December 2008

Carbon Energy Limited

ASX: CNX

Recommendation
Buy

Volatility
High

Trading Price for the 18 Dec 2008
$0.34

Target Price in 12 Months:
$0.72

Price Performance

Industry Group: Materials
Market Cap: $171,953,823
Total Issue: 491,296,637
12m High/Low: $0.93/$0.15

Contents

Prepared By
Nick Leonard
Analyst
nleonard@bakersgroup.com.au

Bakers Investment Group
Level 9, Springfield Tower
145 Sinnathamby Blvd
Springfield Central, 4300
Queensland, Australia

Toll-free: 1800-982-210
Email: info@bakersgroup.com.au

OVERVIEW

Carbon Energy (CNX) is an emerging Australian gas producer. CNX is developing the processes and infrastructure to produce syngas by means of underground coal gasification (UCG). The company has successfully built a pilot production facility near Dalby in the Surat Basin (QLD) which has produced commercially attractive syngas. The major risk for CNX is geopolitical risk while other risks include key staff risk and the legal risk associated with future overlapping tenements.

INDUSTRY

Intellectual Property

Syngas (from *synthesis gas*) is a gas mixture containing varying amounts of carbon monoxide and hydrogen and in application, is commonly used as petrochemical feedstock or fuel for electricity generation and may also be processed into diesel, methane and other fuel types. Syngas can be produced in multiple ways, including steam reforming of natural gas to produce hydrogen, waste-to-energy gasification and gasification of coal. Surface coal gasification has been in commercial use since mid 19th century. The UCG technology being developed by CNX in practice, presents a similar process to syngas production by surface coal gasification. The core difference between the two processes is that in UCG, the cavity itself acts as the reactor chamber. One of the key barriers to successfully utilizing UCG has been maintaining a consistent quality throughout the extraction process. CNX has perfected techniques to do this.

Key Advantages of UCG
It is the safest method of coal extraction
Minimal ground surface disturbance
High energy efficient use of coal seam gas compared to CSG
It makes extraction of vast underground coal reserves commercially viable
- Capital and operating costs are lower than in traditional mining
- Well head gas costs substantially less than natural gas on an energy equivalent basis
- Base load power costs using UCG gas are more comparable to much larger super-critical coal fired stations
- CO2 emissions for CCGT power plant 25% less than for the cleanest coal-fired power plant

Key Disadvantages of UCG
It lacks commercial credentials
It has potential safety issues
It will potentially pollute the water table

Profile & Key Players

There are few companies engaged in the UCG development and is dwarfed in size by other competing energy industries that go to collectively make up the broader alternate energy sector. The domestic industry appears to be clustered in Queensland while on a global perspective is traditionally centred in the Former Soviet Union (FSU) and is now otherwise fragmented in areas such as the USA, Europe, Pakistan as well as Australia.

Key Competitors

Domestically, companies holding substantial UCG interests include Linc Energy, Cougar Energy, Altera Resources Ltd and CNX. Cougar Energy is in initial phases of a staged development of a 400MW UCG-fired power station at Kingaroy (QLD). Linc Energy's strategy is to use the syngas produced via UCG as feedstock to their Coal-to-Liquid (CTL) processing facility to output diesel. Linc spent about $50 million on exploration and pilot facilities at Chinchilla (QLD) only to change their strategy in November 2008. They will now be implementing their facilities in South Australia. Linc's Chinchilla trial gasified more than 35,000 tonnes of coal over 30 months, which has probably been the largest UCG trial outside the FSU.

Perth-based Altera Resources acquired UCG intellectual property for $10million via a scrip deal with Clean Global Energy. Clean Global Energy is trading on the NASDAQ Over-The-Counter Bulletin Board. Altera Resources holdings are presently not in direct competition with CNX because the Clean Global Energy has a bio-mass, waste-to-energy and biofuels focus.

Global Advancement of UCG

In Australia, syngas production from UCG is commonly thought to be emerging in technology and process. On the contrary, the Former Soviet Union has produced 15 million tonnes since 1950s. The USA/EU have also produced about 100,000 tonnes. The only commercial size UCG plant is located at Angren, Uzbekistan and has produced about 10 million (of the FSU's 15 million tonnes). Ergo Exergy operate the Angren plant and has initiated construction of a new plant in South Africa, with a generating capacity of a planned 2100 MW.

CNX's Industry Position

CNX has successfully built a pilot production facility near Dalby in the Surat Basin (QLD). It is confirmed that the plant can produce syngas suitable for power generation. Subsequent stages of testing will evaluate suitability to produce chemical feedstock. Within the Australian industry CNX and Linc Energy are market leaders while Cougar Energy is closely following. As this emerging industry develops, the dominant player/s will become more easily recognizable.

Legislation

The Australian states legislate the granting of tenures. In Queensland, where the vast majority of Australia's UCG activities have taken place, tenures are governed by the Petroleum and Gas (Production and Safety) Act 2004 (P&G Act) and the Mineral

Resources Act 1989 (MRA). Under the MRA, tenure may be in the form of an Authority to Prospect (ATP) or a Petroleum Lease (P&G Act). A Petroleum Lease could be granted to undertake exploration, production and storage activities, petroleum pipeline and water pipeline construction and operation activities or petroleum processing activities.

This legislation may impact CNX in the event of overlapping between minerals and gas/petroleum tenures. Other states equivalent acts are applicable to governing of CNX's uranium and gold tenures.

Macroeconomic Impacts

It is widely accepted that the global energy demand is rapidly increasing and will continue to do so. Innovation in how we utilize the world's current resources along with development of other renewable and alternative energy sources is required to meet the future energy gap. The work done by CNX is made valid by this underlying economic driver. The below World Business Council for Sustainable Development (WBCSD) publication illustrates how developed UCG is compared to the other new alternative energy technologies.

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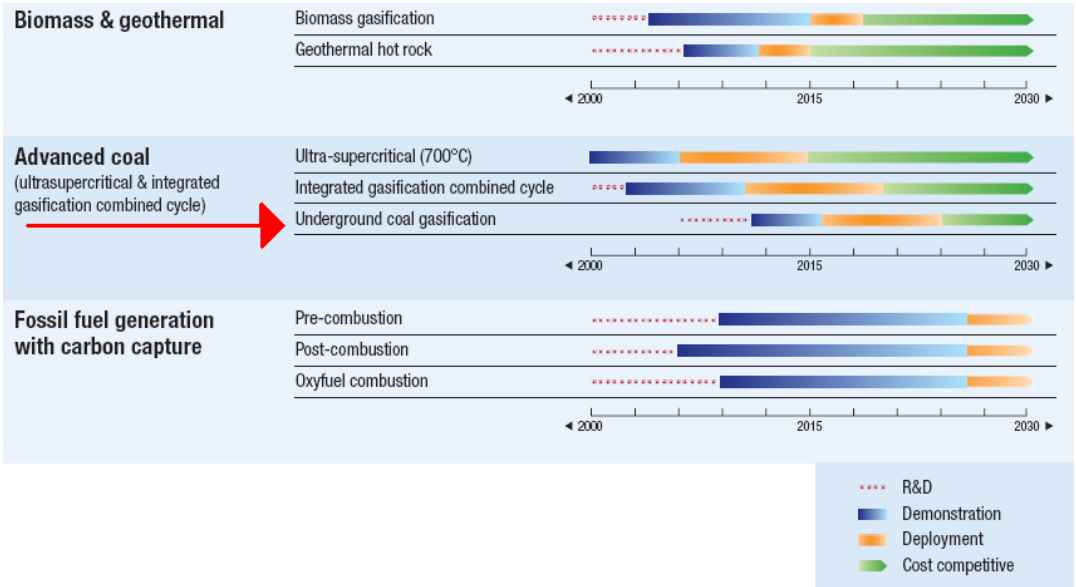


Extract from the World Business Council for Sustainable Development (WBCSD) publication, *A Business Contribution to a Low-Carbon Economy.*

COMPANY

Age & History

Former minerals explorer, Metex, was formed in 1992 and listed on the ASX near the end of 2003. From 1995 to 2005, the company held interests in numerous gold projects. In 2005 they provided seed capital to nickel-copper-platinum group metals explorer Magma Metals Ltd. Magma is currently evaluating a platinum/palladium discovery in Ontario, Canada. Metex took hold of 10 million shares of the now ASX listed, Magma Metals (MMB).

Changing company strategy

2006 for Metex was a turning point in company strategy, engaging into uranium exploration within Australia and Europe. Carbon Energy Pty Ltd incorporated with others to undertake development and commercialization of UCG technology and processes. Carbon Energy (Operations) Pty Ltd was incorporated with CSIRO, Metex and others as a joint venture. In late 2007, Metex (now Carbon Energy Ltd - CNX) acquired the 50% of the shares in CEOPL in return for approximately $2.4 million (net) in cash and 103.561 million Metex shares. In June 2008, Metex changed its name to CNX issued 15 million shares as well as another 40 million to sophisticated investors, 55 million to Incitec Pivot Ltd (IPL), about 93 million to Carbon Energy shareholders, 15 million shares to Constellation Energy Pty Ltd and about 9 million and 5.5 million to Dr. Clifford Mallet and Mr. Marion Russell (Rusty) Mark, respectively. At 10 December 2008, CSIRO holds about 17.8% of CNX's issued capital. IPL is the second largest shareholder (11.2% of CNX) and signing a MOU to undertake feasibility study into syngas being used as feedstock for the production of ammonia. CNX continues to hold the 10 million Magma Metals (MMB) shares. The current value of this investment is $2.55 million (10 Dec 2008).

Company Strategy

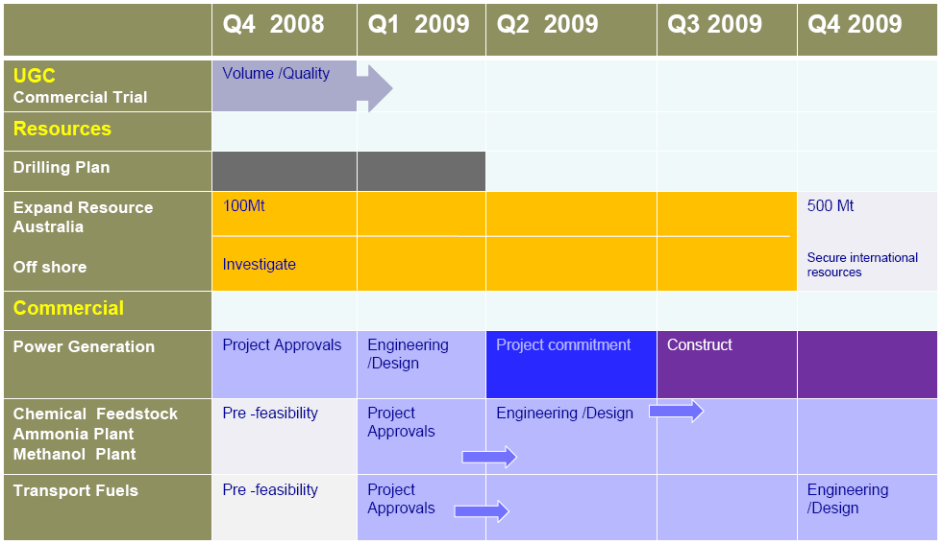
Although CNX holds interests in uranium and gold, the company's primary goal is to be a producer of energy and chemical feedstock from UCG syngas. CNX plans to realize this goal the four following strategies:

- Continuous improvement of UCG technology and the development of complementary technologies
- Identify and develop commercial opportunities using syngas
- Expand its coal resource inventory by exploration within its current tenements or through identification of suitable joint venture opportunities.
- Quality communication with all stakeholders

Upon completion of the demonstrations facility, CNX plans to conduct a feasibility study into construction of a $1 billion ammonia plant and a separate $1-2 billion manufacturing facility.

Upon completion of the demonstration facility, CNX plans to begin feasibility study into constructing a $1 billion ammonia plant and a separate $1 - 2 billion manufacturing facility near the demonstration facility. Of the 2000 PJ estimated to be on the site, it is expected that about 1000 PJ is recoverable.

CNX's short-term strategy is detailed below:



CNX AGM Presentation 2008 (13 Nov 2008), Pathway to Commercialisation – Next 12 Months

Reserves Summary

Although the vast majority of CNX's value is held in its syngas production potential, the company also holds interests in gold, oxide and uranium exploration.

Reserves Summary			
Resource	**Known Reserves**		
	Measured (oz.)	Indicated (oz.)	Inferred (oz.)
Gold	226,000	210,000	158,000
Oxide	268,100 (50%)	394,600 (50%)	445,200 (50%)
Coal	More than 100 million tonnes which is equivalent to 2000 PJ of energy, of which up to 1000 PJ is recoverable. The JORC Code applies and these reserves are 'inferred'.		
Uranium	Undertaking uranium exploration within 18 tenements having a total area of 5,413 km2. Drilling results for the Nyang Project (WA – Carnarvon Basin) have confirmed U3O8 mineralisation.		

Competitor comparison of 3P energy reserves

CSG Company	3P Reserves (PJ) (as at 21 Aug 2008)
Eastern Star Gas	1300
Queensland Gas Corporation	7163
Arrow Energy NL	3127
Sunshine Gas Ltd	1097
Metgasco Ltd	100

Growth Profile

Growth is underpinned by amount of useable reserves.

Since CNX's successful pilot project, the growth of the company is underpinned by their amount of useable reserves. A few local companies already operating in the CSG space are listed below with only their 3P reserves. CNX has 2000 PJ of reserves, of which 1000 PJ is extractable. CNX's growth profile will be improved firstly by ensuring reserves targets are met and also by the continued increasing demand for energy and more specifically clean energy, globally.

Directors & Management

High level of director turnover

During 2008, two directors have retired from CNX and four new directors have joined the team. Effective 1 January 2009, the CEO, General Manager Commercial and Company Secretary positions have all been re-staffed. The previous CEO is now a Non-Executive Director of the company. Four of the total eight directors have been recently employed and this is attributed to the merger of Metex and Carbon Energy and restructuring of ownership in mid-2008. The team of directors possess a very impressive blend of experiences, including research, management, and previous relevant industry directorships. The depth of experience is extensive for technical and accounting and adequate for the broader commercial. Only half of the directors own CNX shares while a fifth director has indirect unlisted options, offering partial mitigating key man risk amongst executive management. The salaries paid to executive officers during FY2008 offer strong incentives; however, the current directors' fees totalled only $32,700 for the same period.

They have a strong management team for the current stage of the company's development. It was previously identified that CNX appear to have insufficient in-house expertise to drive the business commercially. Credentials held by recent appointees will help remedy this.

Staffing Risks

Key staff risk

The number of employees for the consolidated group at the ends of FY2008 and FY2007 were 15 and 6, respectively. Although CNX currently carries substantial technical and engineering expertise, as the company expands, attracting and retaining these staff will become more financially difficult. The Queensland employment market for geologists and gas related engineers and trades-people is currently highly competitive. Remuneration is higher relative to their peers working in other sectors and this issue could have a significant impact on wages expense in the future.

Geopolitical Risk

In recent years, Queensland has cultivated a coal-seam gas (CSG) industry, developing a few of the fastest growing companies on the ASX, such as Queensland Gas Corporation and Arrow Energy. Syngas production UCG is an emerging method of extracting gas from coal-seams and is increasing competition for reserves in the Queensland region.

The QLD Government's stance on UCG is unclear.

As a result of increased competition, CSG key players have been lobbying the government to not grant UCG companies with the appropriate gas extraction permits. Although the government has voiced support for UCG on numerous occasions, their stance on the matter remains indeterminate. There is a high level of political risk associated with CNX.

Technological Risk

Compared to its domestic peers, CNX is considered to have a low level of technological risk because the research was conducted in conjunction with the CSIRO following 10 years of research and development. The construction of their demonstration facility was constructed on time and budget and testing has been successful thus far. On 13 January 2009, CNX reported production of a "commercially attractive variety of syngas".

Issue of Overlapping Tenements

CNX's demonstration plant is not dependant on Government's decision on overlapping tenements, although future permits are likely to.

According to Queensland legislation under the MRA, in the case of minerals tenures overlapping petroleum tenures, the miner is encouraged to reach agreement with the holders of the overlapping tenure. For the case of a petroleum lease overlapping an ATP, again an agreement between the two parties is encouraged. This area of law will perhaps quickly develop to more clearly govern the issue of overlapping tenements, as it increasingly impacts the state's gas companies.

Queensland Gas Corporation (QGC) and Linc Energy had up to 2% in overlapping tenements at Linc's Chinchilla site. Following BG Group's acquisition of QGC (Nov 2008), Linc Energy announced in Nov 2008 that they are relocating their demonstration facility to South Australia.

CNX's $20 million demonstration production facility near Dalby in the Surat Basin is not dependant on any decision by the Queensland Government in relation to overlapping tenements. However, tenements in the future are exposed to this issue and its associated legal risk.

Regulatory Compliance

CNX has not incurred any environmental incidents, infringements or breaches during the 2008. Their UCG project complies environmental authorities issued by the EPA and all UCG activities have been authorized on CNX's Mineral Development Licence (MDL 374).

Earnings Volatility

Upon full commercial production, CNX's sales revenue should be fairly continuous, fluctuating at the commissioning and decommissioning of site facilities. The earnings are not expected to be volatile and will be underpinned by the price of ammonia and other products that CNX may output from processed syngas.

Key Stakeholders

Top 20 Shareholders	
CSIRO 91,346,154 18.59%	CASSA TRADING PL 4,640,000 0.94%
INCITEC PIVOT LTD 55,000,000 11.19%	WALKER IAN WILLIAM 4,634,974 0.94%
J P MORGAN NOM AUST LTD 11,401,212 2.32%	AILEENDONAN INV PL 4,465,389 0.91%
NATIONAL NOM LTD 9,689,197 1.97%	COMPUTER VISIONS PL 4,358,879 0.89%
LUJETA PL 9,600,000 1.95%	CITICORP NOM PL 4,159,636 0.85%
MALLETT CW & WJ 9,437,322 1.92%	RBC DEXIA INVESTOR SERVICES 4,055,000 0.83%
DARLEY PL 7,000,000 1.42%	ROBINSON KIM 4,025,557 0.82%
WALKER GRP HOLDINGS PL 6,669,012 1.36%	LIT WICK ENTPS PL 4,000,000 0.81%
ANZ NOM LTD 6,406,906 1.30%	EQUITY TTEES LTD 3,875,000 0.79%
SPRINGTIDE CAP PL 4,900,000 1.00%	ZARZAL PTY LTD 3,800,000 0.77%

Source: Bloomberg (10 Dec 2008)

Financial Fundamentals

GICS Industry Group	**Materials**
Market Capitalisation	$171,953,823
Total Issue	491,296,637
12 Month high/low	$0.93/$0.155

Financial Summary	Audited 30/06/2008
Revenue	$1,800,312
Net Profit Bef. Abn.	-$2,012,046
Net Profit	-$2,012,046
Net Profit Margin	-111.76%
Cash Reserves (as at 30 Sep 2008)	$17,400,000

Return on Equity	-1.47%
Dividend Per Share	$0
Current Assets	$31,966,936
Non Current Assets	$106,038,340
Total Assets	$138,005,276
Current Liabilities	$1,129,226
Non Current Liabilities	$0
Total Liabilities	$1,129,226
Shareholder Equity	$136,876,050

Source: Paritech, 13 January 2009

Valuation

Valuation methodology

In valuing CNX, a comparison was made to the Australian gas industry. A sum of parts approach was applied with the reserves being valued separately to the UCG technology, infrastructure and intellectual property.

Company Selection for Comparison

The companies were selected from the Natural Gas sub-sector of the ALTEXAustralia Index. These 23 stocks were further reduced to exclude:

- Companies with tenements and reserves located outside Australia;
- Oil and LNG companies (ie. only holding gas intended for UCG or CSG); and
- Companies with significant power generation or gas distribution infrastructure.

This screening process identified 7 stocks (ESG, QGC *(quotation suspended 15 Dec 2008)*, SHG, PES, MPO, MEL, ODN and CNX) appropriate to use for a comparison of reserves.

Valuing Reserves

- The 1P, 2P and 3P reserves were segregated and then weighted by probability of commercial production, as per the Society of Petroleum Engineers (SPE) guidelines. CNX's reserves were prudently likened to 1P, 2P and 3P reserves.
- The market capitalisations were divided by the weighted reserves and an average taken for the 7 companies.
- This factor was applied to CNX
- A 50% discount was applied to the reserves, noting that the value of reserves are not directly comparable with the CSG sector, due to the unproven extraction process of the UGC technology, and that cost recovery is less attractive without sufficient technology. There is also limited price support for UGC over CSG reserves given the absence of available technological success.

Valuing Technology, Infrastructure and IP

Two methods were used in collectively valuing the technology, infrastructure and IP. This first method took an average cost, as experienced or currently budgeted for by other UCG companies, internationally, to develop similar assets. For the second method, the already weighted reserves were factored by the competitive advantage offered by UCG over CSG. This accounted for the differences in recovery rates between UCG and CSG and the differences in values of the commodities produced by both methods. From this the value of the reserves were subtracted, leaving the monetary advantage of the UCG technology, infrastructure and IP, given the amount of reserves held by CNX.

Risk Factor

40% risk factor applied

Qualitative research into CNX identified two major risks – key staff risk and geopolitical risk. The latter of the two is more of a concern, following CSG companies, particularly BG

Group, lobbying to the Queensland government to disallow UCG. BG Group argued predominantly that UCG may pollute the water basin. This has made the agricultural community hesitant to accept UCG. This risk factor, although difficult to quantify has perhaps prudently been set to 40%. There is also future exposure to the issue of overlapping tenements.

The valuation summary is shown below in Table 1.

	Min.	Max.	Mid-Point
Part 1: Value of Reserves	$0.62	$3.11	$1.87
Reserves Discount (50%)	$0.31	$1.56	$0.94
Part 2: Value of Technology	$0.06	$0.45	$0.26
Sum of Parts	$0.68	$3.56	$1. 20
Risk Factor (40%)	$0.27	$1.42	$0.72
Target Price			**$0.72**

Table 1 Valuation Summary

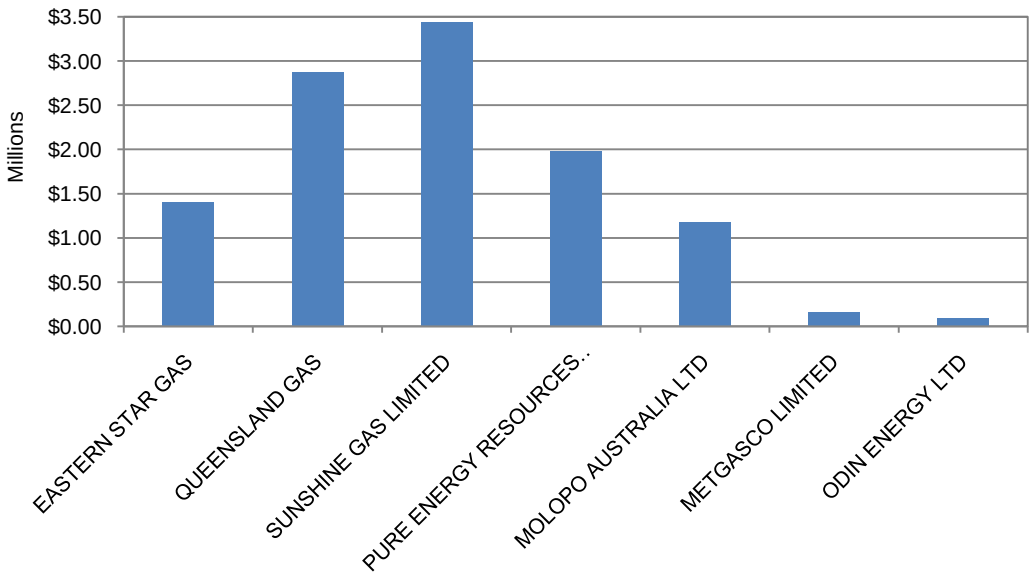


Figure 1 Market Cap. per Weighted Unit of Reserves

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Recommendation Structure

Absolute performance, long-term recommendation is based on implied upside/downside for the stock from the target price. A Buy/Sell implies upside/downside of 10% or more and a Hold less than 10%. The target price is the level the stock should currently trade at if the market accepted the analyst's view of the stock, provided the necessary catalysts are in place to effect the change in perception. If it is felt that the catalysts are not fully in place to effect a re-rating of the stock to its warranted value the target price will differ from 'fair' value. Given the volatility of share prices and our pre-disposition not to change recommendations frequently, these performance parameters should be interpreted flexibly. Performance in this context only reflects capital appreciation and the horizon is 12 months.

Each stock has been assigned a Volatility Rating to assist in assessing the risk of the security. The rating measures the volatility of the security's daily closing price data over the previous year relative to other stocks including in the S&P/ASX-300 Index. This rating is a quantitative (objective) measure provided as an additional resource and is independent of the qualitative research process undertaken by our research analysts.

Regulatory Disclosures

SUBJECT COMPANIES: CNX.AX, Carbon Energy Limited

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