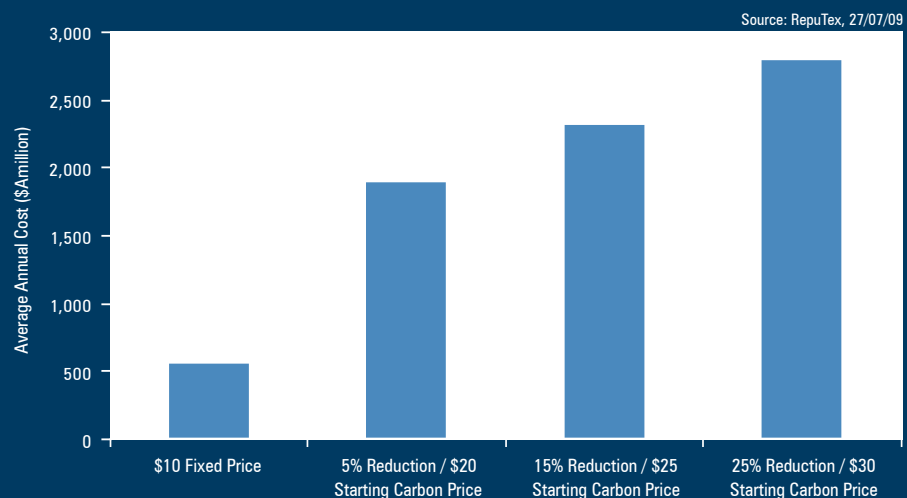


Direct and indirect financial impacts of the Australian CPRS

To date, the investment community and many Australian companies have struggled to adequately measure the impact of Australia's impending Carbon Pollution Reduction Scheme (CPRS), due largely to a lack of reliable corporate emissions data available in the market.

RepuTex's Carbon Value at Risk paper, utilising RepuTex proprietary emissions and carbon cost modelling, is the first in the Australian market to quantify the direct and indirect carbon cost exposures of S&P ASX 200 companies, measuring the impact of likely permit costs as well as energy and supply chain cost increases.

S&P ASX 200: Annual CPRS Liability



Key findings include:

- » In year one of the CPRS (2011), the total CPRS liability for S&P ASX 200 companies will be approximately \$544 million, rising to between \$1.9bn (5% target) and \$2.8bn (25% target) annually over the 2011-20 period,
- » Direct permit trading costs account for 45% of the total S&P ASX 200 carbon cost, while indirect impacts (electricity and supply chain costs) account for 55% of the total cost,
- » Between 2% to 3% of market value could be lost from the S&P ASX 200 if companies do not take action to mitigate their carbon exposure,
- » Liability profiles vary significantly between sectors, industries and companies, reflecting differences in carbon value chain exposure and providing insight into areas of potential cost abatement.

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Introduction & background

On May 4, 2009 the Australian Government announced key changes to its proposed Carbon Pollution Reduction Scheme (CPRS). These changes are designed to assist local firm transition to a carbon constrained economy and help ameliorate any adverse effects of the CPRS in light of the ongoing global financial crisis.

Announced changes to the CPRS framework include:

- » A delay in the start date of the CPRS to July 1, 2011,
- » A transitional fixed permit price of \$10/tCO₂e for the first year of the scheme (2011-12),
- » Increased industry assistance for emissions intensive trade exposed (EITE) industries. Industries eligible for 60 per cent assistance will receive a 10 per cent buffer, while industries eligible for 90 per cent assistance will receive a 5 per cent buffer,
- » A broadening of the potential 2020 emissions reduction targets from 5-15% to 5-25%, with the aggressive 25% reduction target remaining contingent on the emergence of a 'comprehensive' international agreement. The long term target of 60% below 2000 levels by 2050 remains intact.

The delay in the CPRS start date provides companies with breathing space to fully evaluate the impact of the CPRS on their businesses. However, companies that adopt a 'wait and see' approach may ultimately face higher long term costs and the risk of being caught off guard by regulatory requirements such as emissions reporting under NGER (national greenhouse and energy reporting). As a result, in the short term, all companies must give consideration to the development of baseline information such as: the measuring and reporting of scope 1, 2 and 3 emissions footprint data, the determination of potential CPRS liabilities, as well as analysis of competitive position and market sensitivities. With baseline data and risks evaluated, companies will be well positioned to take action as policy is refined over the next six months.

This research note is the first in the Australian market to quantify the potential carbon liabilities and key financial risks that the proposed CPRS will impose on S&P ASX 200 companies. It analyses the carbon liability profile of all industries, measuring the direct and indirect carbon cost exposure of companies by considering their likely permit costs as well as their energy and supply chain cost increases under the CPRS.

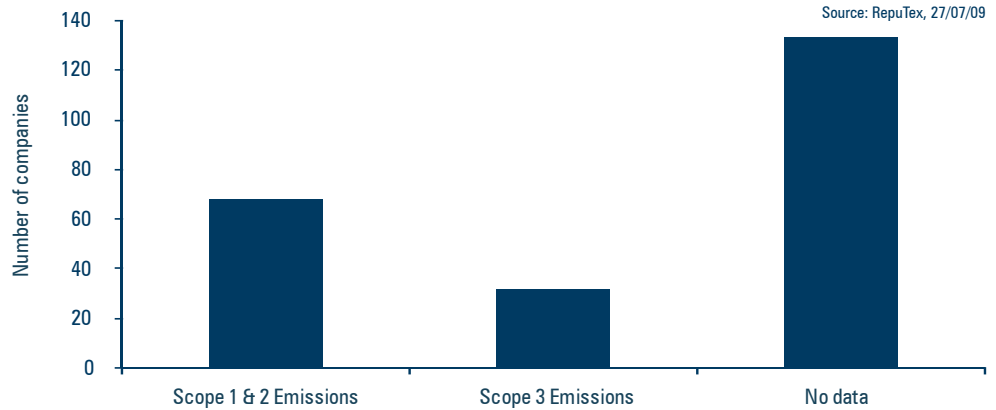
RepuTex research is underpinned by proprietary carbon emissions and financial models, which measure the potential impact of the CPRS on company earnings and valuations. For more information, please refer to pages 5 and 6.

The state of emissions disclosure in the Australian market

To date, corporate disclosure through annual reports and market briefings has been low. In recent years disclosure has been promoted by the Carbon Disclosure Project (CDP), a voluntary initiative for companies to disclose their greenhouse gas emissions. Although the CDP response rate amongst S&P ASX 100 companies has gradually increased, there are still concerns about the lack of emissions disclosure within the Australian market, notably among S&P ASX 200 (ex. 100) companies, which had a response rate of only 23% in CDP 6 (2008).

CDP 6 results show that overall, 102 companies (53%) out of the S&P ASX 200 surveyed provided a response, while the remaining 47% either did not respond or declined to participate.

Out of responding companies, only 68 firms (31%) provided some greenhouse gas (GHG) emissions data (scope 1 or 2 or both); further, out of the S&P ASX 200 only 32 companies partially disclose their scope 3 emissions.

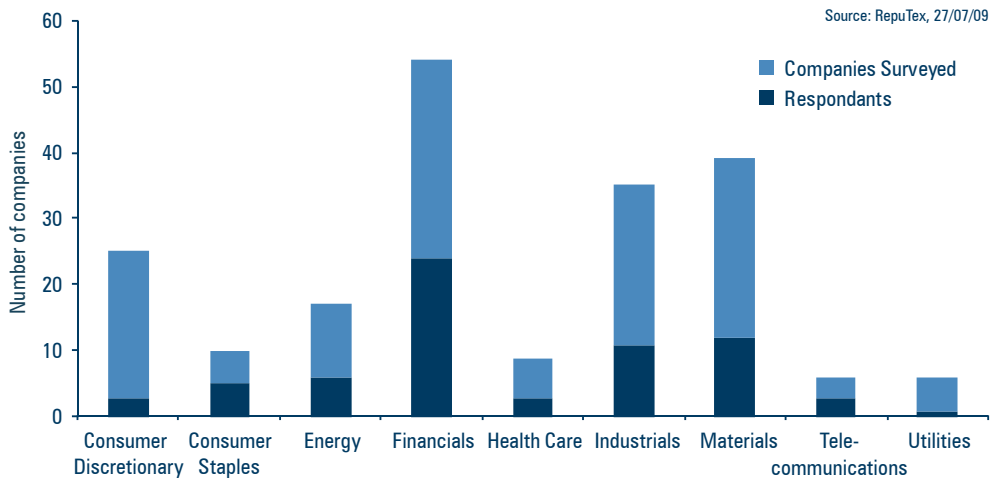


Disclosure is low in highly exposed sectors

At a sector level, low response rates were recorded from carbon intensive, high impact sectors such as Materials and Energy. Despite the potentially significant direct and indirect carbon costs from companies within these sectors, response rates were as low as 4 (Energy) and 11 (Materials) – this is cause for concern for many investors and stakeholders.

While larger S&P ASX 100 companies within high impact sectors such as Materials are on top of their emissions data and future liabilities, smaller S&P ASX 200 companies are still not quantifying their carbon footprints and are not fully aware of future regulatory and financial risks for their Australian facilities. This is evident by the low level of GHG emissions disclosure within Materials and Energy, as well as Utilities (1) sectors.

S&P ASX 200: CDP6
sector level response rate



Data quality and completeness is low

The quality and completeness of CDP data is impacted by poor boundary definitions, limited scope of disclosure by companies (i.e. not reporting all facilities under operational control) and oversight in the application of correct GHG estimation methodologies.

Across the S&P ASX 200, CDP 6 responses indicate that only 35 respondents are currently applying GHG Protocol based methodologies¹ to calculate their GHG emissions. Aside from these companies, the emissions data across the majority of respondents is imperfect and

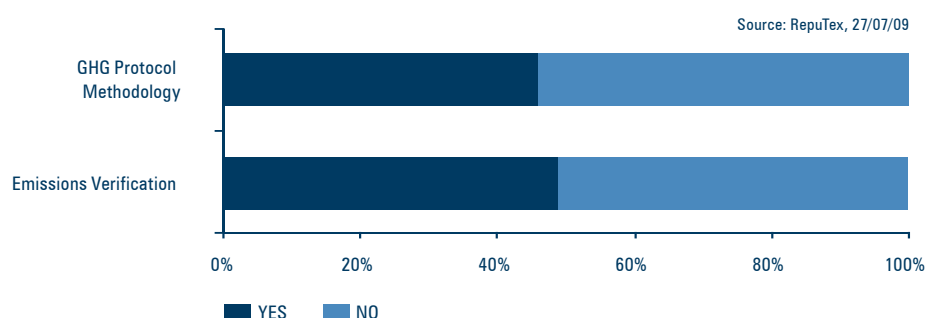
¹ GHG Protocol Methodology entails GHG reporting protocol as defined by the World Resources Institute (WRI), World Business Council for Sustainable Development (WBCSD) and ISO 14064.

needs to be treated with caution as there are no indications that accurate emissions factors have been applied to derive the disclosed data. Accordingly, CDP data cannot readily be used to benchmark a company's carbon liabilities and costs against its sector peers and competitors as different methodologies, boundaries and assumptions are being applied.

The first phase of the EU ETS (European Emissions Trading Scheme), whereby a lack of emissions verifications² led to an over-allocation of allowances and subsequent collapse of the carbon price, highlights the importance of data verification.

CDP results for S&P ASX 200 indicate that only 33 companies out of the 68 companies with emissions data are currently undertaking full or partial verification. Notably, the current level of external verification of GHG emissions is also limited.

S&P ASX 200: GHG measurement and verification



RepuTex's approach to measuring greenhouse gas emissions

As the Australian carbon market continues to mature, companies, investors and analysts must have access to credible and consistent carbon emissions data to assess impending business risks.

RepuTex has developed a proprietary research model to estimate GHG emissions across the entire value chain. In the absence of disclosed corporate information, RepuTex's GHG emissions data fills the gap, providing rigorous estimates of scope 1, 2 and 3 GHG emissions for companies that fail to report, or fail to disclose complete or verified data.

Table 1 shows the disclosure of carbon emissions data within the current S&P ASX 200. Disclosure has thus far hindered market's ability to accurately determine potential CPRS costs and liabilities.

Carbon Data Source	Scope 1	Scope 2	Scope 3
Disclosed	57	53	32
RepuTex modelling	143	147	168

Source: RepuTex, 27/07/09

For the purposes of this paper, RepuTex has utilised its proprietary emissions research methodology to supplement and standardise the low disclosure of S&P ASX 200 companies.

RepuTex's research model has been applied to over 4,400 companies in 30 markets globally, creating the largest database of corporate emissions information in the world. Data provides rigorous estimates and benchmarking of scope 1, 2 and 3 GHG emissions for companies that fail to report, or fail to disclosure complete or verified emissions data.

2 Verification refers to internal or external review and audit of GHG emissions data.

Measuring the cost of the CPRS: RepuTex's carbon liability methodology

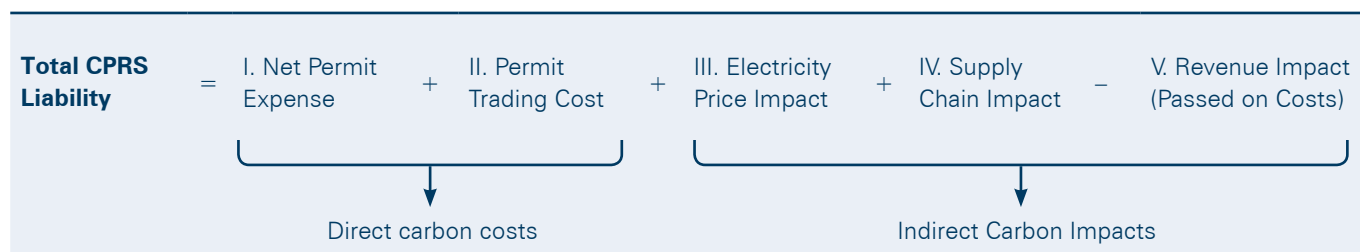
RepuTex's proprietary carbon liability model interprets GHG emissions information and research to measure the potential impact of various carbon price and policy scenarios on company earnings and valuations.

The concept of 'value chain exposure' underpins RepuTex's approach to assessing a company's true carbon liabilities. Accordingly, RepuTex modelling captures the impact of direct permit trading and indirect (electricity and supply chain) carbon costs, in addition to projections of costs passed through (i.e. post-carbon revenue impact). In assessing potential carbon costs, RepuTex's model also takes into account various design elements of the proposed CPRS such as free permit allocation for EITE business activities. RepuTex's model assigns assistance rates based on a company's involvement in emission intensive activities. Highly emission intensive activities such as aluminium smelting and carbon black production are deemed to receive an assistance rate of 94.5% for the first five years of the scheme, while moderately intensive activities such as production of glass containers are given an assistance rate of 66% for this period. The assistance rates are reduced by a 'carbon productivity contribution' of 1.3 % per annum.

All liabilities are calculated as average annual costs (in nominal terms) under the assumption that company carbon value chain profiles remain consistent across the medium term (2020) model period.

RepuTex models carbon liabilities at the company level by analysing the following key impacts of the CPRS:

Relationship of key CPRS financial impacts



Impact	Inputs	Approach
I. Net Permit Expense	= Permit Obligation x Permit Price - CPRS Assistance	- Permit obligations determined from RepuTex carbon emissions modelling (based on best available facility/company footprint data and modelled CPRS permit liabilities, including assessment of Government assistance). - Permit price modelled from RepuTex research in accordance with expected policy scenarios.
II. Permit Trading Cost	= Transaction Fee x Permit Obligation	- An assumption of transaction costs attached to cost of permits bought at auction.
III. Electricity Price Impact	= Electricity Price Increase x Current Electricity Cost	- Electricity cost measured from usage (disclosed/estimated MWh) multiplied by expected electricity price rise (Aust assets only). - Price increase adapted from Treasury economic modelling.
IV. Supply Chain Impact	= Average Cost Increase of Scope 3 Emissions x Scope 3 Emissions	- Increase cost of inputs based on estimation of scope 3 emissions (disclosed/estimated) and associated costs (derived from scheme coverage and breakdown of emissions from electricity to non-electricity sources). - Upstream cost pass through rate taken based on RepuTex pass through modelling (see below).

Impact	Inputs	Approach
V. Revenue Impact (Passed on Costs)	= Price Change (of product) x Volume	<ul style="list-style-type: none"> - Post-carbon product prices expected to increase and raise company revenues (based on company specific cost pass through capacity). - RepuTex pass through modelling incorporates the pass through of all upstream costs, adjusted for company and industry competitive position (i.e. ability to transfer costs). - Industry specific factors accounted through manual pass through adjustment.
EITE Assistance	= Assistance Rate x EITE Activity Permit Obligation x Permit Price	<ul style="list-style-type: none"> - Permit obligation and EITE status determined from RepuTex Research. - Allocation rate of 94.5% for activities with intensity greater than 2000tCO2e/\$mil revenue and 66% for activities with intensity greater than 1000tCO2e/\$mil revenue.
Other CPRS Assistance	= Various	<ul style="list-style-type: none"> - Includes assistance granted from the Climate Change Action Fund (CCAF), for Strongly Affected Industries, and Fuel Tax Adjustments (through CPRS Fuel Credit Scheme), as modelled from RepuTex research.

Source: RepuTex, 27/07/09

Government policy and carbon price

Carbon liabilities across the value chain are fundamentally driven by the carbon reduction target adopted by the Federal Government and its resultant influence on carbon price. Accordingly, RepuTex examines a series of price trajectories that correspond to the Government's proposed range of medium term carbon reduction targets (i.e. 5-25% by 2020).

Policy scenario	Period	RepuTex forecast AEU price
Fixed Priced	2011-12	\$10 fixed (2011-12 price applies to all scenarios)
5% Carbon Reduction Target (by 2020)	2011-20	\$20 starting price under cap and trade (2012 onward)
15% Carbon Reduction Target (by 2020)	2011-20	\$25 starting price under cap and trade (2012 onward)
25% Carbon Reduction Target (by 2020)	2011-20	\$30 starting price under cap and trade (2012 onward)

Source: RepuTex, 27/07/09

Aside from the national trajectory and the scheme's cap, post 2012 the Australian carbon price (i.e. AEU) will also be influenced by the price of international offset credits which are generated under Kyoto's clean development mechanism (CDM).

In its current proposed design, the Australian CPRS allows for an unlimited usage of international offset credits. These project based credits, known as Certified Emission Reductions (CERs), are generated from CDM projects in developing countries such as China; Australian companies can use these for compliance purposes supplementary to those allowances purchased in the domestic market.

The Australian Government's decision in the White Paper (December, 2008) to allow unlimited use of CERs in the Australian scheme coupled with the recent CER price collapse has significantly altered price direction in the fledging Australian carbon market. Unlimited access means CERs will effectively create a cap on the AEU price, rendering the government-introduced price cap of AUD \$40 irrelevant unless prices increase radically.

Quantifying the carbon footprint & CPRS liability of the S&P ASX 200

RepuTex has analysed the carbon intensity and direct footprint of S&P ASX 200 constituents, determining the number of companies expected to be directly liable under the CPRS (i.e. those with facilities emitting more than 25ktCO₂e) per annum.

In addition, value chain liability modelling was applied to all S&P ASX 200 companies and aggregated to a sector level to determine overall earnings impacts.

	NO. STOCKS				DIRECT EMISSIONS (t CO ₂ -e)				TOTAL CPRS LIABILITY			
	Total	CPRS Liable	EITE Assistance	Other CPRS Assistance	Global	Australia	Under CPRS	EITE Assistance	2011	2011 – 2020 (Average Annual)		
									\$10 Fixed Price	5% Reduction	15% Reduction	25% Reduction
Consumer Discretionary	24	0	0	0	472,187	314,150	0	0	\$12m	\$41m	\$50m	\$60m
Consumer Staples	11	3	1	1	5,350,013	4,830,336	2,133,745	4,836,359	\$73m	\$238m	\$250m	\$302m
Energy	22	11	3	3	84,806,665	25,512,749	22,830,358	4,836,359	0	\$269m	\$387m	\$487m
Financials	41	0	0	0	632,618	449,423	0	0	\$18m	\$56m	\$70m	\$84m
Health Care	10	0	0	0	421,401	315,830	0	0	\$2m	\$7m	\$9m	\$11m
Industrials	35	6	1	2	22,560,022	20,820,553	19,056,916	1,821,861	\$98m	\$245m	\$304m	\$364m
Utilities	8	5	0	0	8,718,796	8,524,286	5,118,210	0	\$44m	\$105m	\$132m	\$158m
Information Technology	2	0	0	0	8,851	8,861	0	0	\$0.4m	\$1m	\$1m	\$2m
Materials	44	26	11	3	91,244,128	55,996,630	55,724,751	39,503,154	\$287m	\$879m	\$1,042m	\$1,244m
Telecommunication Services	3	0	0	0	248,563	226,543	0	0	\$10m	\$35m	\$43m	\$52m
Total	200	51	16	9	214,463,243	116,999,182	104,863,980	36,634,371	\$544m	\$1,876m	\$2,289m	\$2,763m

Source: RepuTex, 27/07/09

Within the S&P ASX 200, RepuTex modelling reveals that:

- » The Australian based footprint of the S&P ASX 200 is nearly 117 million tCO₂e which is approximately 20% of Australia's total emissions,
- » Overall 51 companies are expected to be directly liable under the CPRS for a combined total footprint of 84 million tCO₂-e,
- » Sectors and companies not directly liable under the CPRS will still face carbon liabilities from indirect emissions through electricity and supply chain cost impacts,
- » In year one of the CPRS (2011), the total CPRS liability for S&P ASX 200 companies will be approximately \$544 million, with the highest burden on the Materials, Industrials and Consumer Staples sectors, due to the high representation of stocks within these sectors,
- » Over the medium term (to 2020), potential carbon costs for the S&P ASX 200 will rise to an average of between \$1.9bn (5% target) and \$2.8bn (25% target) annually,
- » The Materials sector has the highest number of liable companies under the CPRS, with direct emissions arising predominantly from coal mining, smelting operations as well as cement, chemicals and fertilizer manufacturing,
- » 16 obligated companies are expected to receive EITE assistance totalling 37 million permits (i.e. tCO₂-e),
- » 9 companies are expected to receive CPRS assistance through either the Climate Change Action Fund (Coal Mining), as a Strongly Affected industry (Coal Fired Power), or through the CPRS Fuel Credit Scheme.

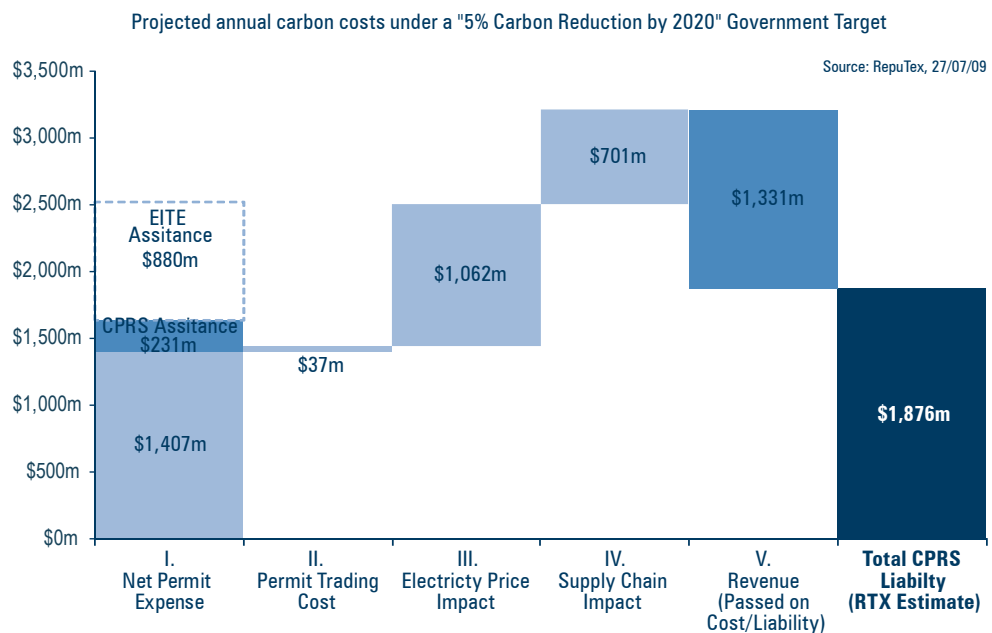
Carbon liability profile: Value chain liability breakdown

As the carbon of cost flows through the economy, S&P ASX 200 companies will be indirectly impacted according to the carbon intensity of their business model and their capacity to pass through their carbon liabilities.

A detailed breakdown of costs across the 'value chain' illustrates the significance of adopting a holistic approach to assessing carbon liabilities.

The following chart illustrates the breakdown of projected annual carbon liabilities accruing to business (Total CPRS Liability) and consumers (Passed on Cost/Liability) under a 5% carbon reduction target.

S&P ASX 200: Annual Carbon Liability Profile



RepuTex liability profiling conducted over the 5% to 25% target reduction range reveals that:

- » Before any carbon costs are passed through, S&P ASX 200 companies are expected to face direct and indirect carbon costs (after Government assistance) of between \$3.2bn (5% target) and \$4.9bn (25% target) annually,
- » RepuTex estimates that 42% of the above costs, or between \$1.3bn and \$2.1bn, are expected to be passed through to consumers, leaving S&P ASX 200 companies liable for between \$1.9bn (5% target) and \$2.8bn (25% target) annually,
- » Direct (permit and trading) costs are expected to account for around 45% of total carbon costs/liabilities,
- » Indirect impacts account for 55% of the total carbon cost. Indirect carbon costs are attributed to increased electricity and supply chain costs; approximately 32% and 22% of total carbon costs/liabilities respectively,
- » S&P ASX 200 liable companies will be obligated to surrender 104 million AEU's annually,
- » 35% of permit obligations will be satisfied through EITE assistance, valued at approximately \$880m for a 5% target and \$1.3bn for a 25% target,
- » Between 6% and 9% of permit costs (varying by price/reduction target) will be offset by other CPRS assistance (i.e. through cash payments from the CCAF, Strongly Affected Industries allowances and Fuel Credit Scheme).

Carbon risk and competition

The CPRS represents the biggest structural economic reform since the opening up of Australia's economy in the 1980's and 1990's (White Paper, 2008). RepuTex liability analysis provides insight into how these reforms will manifest throughout the economy by identifying the financial risks and competitive opportunities facing sectors, industries and individual companies.

Some S&P ASX 200 companies are adapting their business models to reduce the future costs of carbon, whilst sector laggards are failing to actively address their future liabilities. These companies may potentially face material impacts to their revenue, EBITDA and market value.

Box 1:
RepuTex Carbon Risk Metrics

Carbon Risk

The normalisation of liabilities into comparable financial metrics is essential to benchmarking the real risks a company faces from the CPRS. RepuTex measures carbon risk using three financial metrics to allow flexible and meaningful comparisons:

Revenue Exposure: Carbon liabilities as a % of Revenue

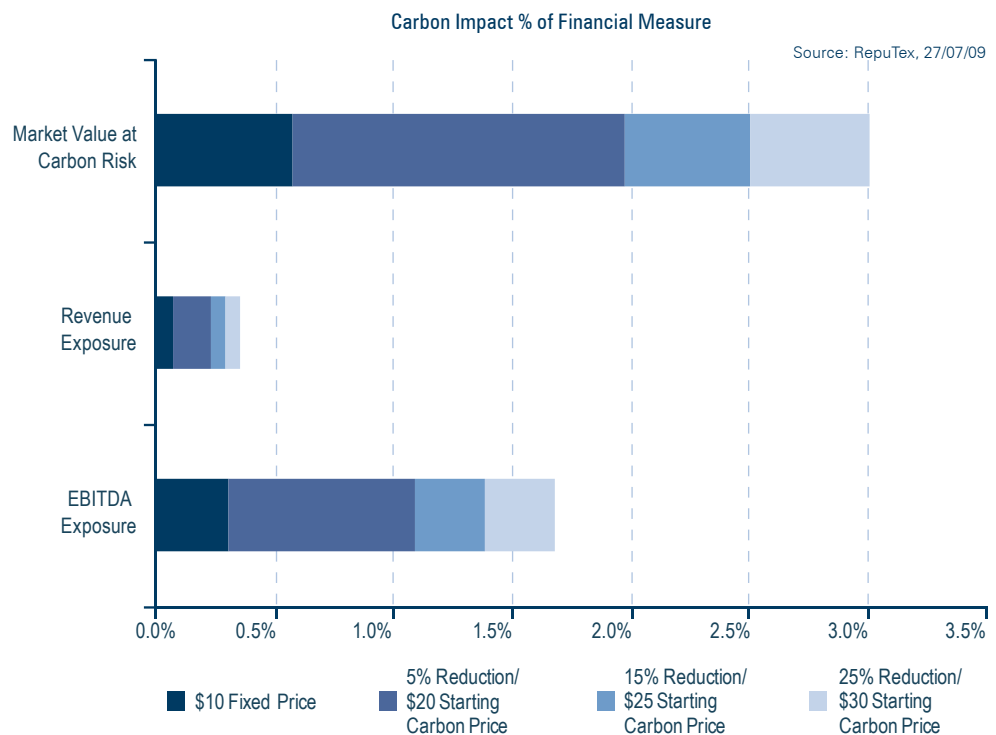
EBITDA Exposure: Carbon liabilities as a % of EBITDA

Value at Carbon Risk (VACR): Valuation impact of carbon liabilities as a % of Market Value.

Source: RepuTex, 27/07/09

Value at Carbon Risk (VaCR) is a proprietary investment risk metric developed by RepuTex to model and translate firm-level carbon liabilities into an ex-ante valuation impact. Accordingly, VaCR estimates the market value of a firm that is expected to be 'at risk' should that firm continue to operate 'as is' under the proposed Australian CPRS.

S&P ASX 200 Carbon Risk
by Policy Type



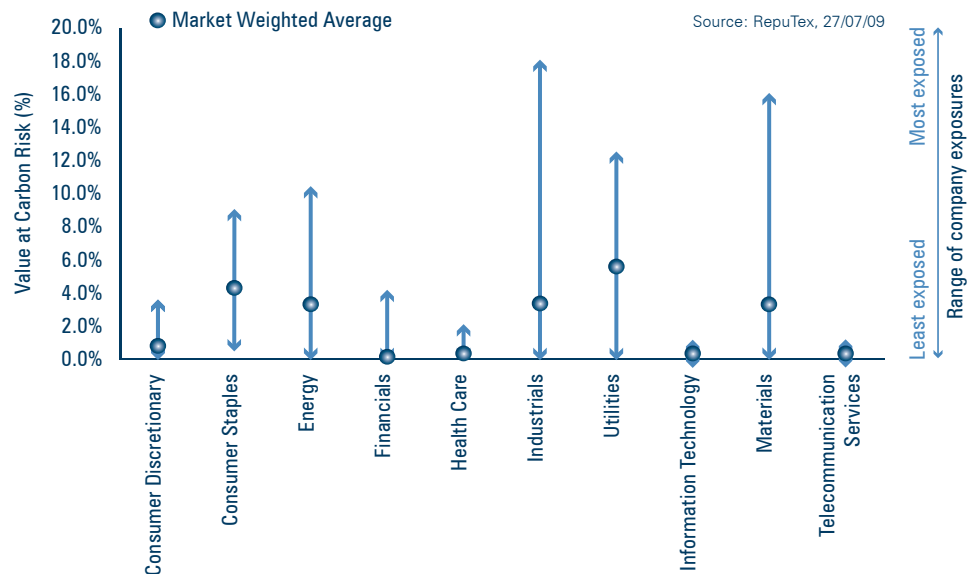
Aggregate CPRS risk analysis across the range of potential reduction targets finds that over the medium term:

- » Between 2.0% and 3.0% of market value is at risk from the introduction of a carbon price,
- » Revenue exposure is modest, between 0.2% and 0.4%,
- » EBITDA exposure is material, ranging between 1.1% and 1.7%.

A sectoral breakdown of CPRS risk confirms that a carbon cost has the highest financial impact on the Utilities, Energy, Industrials, Materials and Consumer Staples sectors. On average, these relatively carbon intensive sectors face valuation exposures that are around twice that of the broad economy. The following analysis is based on potential carbon risk under a 5% midterm target (i.e. \$20/tCO₂e carbon price).

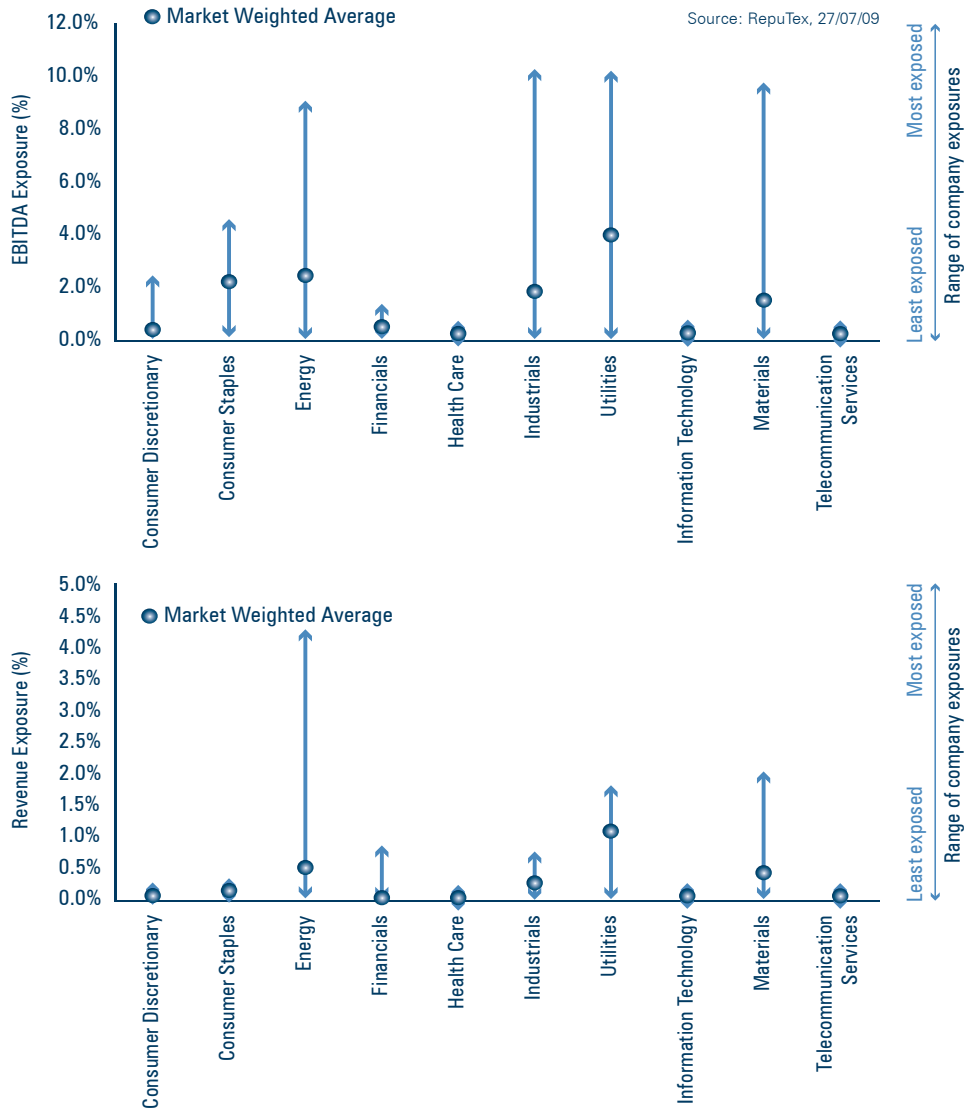
Projected CPRS Risk under a 5% Carbon Reduction Target

CPRS Risk: Sector Averages & Company Risk Range

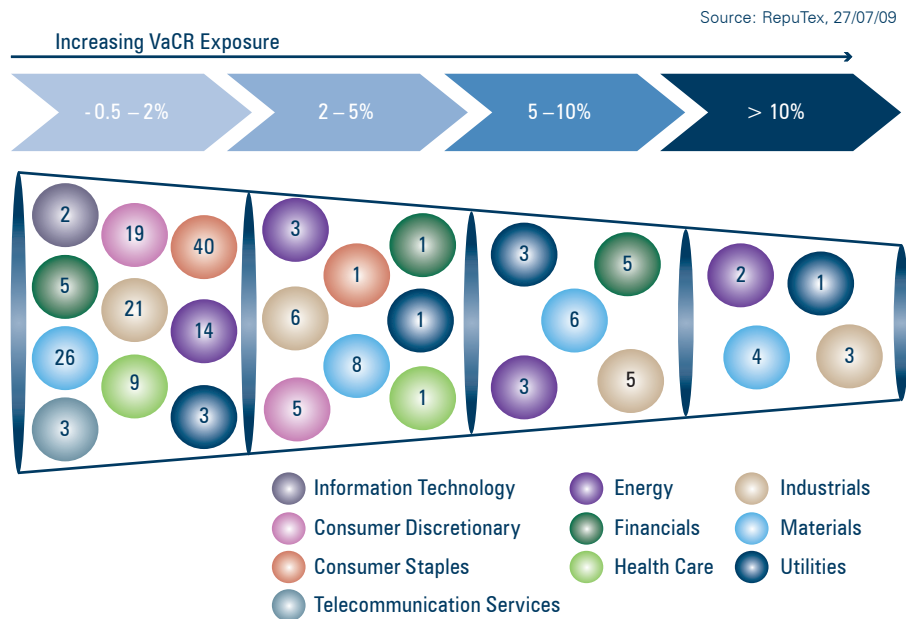


- » Transport companies within Industrials could face a VaCR approaching 20%,
- » Within Materials, companies with a limited pass-through ability and high electricity costs can have a VaCR of just over 15%,
- » Oil & gas refiners are likely to be impacted more heavily under the CPRS with upper limit of VaCR for the Energy sector being 10%,
- » The relatively high upper limit of VaCR for Consumer Staples companies stems from their supply chain carbon intensity,
- » Permits costs and lack of EITE assistance are the major contributors to the high VaCR of Utilities companies,
- » Risk to earnings (EBITDA) is most considerable across the Utilities, Industrials, Energy, Consumer Staples and Materials sectors,
- » Potential exposure to Energy, Industrials, Utilities and Materials stocks could exceed 9% of current EBITDA, reflecting a spread of business intensity profiles,
- » Transport companies within the Industrials sector on average will face a higher revenue exposure. Airlines and heavy vehicle road users face the maximum exposure.

CPRS Risk: Sector Averages & Company Risk Range



Value at Carbon Risk Sector Breakdown



- » A large number of Materials companies are currently underestimating the indirect costs of carbon to their businesses. This is supported by RepuTex's VaCR analysis which indicates that many companies have a VaCR of over 3%, which puts their market value under a high level of risk. Similar trends are also observed within the Industrial sector,
- » A large number of companies in the Materials sector face significant valuation risk post-CPRS, with four companies having a VaCR risk of over 10%,
- » The VaCR of some electricity and gas distributors within Utilities exceed the sector average and could put their valuation at serious risk,
- » Three Utilities companies with extensive electricity and gas distribution operations potentially face a VaCR risk of between 5 and 10%. Companies within the Energy sector could face potential revenue exposure of up to 4.6%, with Oil and gas refiners potentially expecting higher revenue exposures,
- » VaCR risk for companies in the Industrials sector is quite diverse with a large number of companies facing a VaCR risk of under 2%, whilst 8 companies can potentially have a VaCR risk of over 5%,
- » Five Consumer Staples companies with carbon intensive supply chains face moderate VaCR risk of 2-5%.

An overlay of company-level risk (i.e. range) within each sector reveals how carbon could alter the competitive landscape confronting individual companies. Sectors with a wide or asymmetric distribution of company risks are most likely to undergo reform as low exposed companies benefit from 'carbon competitive advantages'. In response highly exposed firms must seek to mitigate liabilities through:

- » Implementation of potential emission reduction strategies to reduce emissions below sector benchmark levels and enhance their competitive position,
- » Assessment of their marginal abatement cost curves with respect to the trading scheme's cap and the subsequent carbon price to take advantage of any 'low hanging fruit' such as energy efficiency,
- » Assessment of the impacts on GHG emissions when considering any asset divestiture, acquisition, and all operating plans,
- » Adaptation of incisive trading and hedging strategies (for those companies with direct liabilities only). In case the CER price is below the local permit prices (i.e. AEU's), companies with efficient carbon trading strategies can mitigate their direct permit costs and in turn lower their carbon risks. Companies also need to hone their permit banking/borrowing and price forecasting capabilities to mitigate the impending carbon costs.

Conclusions

RepuTex research into the total carbon liability of S&P ASX 200 companies under the proposed CPRS reveals:

- » There is a poor level of GHG emissions disclosure in the Australian market, notably amongst high impact sectors such as Materials and Energy,
- » In year one of the CPRS (2011), the total CPRS liability for S&P ASX 200 companies will be approximately \$544 million, with the highest burden on the Materials, Industrials and Consumer Staples sectors, due to the high representation of stocks within these sectors,
- » Post 2012, the potential carbon liabilities for the S&P ASX 200 will rise to between \$1.9bn (5% target) and \$2.8bn (25% target) annually over the 2012-20 period,
- » Direct permit trading costs account for 45% of the total S&P ASX 200 carbon cost, while indirect impacts account for 55% of the total cost (electricity and supply chain costs; approximately 32% and 22% of total carbon costs/liabilities respectively),
- » Liability profiles vary significantly between sectors, industries and companies, reflecting differences in carbon value chain exposure and providing insight into areas of potential cost and transfer capacity,
- » Under the CPRS, between 2% to 3% of market value could be lost from the S&P ASX 200 if companies do not take action to mitigate their carbon exposure,
- » Carbon performers are finding ways to drive reductions in both their direct and indirect liabilities under the CPRS and this is reflected through their lower revenue and value at carbon risk exposure,
- » In order to mitigate impending carbon liabilities and costs, companies must determine their specific value chain cost profile and map their competitive position versus industry and sector players,
- » Aside from implementing abatement strategies and determining their abatement cost curves, CPRS liable companies also need to hone their carbon trading and hedging strategies to take advantage of any carbon cost savings that CERs or local Forestry credits can offer in the medium to long term.

About RepuTex

RepuTex is a leading carbon research firm, specialising in the evaluation and pricing of carbon and sustainability risk for global markets and companies.

Established in 1999, RepuTex has developed an economic/environmental research model to estimate corporate emissions and price carbon costs. The model has been applied to over 4,400 companies in 30 markets globally, creating the largest database of corporate emissions and carbon risk modelling in the world.

RepuTex has offices in Melbourne, Shanghai and Hong Kong.

The company is chaired by Mr Graeme Lee, former Managing Director of Standard & Poor's Australia.

RepuTex research services

RepuTex undertakes a range of services for companies, top tier consulting and accounting firms, local and international fund managers and broking houses.

RepuTex proprietary emissions and carbon cost modelling underpins the company's services to the wider market. Services include:

Corporate Advisory

- » **Carbon Diagnostics:** scope 1,2,3 emissions profiling, carbon cost modelling (direct/indirect), competitor benchmarking.
- » **Valuations and cost analysis:** Analysis of the impact of direct and indirect emissions on key financial metrics, including in depth competitor and market benchmarking.
- » **Supply Chain Analysis:** deep dive into the company's scope 3 emissions profile to identify key risk areas and price cost impacts.
- » **Abatement modelling:** Identify abatement options and costs (MACC), understand the competitive landscape and competitive industry position.

Financial Services

- » **Data packages:** RepuTex proprietary emissions and carbon cost modelling provides fund managers and pension funds with standardized, comparable emissions disclosures, to assist firms integrate environmental risks into investment decision making processes. Analysis covers over 4,400 companies in 30 markets globally, including the USA, EU, United Kingdom, Japan, China, India, Hong Kong and Australia.
- » **Portfolio Footprint Analysis:** Analysis of the carbon footprint and value at risk of a portfolio and individual securities to assist fund managers, pension funds and individuals measure the carbon intensity and carbon value at risk of their holdings. Analysis is benchmarked against a specific index to better assess relative risk exposure.
- » **Industry reports:** Provide fund managers and pension funds with a detailed overview of the emissions risk profile of a specific sector and market, analysing the industry's susceptibility to climate change related risks, identifying key emissions contributors within the industry and potential value at risk liabilities to emissions trading.

XYZ Limited



RepuTex

Ticker: ---

Exchange: ---

GICS Industry: ---

Prepared: ---

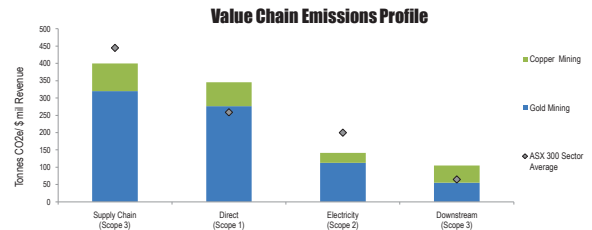
COMPANY OVERVIEW

Company XYZ is one of the world's largest gold producers with significant assets and operations in the United States, Australia, and Mexico. In Australia, the company's major assets are the underground gold mines in WA and QLD as well as a 30% ownership in the ABL joint venture operation. During 2008, these operations sold 604,400 and 876,900 equity ounces of gold respectively. Gold and copper production from the company's new discovered gold field in VIC is due to start in 2009. The company expects to produce around 5 million ounce of gold and around 30-35Ktonnes of copper by end of 2010. In terms of exposure to NGER reporting and the impending CPRS, XYZ is expected to be liable for both of its underground gold mining and milling operations as they exceed the 25ktCO₂e threshold. No reporting liability is expected from XYZ for its ABL operations since XYZ does not have operational control over that asset. Company XYZ's scope 1 & 2 emissions are dominated by energy (i.e. fuel & electricity) usage for mining and processing operations. Aside from direct permit costs under the CPRS, XYZ also faces indirect cost impacts through diesel and electricity costs. The cost of raw materials such as cyanide could also increase as XYZ's upstream suppliers pass on the cost of carbon.

CARBON EMISSIONS PROFILE

	Source	
Direct Global Carbon Footprint tCO ₂ e (2008) ^A	CO	2,450,010
Direct Australian Carbon Footprint tCO ₂ e (2008) ^A	CO	310,400
CPRS Inclusion	RTX	YES
NGER Level 1 Exposure ^{*A}	RTX	YES
NGER Level 2 Exposure ^{*A}	RTX	YES

* NGRS Exposure refers to Corporate Scope 1 only
^A RTX estimate based on proprietary modelling



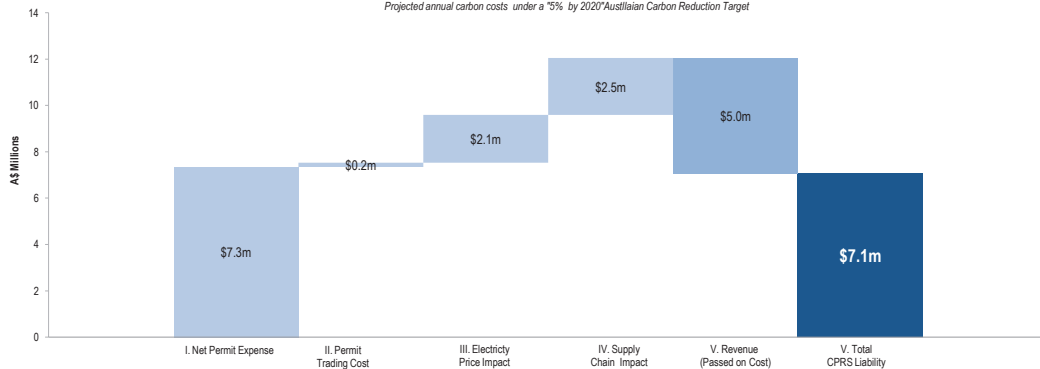
REPUTEX CARBON LIABILITY ESTIMATES

Period	Carbon Reduction Policy	RTX Forecast Initial Traded AEU Price	TOTAL CPRS LIABILITY	ANNUAL COST OF CARBON (A\$ mil)					VALUE AT CARBON RISK	
				DIRECT		INDIRECT			% of Market Value	Market Value (\$A mil)
				I. Net Permit Expense	II. Trading Costs	III. Electricity Price Impact	IV. Supply Chain Impact	V. Revenue (Pass Through)		
2011-2012	Fixed Price	\$10 / t CO ₂ e	A\$3.5m	\$3.7m	\$0.1m	\$1.0m	\$1.2m	-\$2.5m	1.0%	\$116.5m
2011-2020	5% Target	\$20 / t CO ₂ e	A\$7.1m	\$7.3m	\$0.2m	\$2.1m	\$2.5m	-\$5.0m	2.5%	\$348.5m
2011-2020	10% Target	\$25 / t CO ₂ e	A\$8.8m	\$9.2m	\$0.2m	\$2.6m	\$3.1m	-\$6.3m	1.4%	\$145.0m
2011-2020	25% Target	\$30 / t CO ₂ e	A\$10.6m	\$11.0m	\$0.3m	\$3.1m	\$3.7m	-\$7.5m	0.7%	\$260.7m

- Annual Cost of Carbon based on Reputex modelling of: i) Direct permit liability (including projected CPRS assistance) ii) Indirect electricity cost increases adapted from Treasury projections iii) Cost pass through impact from upstream (supply chain) and downstream (revenue from passed on carbon liabilities).
 - Value at Carbon Risk is a Reputex estimate of the firm's market (i.e. equity) value at risk from the introduction of the proposed CPRS

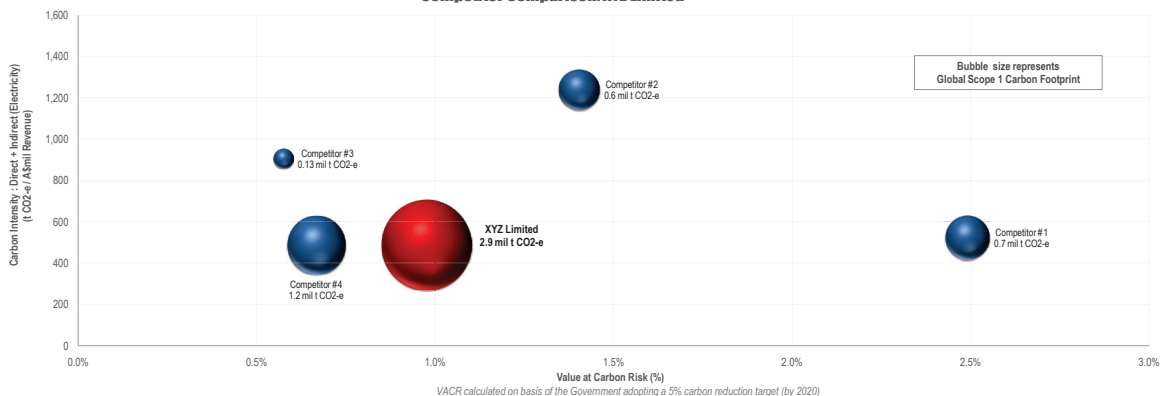
Annual CPRS Liability Profile: XYZ Limited

Projected annual carbon costs under a 5% by 2020 Australian Carbon Reduction Target



INDUSTRY SNAPSHOT

Competitor Comparison: XYZ Limited



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S&P ASX 200 companies analysed

RepuTex research undertaken in this paper is built on carbon emissions and carbon cost modelling of all S&P ASX 200 companies. Company level analysis is aggregated to sector level for the purposes of this paper. A full list of S&P ASX 200 companies assessed is below. For more information, please contact RepuTex.

APN	APN News & Media Ltd.	Consumer Discretionary	KAR	Karoon Gas Australia Ltd.	Energy
ALL	Aristocrat Leisure Ltd.	Consumer Discretionary	LNC	Linc Energy Pty. Ltd.	Energy
AUN	Austar United Communications Ltd.	Consumer Discretionary	NXS	Nexus Energy Ltd.	Energy
BBG	Billabong International Ltd.	Consumer Discretionary	OSH	Oil Search Ltd.	Energy
CMJ	Consolidated Media Holdings Limited	Consumer Discretionary	ORG	Origin Energy Ltd.	Energy
CWN	Crown Limited	Consumer Discretionary	PDN	Paladin Energy, Ltd.	Energy
DJS	David Jones Ltd.	Consumer Discretionary	RIV	Riversdale Mining Ltd.	Energy
FXJ	Fairfax Media Ltd.	Consumer Discretionary	ROC	Roc Oil Company Limited	Energy
FWD	Fleetwood Corp. Ltd.	Consumer Discretionary	STO	Santos Ltd.	Energy
FLT	Flight Centre Ltd.	Consumer Discretionary	WPL	Woodside Petroleum Ltd.	Energy
GUD	GUD Holdings Ltd.	Consumer Discretionary	WOR	WorleyParsons Limited	Energy
HVN	Harvey Norman Holdings Ltd.	Consumer Discretionary	ABP	Abacus Property Group	Financials
IVC	InvoCare Ltd.	Consumer Discretionary	AMP	AMP Limited	Financials
JBH	JB Hi-Fi Ltd.	Consumer Discretionary	ASX	ASX Limited	Financials
MCG	Macquarie Communications Infrastructure Group	Consumer Discretionary	ALZ	Australand Property Group	Financials
MMG	Macquarie Media Group	Consumer Discretionary	ANZ	Australia & New Zealand Banking Group Ltd.	Financials
NWS	News Corp.	Consumer Discretionary	AXA	AXA Asia Pacific Holdings Ltd.	Financials
PBG	Pacific Brands Ltd	Consumer Discretionary	BJT	Babcock & Brown Japan Property Trust	Financials
SEV	Seven Network Ltd.	Consumer Discretionary	BOQ	Bank of Queensland Ltd.	Financials
TAH	Tabcorp Holdings Ltd.	Consumer Discretionary	BEN	Bendigo and Adelaide Bank Limited.	Financials
TTS	Tatts Group Limited	Consumer Discretionary	BWP	Bunnings Warehouse Property Trust	Financials
TEN	TEN Network Holdings Ltd.	Consumer Discretionary	CFX	CFS Retail Property Trust	Financials
WAN	West Australian Newspapers Holdings Ltd.	Consumer Discretionary	CGF	Challenger Financial Service Group Limited	Financials
WTF	Wotif.com Holdings Limited	Consumer Discretionary	CBA	Commonwealth Bank of Australia	Financials
ABB	ABB Grain Ltd.	Consumer Staples	CPA	Commonwealth Property Office Fund	Financials
AAC	Australian Agricultural Co. Ltd.	Consumer Staples	DXS	Dexus Property Group	Financials
AWB	AWB Limited	Consumer Staples	ERC	eircom Holdings Ltd.	Financials
CCL	Coca-Cola Amatil Ltd.	Consumer Staples	FKP	FKP Limited	Financials
ELD	Elders Limited	Consumer Staples	GMG	Goodman Group	Financials
FGL	Foster's Group Ltd.	Consumer Staples	GPT	GPT Group	Financials
GFF	Goodman Fielder Ltd.	Consumer Staples	HGG	Henderson Group plc	Financials
LNN	Lion Nathan Ltd.	Consumer Staples	IFN	Infigen Energy	Financials
MTS	Metcash Ltd.	Consumer Staples	IIF	ING Industrial Fund	Financials
WES	Wesfarmers Ltd.	Consumer Staples	IOF	ING Office Fund	Financials
WOW	Woolworths Ltd.	Consumer Staples	IAG	Insurance Australia Group Ltd.	Financials
AQA	Aquila Resources Ltd.	Energy	IFL	IOOF Holdings Ltd.	Financials
AOE	Arrow Energy Limited	Energy	LLC	Lend Lease Corp. Ltd.	Financials
AWE	Australian Worldwide Exploration Ltd.	Energy	MCW	Macquarie CountryWide Trust	Financials
BPT	Beach Petroleum Ltd.	Energy	MQG	Macquarie Group, Ltd.	Financials
CTX	Caltex Australia Ltd.	Energy	MOF	Macquarie Office Trust Ltd.	Financials
CVN	Carnarvon Petroleum Limited	Energy	MGR	Mirvac Group.	Financials
CEY	Centennial Coal Co. Ltd.	Energy	NAB	National Australia Bank Limited	Financials
ESG	Eastern Star Gas Limited	Energy	PPT	Perpetual Limited	Financials
ERA	Energy Resources of Australia Ltd.	Energy	PTM	Platinum Asset Management	Financials
FLX	Felix Resources Ltd.	Energy	QBE	QBE Insurance Group Ltd.	Financials
GCL	Gloucester Coal Ltd.	Energy	SGP	Stockland Corp. Ltd.	Financials

SUN	Suncorp-Metway Ltd.	Financials	AMC	Amcor Ltd.	Materials
SDG	Sunland Group Ltd.	Financials	AQP	Aquarius Platinum Ltd.	Materials
TAL	TOWER Australia Group Limited	Financials	AGO	Atlas Iron Limited	Materials
VPG	Valad Property Group	Financials	AVO	Avoca Resources Ltd.	Materials
WDC	Westfield Group	Financials	BHP	BHP Billiton Ltd.	Materials
WBC	Westpac Banking Corporation	Financials	BSL	Bluescope Steel Ltd.	Materials
ANN	Ansell Ltd.	Healthcare	BLD	Boral Ltd.	Materials
COH	Cochlear Ltd.	Healthcare	DOM	Dominion Mining Limited	Materials
CSL	CSL Ltd.	Healthcare	EQN	Equinox Minerals Ltd.	Materials
HSP	Healthscope Ltd.	Healthcare	FMG	Fortescue Metals Group Ltd.	Materials
ISF	iSOFT Group Limited	Healthcare	GBG	Gindalbie Metals Ltd.	Materials
PRY	Primary Health Care Ltd.	Healthcare	GNS	Gunns Ltd.	Materials
RHC	Ramsay Health Care Ltd.	Healthcare	ILU	Iluka Resources Ltd.	Materials
RMD	ResMed Inc.	Healthcare	IPL	IncitecPivot Ltd	Materials
SIP	Sigma Pharmaceuticals Ltd.	Healthcare	IGO	Independence Gold NL	Materials
SHL	Sonic Healthcare Ltd.	Healthcare	JHX	James Hardie Industries NV	Materials
AJL	AJ Lucas Group Ltd.	Industrials	KZL	Kagara Ltd	Materials
ALS	Alesco Corporation Limited	Industrials	KCN	Kingsgate Consolidated Limited	Materials
AIO	Asciano Group	Industrials	LGL	Lihir Gold Ltd.	Materials
AAX	Ausenco Limited	Industrials	LYC	Lynas Corp. Ltd.	Materials
AIX	Australian Infrastructure Fund	Industrials	MCC	MacArthur Coal Ltd.	Materials
BBI	Babcock & Brown Infrastructure	Industrials	MRE	Minara Resources Ltd.	Materials
BLY	Boart Longyear Limited	Industrials	MCR	Mincor Resources NL	Materials
BKN	Bradken Limited	Industrials	MGX	Mount Gibson Iron Ltd.	Materials
BXB	Brambles Ltd.	Industrials	MMX	Murchison Metals Limited	Materials
CAB	Cabcharge Australia Ltd.	Industrials	NCM	Newcrest Mining Ltd.	Materials
CEU	Connecteast Group	Industrials	NUF	Nufarm Ltd.	Materials
CXP	Corporate Express Australia Ltd.	Industrials	OMH	OM Holdings, Ltd.	Materials
CRG	Crane Group Ltd.	Industrials	OST	OneSteel Ltd.	Materials
CSR	CSR Limited	Industrials	ORI	Orica Ltd.	Materials
DOW	Downer EDI Limited	Industrials	OZL	OZ Minerals Limited	Materials
EHL	Emeco Holdings Limited	Industrials	PNA	PanAust Limited	Materials
GWT	GWA International Ltd.	Industrials	PAN	Panoramic Resources Ltd.	Materials
HST	Hastie Group Limited	Industrials	PPX	Paperlinx Ltd.	Materials
HIL	Hills Industries Limited	Industrials	PLA	Platinum Australia Ltd	Materials
LEI	Leighton Holdings Ltd.	Industrials	RIO	Rio Tinto Ltd.	Materials
MAH	MacMahon Holdings Ltd.	Industrials	SGM	Sims Metal Management Limited	Materials
MAP	Macquarie Airports	Industrials	SGX	Sino Gold Mining Limited	Materials
MIG	Macquarie Infrastructure Group	Industrials	SBM	ST Barbara Ltd.	Materials
MND	Monadelphous Group Limited	Industrials	SRL	Straits Resources Ltd.	Materials
NWH	NRW Holdings Ltd.	Industrials	SDL	Sundance Resources Ltd.	Materials
PMP	PMP Limited	Industrials	WSA	Western Areas NL	Materials
QAN	Qantas Airways Limited	Industrials	SGT	Singapore Telecommunications Ltd.	Telecommunication Services
SEK	SEEK Limited	Industrials	TEL	Telecom Corp. of New Zealand Ltd.	Telecommunication Services
SPT	Spotless Group Ltd.	Industrials	TLS	Telstra Corporation Limited	Telecommunication Services
TOL	Toll Holdings Limited	Industrials	AGK	AGL Energy Limited	Utilities
TSE	Transfield Services Ltd.	Industrials	APA	APA Group	Utilities
TCL	Transurban Group	Industrials	DUE	DUET Group	Utilities
UGL	United Group Limited	Industrials	EWC	Energy World Corp. Ltd.	Utilities
VBA	Virgin Blue Holdings Ltd.	Industrials	ENV	Envestra Ltd.	Utilities
CPU	Computershare Ltd.	Information Technology	HDF	Hastings Diversified Utilities Fund	Utilities
IRE	IRESS Market Technology Ltd.	Information Technology	SPN	SP AusNet	Utilities
ABC	Adelaide Brighton Ltd.	Materials	SKI	Spark Infrastructure Group	Utilities
AWC	Alumina Ltd.	Materials			

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