Large*	81.5	40.8	58.3	23.3	0.0
New South Wales	75.4	21.1	30.6	26.0	4.9
Victoria	75.0	18.1	43.8	28.4	5.3
Queensland	69.6	17.4	40.4	23.3	5.9
Rest of Australia**	83.3	22.3	39.0	33.3	11.0
Total	76.5	20.0	38.1	27.7	6.1

* Small businesses have less than 20 staff; medium businesses have between 20 and 100 staff; large businesses have more than 100 staff.
**Includes South Australia, Western Australia, Tasmania
Source: Ai Group, April 2013

[6] Ai Group, *Energy Shock: Pressure mounts for energy action*, July 2012. Respondents were asked whether they would be potentially interested in a range of policies that might assist them with energy efficiency. Those who were not interested were asked to indicate all applicable reasons from a list. The top four responses are shown in Chart 1.

3. What has limited the ability of businesses to reduce their carbon intensity?

The respondents that indicated that they had not done anything to reduce their carbon intensity since the introduction of the carbon tax were asked if there was any particular reason why they had not taken any action so far. Four options were provided: lack of funding; lack of worthwhile options; not a high priority; and other. We found that:

- 50% of businesses reported that one of the reasons they have not done anything to reduce their carbon intensity yet in 2012-13 is because they **lacked worthwhile options** (Table 3)
    - Past research suggests that a number of these businesses may have already adopted energy efficient measures or are not aware of the options available.[7]
    - What is deemed worthwhile depends heavily on the anticipated prices of energy and carbon. Expectations that the carbon price will either fall upon flotation or be abolished will lengthen anticipated payback periods for carbon-cutting investments.
- 40% reported that one of the reasons they have not done anything yet in 2012-13 to reduce their carbon intensity is because they **lack the funding.**
    - This was a common reason cited by SMEs, with close to one-third of these businesses reporting that a lack of funding has limited their ability to reduce their carbon intensity. This accords with anecdotal reports, particularly from trade exposed industries, of the difficulty in convincing internal and external financial decision makers of the merits of capital investment in Australia given input costs, currency factors, and scale.

Table 3. Factors limiting the ability of businesses to reduce their carbon intensity

% of respondents that have not reduced carbon intensity since 1 July 2012

	Lack of funding	Not a high priority	Lack of worthwhile options	Other
Manufacturing	37.8	30.8	56.7	5.0
Services	41.3	49.4	45.9	0.0
Construction	42.0	39.1	47.9	0.0
Small*	39.7	45.6	50.1	0.0
Medium*	44.2	50.6	55.8	0.0
Large*	19.0	31.7	63.1	12.7
New South Wales	49.5	36.9	54.6	2.6
Victoria	32.6	44.4	44.4	1.2
Queensland	47.1	36.4	42.9	2.2
Rest of Australia**	31.0	38.1	64.3	2.4
Total	39.7	39.0	50.3	1.9

* Small businesses have less than 20 staff; medium businesses have between 20 and 100 staff; large businesses have more than 100 staff.
**Includes South Australia, Western Australia, Tasmania
Source: Ai Group, April 2013

[7] Ai Group, *Energy Shock: Pressure mounts for energy action*, July 2012.

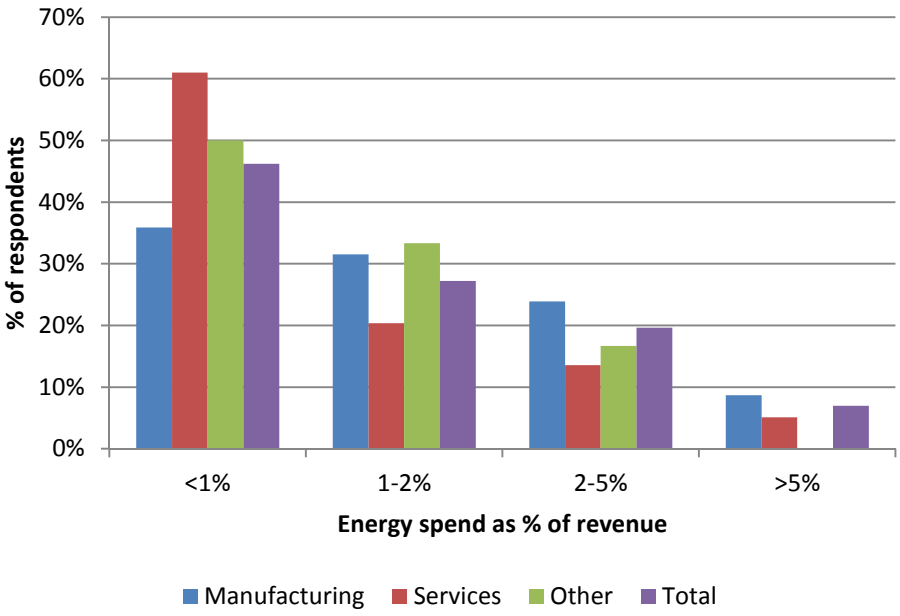
- 39% reported that one of the reasons they have not done anything yet to reduce their carbon intensity is because it is **not a high priority.**

    - This was a common reason cited by SMEs and service businesses that may use a relatively low amount of energy and may not be capital intensive.

    - Earlier Ai Group research described how energy varies widely as a share of costs between different businesses (Chart 2). For those businesses spending less than 1% of revenue on energy, other business concerns are likely to demand greater focus than energy or carbon costs.

- A number of businesses also noted that they are still deciding what to do, which may in part reflect uncertainty surrounding whether or not the carbon tax will continue after the upcoming federal election.

Chart 2. Business spending on energy as a percentage of revenue in 2011



Source: Ai Group, July 2012[8]

[8] Ai Group, *Energy Shock: Pressure mounts for energy action*, July 2012.

4. Have businesses been able to pass on rising energy costs?

In May 2013, just over 400 businesses answered the following question:

Since 1 July 2012, what proportion of your input cost rises that have been due to the carbon tax have you been able to pass on to your customers?

Of all businesses surveyed (Table 4):

- Close to one-half had not been able to pass on any energy cost rises related to the carbon tax
- Close to one-quarter had been able to pass on some energy cost rises related to the carbon tax
- Around one-quarter either didn't know or reported that they were not affected by the tax

Of the respondents that had been affected by the tax and were aware of how much they have been able to pass on so far:

- **Close to 70% had not been able to pass on any energy cost rises related to the carbon tax**
- **Close to 20% had been able to pass on between 1 and 20% of energy cost rises**
- **Around 10% had been able to pass on between 20 and 100% of their energy cost rises**

These findings highlight the experience of many businesses who have found it difficult to pass on adequate price rises to customers to cover rising costs of all kinds. For instance, Ai Group's previous research indicated that food manufacturers were the least likely to expect to be able to pass on costs to customers, reflecting their trade exposure and the especially strong bargaining position of major food retailers.[9]

The findings also suggest that a number of businesses that expected to increase selling prices in response to the carbon tax have so far been unable to do so. In an Ai Group survey conducted in June 2012, just under 40% of companies expected to be able to pass on at least some of their higher costs related to the carbon tax.[10]

We can use the mid-points of the intervals shown in Table 4 to calculate a rough measure of the average proportion of energy costs rises related to the carbon tax that businesses have been able to pass on to their customers so far.[11] **On this basis, respondents have, on average, been able to pass on just over 6% of the rise in energy prices related to the carbon tax** (Table 4).

[9] Ai Group, *Ai Group Survey: business pricing responses to Australia's carbon tax, the first six months*, 2013

[10] Ibid

[11] E.g. the calculation used to estimate the average pass-through rate for the manufacturing sector was: $(0 \times 0.596)+(10 \times 0.124)+(40 \times 0.044)+(80 \times 0.031)$. This methodology assumes that the degree of pass-through by the 25.5% of respondents who answered either "NA" or "Don't know" replicated the estimates of pass-through of those businesses that did quantify the impact.

Table 4. Estimated pass through rates of higher energy costs due to carbon tax

% of all respondents

	Average	0	1 - 20%	20 - 60%	60 - 100%	NA	Don't know
Manufacturing	5.5	59.6	12.4	4.4	3.1	5.0	15.5
Services	5.0	51.8	12.6	1.4	3.5	11.2	19.6
Construction	10.0	36.0	24.0	9.0	5.0	2.0	24.0
Small*	8.2	41.2	18.8	5.7	4.7	7.3	22.4
Medium*	5.2	61.0	12.2	1.6	4.1	6.5	14.6
Large*	6.2	70.6	8.8	8.8	2.9	5.9	2.9
New South Wales	6.7	47.2	21.3	4.7	3.2	7.1	16.5
Victoria	5.0	55.3	14.9	5.0	2.1	7.1	15.6
Queensland	5.1	59.2	9.9	4.2	2.8	5.6	18.3
Rest of Australia**	10.3	40.0	10.8	3.1	9.2	4.6	32.3
Total	6.3	51.0	15.4	4.4	3.6	6.4	19.1

* Small businesses have less than 20 staff; medium businesses have between 20 and 100 staff; large businesses have more than 100 staff.
**Includes South Australia, Western Australia, Tasmania
Source: Ai Group, May 2013

Table 4 shows that, on average, the proportion of energy costs that businesses have been able to pass on to their customers has varied according to the sector and state they operate in and their size. For example:

- On average, **manufacturers** and **services** businesses have been able to pass on around 5% of the rise in energy costs related to the carbon tax while businesses in the **construction** sector have passed on closer to 10%
    - The somewhat higher rate of pass through in the **construction** sector may in part reflect the fact that businesses in this sector are generally less trade-exposed than businesses in the manufacturing and services sub-sectors
- The pass-through rate was found to be fairly consistent across New South Wales (6.7%), Victoria (5.0%), and Queensland (5.1%)
- Outside of these states, **Western Australia** was found to have the highest pass-through rate (25%), which may in part reflect the solid growth in activity that was seen at the time the carbon tax was introduced
- On average, **small businesses** were found to have passed on around 8% of their energy cost rises. This is slightly higher than the medium and large businesses surveyed, which may reflect relatively low trade exposure and energy intensity among small businesses

While these responses indicate the proportion of cost increases able to be passed on to customers, they do not go directly to the size and significance of those cost increases. These must be estimated using past Ai Group research and other data. For instance, based on the data in Chart 2 an average business might spend the equivalent of 1% of revenue on energy. If that business saw a carbon-related increase in energy prices of 15%, the average reported in a previous Ai Group survey, then their costs would have increased by 0.15% of revenue.

Data from the ABS suggests that gross operating profits, on average, represent roughly 7% of revenue across the manufacturing, services and construction sectors.[12] Thus, increased costs equivalent to 0.15% of revenue would reduce this average business' gross operating profits by 2.14%, to 6.85% of revenue.

These averages conceal significant variation in rates of profit, energy price increase (smaller users will have seen lower percentage increases as they pay higher prices to start with) and in energy intensity (with most businesses spending less than 1% of revenue on all forms of energy combined, but some spending as much as 5% or more). The most emissions intensive and trade exposed industries also qualify for free allocation of part of their permit requirement, at headline rates starting at 66% or 94.5%.[13] For those businesses this substantially reduces the near-term impact on profits.

[12] ABS, *Business Indicators, Australia*, March 2012

[13] Effective rates of assistance for a given business could be higher or lower. Key factors include how its emissions intensity compares to the historic industry averages against which allocation is determined; and how much of the business' emissions fall within the scope of the defined activity that is eligible for free allocation.

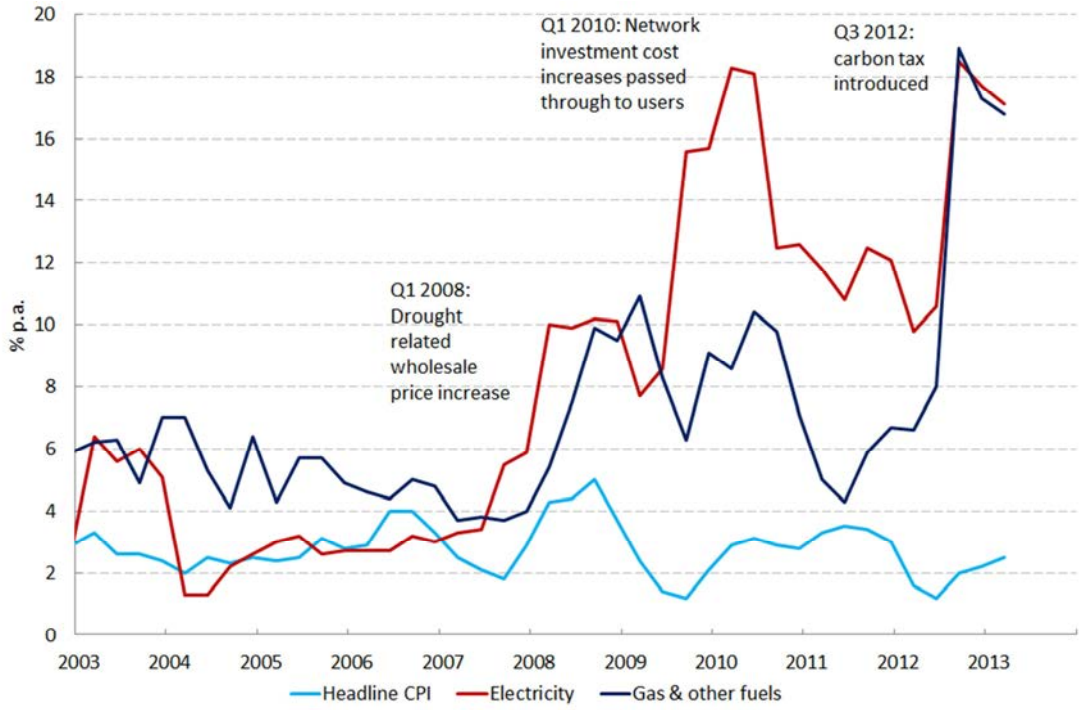
Section B: Carbon tax context: price rises and business conditions in 2013

1. Energy prices for consumers and businesses

Energy prices – and especially retail electricity prices – have increased strongly in recent years for both consumers and businesses, for a variety of reasons (see chart 3). National pricing indexes from the ABS (the Consumer Price Index (CPI) and Producer Price Index (PPI)) indicate that on average, retail electricity prices for consumers (as indicated in the CPI) increased by 15.3 per cent in the September quarter of 2012 (the quarter in which the carbon tax was introduced) while gas prices increased by 14.2 per cent. In the period from 1 July 2012 to the March quarter of 2013, electricity prices for consumers increased by a total of 18 per cent, while gas prices increased by 14.1 per cent.

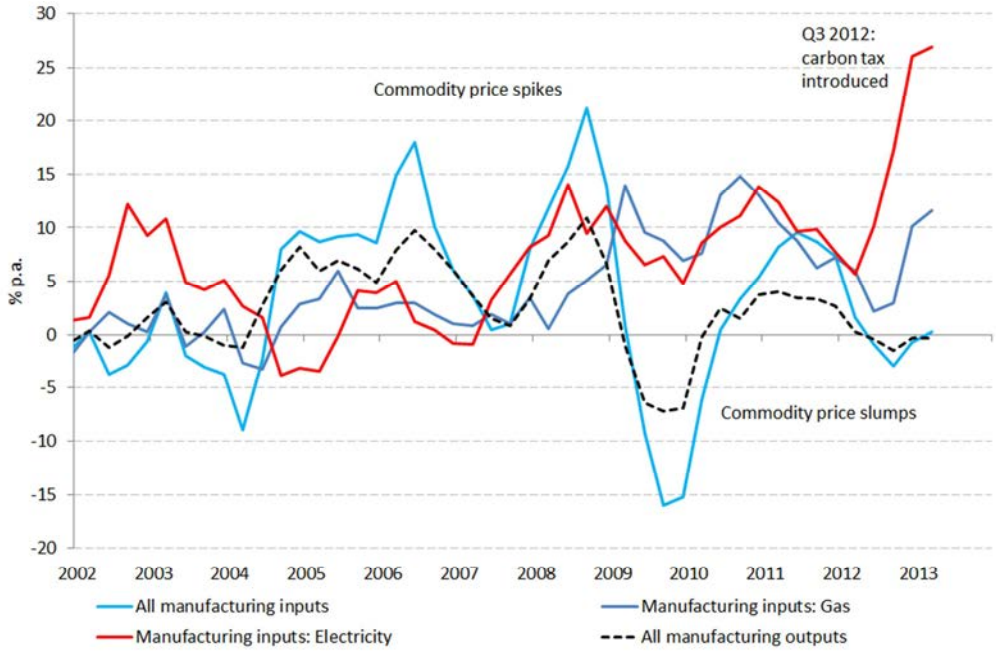
For businesses, the equivalent national average pricing data (the PPI) are available for manufacturing businesses only, but are broadly representative of the price rises faced by all businesses that use similar energy inputs (i.e. electricity or natural gas purchased from an energy network supplier). The PPI data indicate that manufacturing businesses faced price increases for their electricity inputs of 6.8 per cent in the September quarter of 2012 and 18.3 per cent over the period from 1 July 2012 to the March quarter of 2013. Gas prices for manufacturing businesses increased by 11.4 per cent over the period from 1 July 2012 to March 2013. Anecdotally, Ai Group members and other stakeholders reported an immediate and specific increase in their electricity prices from 1 July 2012, based on invocation by power retailers of change-of-law clauses in existing contracts. This appears to have taken some time to show up in the ABS statistics. By March 2013 however, both the CPI and PPI showed an increase in electricity prices (due to all causes) of around 18 per cent since 1 July 2012 (see charts 3 and 4).

Chart 3. Consumer price index (CPI) increases for gas and electricity, % p.a.



Source: ABS, *Consumer Price Index*, March 2013.

Chart 4. Producer price index (PPI) increases for gas and electricity (manufacturing), % p.a.



Source: ABS, *Producer Price Index*, March 2013.

The increase in energy prices over the past four years greatly exceeds the impact of the carbon tax, with several other major factors involved. The most significant factor for electricity prices has been substantial increases in the regulated revenues of electricity network businesses, particularly distribution (poles and wires), to cover expansion, reinforcement and renewal of network infrastructure. Distorted incentives and inadequate regulations may have also played a role. The national Renewable Energy Target has played a secondary role, as have state-based green schemes such as generous feed-in tariffs for rooftop solar systems. Network costs have risen dramatically in most states, but particularly NSW and Queensland. The Independent Pricing and Regulatory Tribunal (IPART) in NSW for example, increased regulated electricity prices for NSW households by 18 per cent on average from 1 July 2012, with only half of this increase (8.9 percentage points) due to the introduction of carbon pricing and most of the rest due to network costs (see chart 5). Similar factors also affect electricity pricing for businesses, although for larger users, energy costs are a bigger part of the bill than network charges.

Natural gas prices have been impacted by network charges as well, but the most important factor here is the major adjustment currently underway as the impact of the Liquefied Natural Gas export industry in Queensland starts to be felt. While the carbon price has increased the cost of using gas by around $1.20 per gigajoule, LNG export price parity appears to be driving wholesale gas prices from a recent average of $3-4 a gigajoule to $5 today and $9 in the near future. Ai Group has further research underway into this transformation.

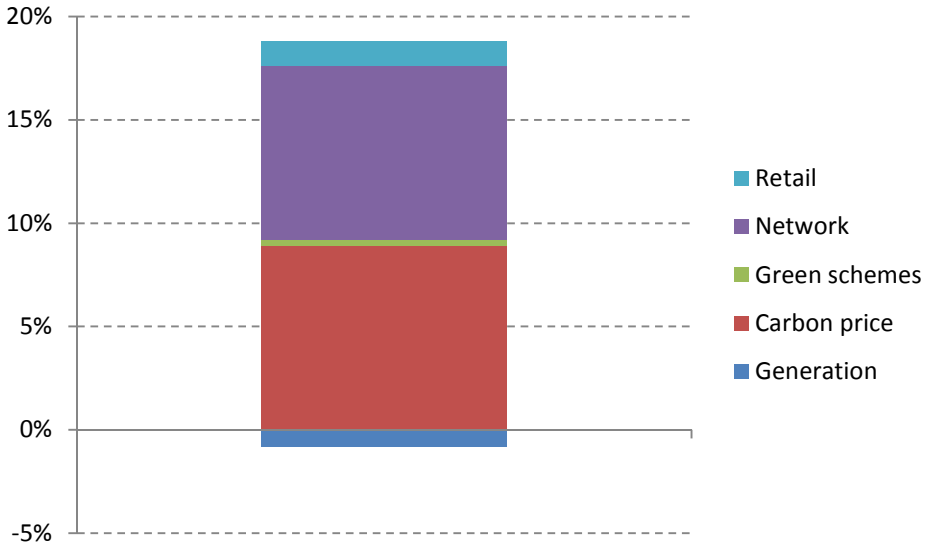
In our survey question for this study conducted in November 2012[14], we asked businesses to try to quantify the portion of their energy cost increases since 1 July 2012 that were due to the carbon tax. Among those businesses that were able to quantify their energy input cost increases at that stage:

[14] January 2013, *Ai Group Survey: business pricing responses to Australia's carbon tax, the first six months*.

- Manufacturers reported their energy input costs had increased by an average of 14.5%;
- Services businesses experienced an average increase of 13.6%; and
- Construction businesses said they had an average increase of 14.8%

When compared with the PPI price increases for electricity over this period (about 18% to March), this suggests that businesses do not attribute all of the total price increase to the carbon tax (that is, they are aware of and acknowledge the other factors that are contributing to energy cost increases). But the impacts reported do not line up well with data from IPART and other energy regulators, which indicate the carbon price probably caused about half of the price increase in this period. There could be many explanations for this. One is that while regulated retail prices for households adjust every year, business prices tend to be set in multi-year contracts; while the carbon impact has flowed through immediately via change-of-law clauses, increases related to network charges and other matters may flow through only in a subsequent contract. Another factor could be the greater role of energy charges versus network charges in the bills of larger energy users. Thirdly, businesses may simply be over-estimating the role of the carbon tax in their final price mix. All three factors and more could apply in practice.

Chart 5: Contributions to increases in average regulated retail prices for electricity in NSW from 1 July 2012, percentage points



Source: IPART, *Fact sheet: Changes in regulated electricity prices from 1 July 2012*, June 2012.

These energy price increases are the most obvious and direct source of cost increases, but other locally produced goods and services have also increased in price as a result of the carbon tax, either directly (e.g. goods incorporating synthetic greenhouse gases, subject to an equivalent carbon levy, as refrigerants) or indirectly (e.g. goods and services that have seen a price increase due to the 'pass-through' of price rises for energy and other inputs). In practice, it is difficult to separate the effect of the carbon tax on selling prices from other factors as few businesses provide specific line items on their invoices for the carbon tax. Prior to its introduction, the Federal Chamber of Automotive Industries (FCAI) estimated the carbon tax would add $150 to the cost of a new Australian-made car, while Toyota estimated more recently the tax had added "approximately $115 to the cost of each locally built vehicle".[15]

[15] Beck Angel, Media Affairs Manager of Toyota Australia, quoted in Mike Costello and Terry Martin, "True cost of carbon tax", *GoAutoNews,* 12 June 2013. Some of these cost increases – such as for steel, aluminium and glass – relate to activities that are classified as Emissions Intensive Trade Exposed and are eligible for significant free permit allocation due to their inability to pass costs along.

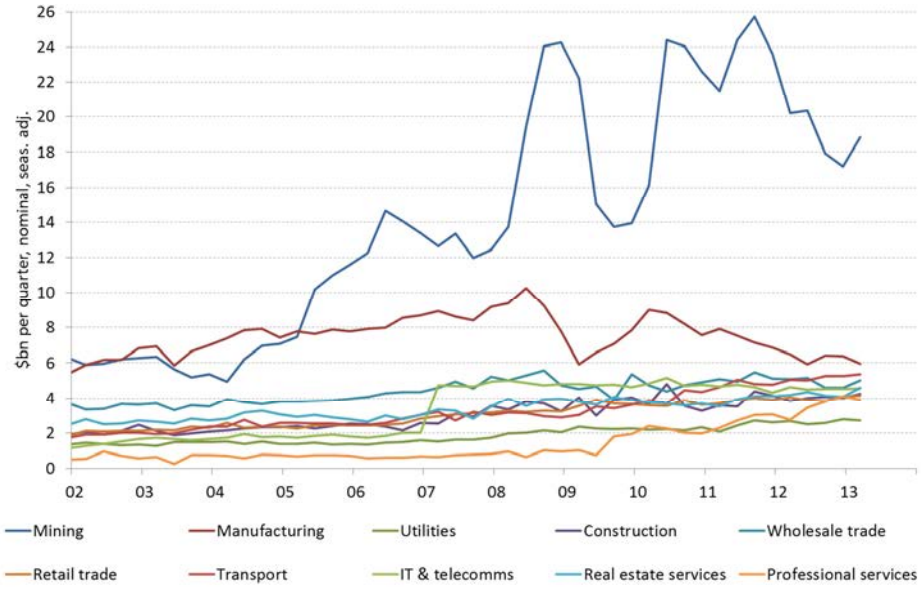
The net effect on **headline CPI and PPI** has not been large, with the annual inflation rate contained in a moderate range of 2.2% to 2.5% over the period since the carbon tax was introduced. The data on pass throughs reported above suggest that outside of energy prices, much of the total carbon price impact has not been felt further down supply chains or by end customers.

2. Business profits

The ABS' PPI data include pricing indexes for both inputs and outputs in manufacturing businesses. A comparison of the pricing changes for inputs versus outputs on a PPI basis clearly illustrates the cost squeeze that manufacturing businesses are facing at present. Between March 2011 and March 2013, the PPI value for all manufacturing outputs has not changed at all, indicating that on average, manufacturing businesses have not changed their nominal selling prices at all. At the same time, the PPI value for all manufacturing inputs has also remained roughly steady (mainly due to some relief in base commodity prices) after rising far more strongly than selling prices from about 2006. In cumulative terms, average total **input costs for manufacturers** have risen by 45% since 2005, while average **manufacturing selling prices** have risen by around 26% since 2005. Electricity price rises have been a big part of that total cost increase, with **electricity prices** paid by manufacturing businesses now 110% higher than they were in 2005 (and gas prices up 70%).

This widening 'gap' between manufacturers' input costs and selling prices is indicative of their growing inability to pass on price increases to their customers in recent years, due (among other things) to intense competition, increased imports penetration and the high Australian dollar. This has eaten directly into manufacturing profits and profit margins, with aggregate nominal profits earned by all manufacturing businesses falling rapidly and continuously since 2010. Nominal profits earned in other key industries also fell during 2012, as businesses absorbed rising local costs and/or faced reduced global pricing for their outputs (e.g. in mining and construction).

Chart 6. Business profits, nominal aggregate dollars per quarter



Source: ABS, *Business Indicators*, March 2013.

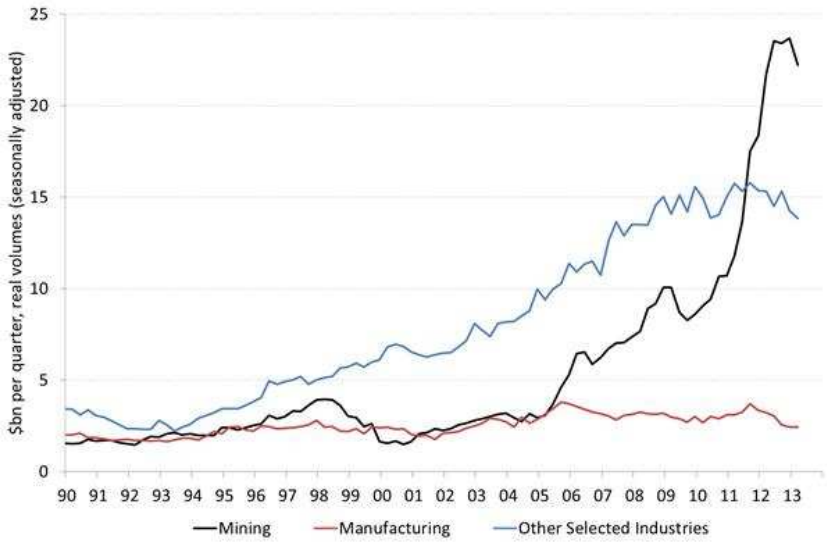
3. Business investment

These profit pressures in manufacturing and other industries have implications for national income levels. In particular, business profits need to be able to support new investment, technology, innovation and employment, if the economy and national incomes are to expand. Outside the resources sector however, the profits trends of the past few years do not allow for any easy investment increases in 2013.

In real terms, manufacturing investment spending has followed a similar profile to the industry's (nominal) profits, with a recent peak in 2011 and declining levels of investment since then. In other private sector industries other than mining (including construction and the services sectors), real investment levels also peaked in 2011 and have since been declining. The latest ABS data indicates that as of March 2013, real investment levels by manufacturing firms were 25% lower than a year earlier and 35% lower than their recent peak in September 2011. For private sector industries other than mining and manufacturing, real investment levels in March 2013 were 9.7% lower than a year earlier and 12% lower than their recent peak in September 2011 (see chart 7).

Looking ahead, the profits squeeze is contributing to a further reduction in investment intentions from here, for businesses outside the resources sector. The latest CAPEX intentions survey suggests nominal investment spending by all non-mining businesses will fall by 10.8% p.a. in 2012-13 relative to 2011-12 and will then recover by only 6.0% in 2013-14, relative to 2012-13.

Chart 7. Business investment (private capital expenditure or CAPEX)



Sources: ABS, *Private New Capital Expenditure and Expected Expenditure*, March 2013

Ai Group carbon tax research project: previous reports

July 2012, *The Carbon Tax: Ai Group Survey of Carbon Cost Burden*

January 2013, *Ai Group Survey: business pricing responses to Australia's carbon tax, the first six months*.

Ai Group carbon tax research project: research methodology

In June 2012, 621 businesses answered this survey question:
"Are you planning to increase any of your selling prices from 1 July 2012 as a result of the introduction of the carbon tax?"

- 200 manufacturers
- 191 services businesses
- 230 construction businesses

In July 2012, 527 businesses answered this survey question:
"Did any of your input prices increase in July 2012 as a result of the introduction of the carbon tax from 1 July?"

- 194 manufacturers
- 193 services businesses
- 140 construction businesses

In November 2012, 485 businesses answered this survey question:
"How much have total energy costs for your business (including electricity, gas and all carbon-based fuels) gone up since 1 July 2012 as a result of the introduction of the carbon tax?"

- 187 manufacturers
- 168 services businesses
- 98 construction businesses

A more detailed research module was conducted in July and August 2012 to supplement these broader results with more in-depth responses from a smaller sample of highly engaged businesses. 33 manufacturing businesses responded. These were largely medium to large entities who had previously expressed an interest in pricing impacts of the carbon tax. These businesses primarily operated out of Victoria (60 per cent) or had sites in multiple locations around Australia (25 per cent).

In April 2013, 372 businesses answered this survey question:
"In 2012-13, have you done anything to help offset the impact of the carbon tax or rising energy prices?"

- 157 manufacturers
- 123 services businesses
- 92 construction businesses

In May 2013, 404 businesses answered this survey question:
"Since 1 July 2012, what proportion of your input cost rises that have been due to the carbon tax have you been able to pass on to your customers?"

- 161 manufacturers
- 143 services businesses
- 100 construction businesses

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