CARBON REPORTING

REGULATORY AND VOLUNTARY DISCLOSURES

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A LONGITUDINAL STUDY OF ASX LISTED COMPANIES DRAWN FROM THE NATIONAL GREENHOUSE AND ENERGY REPORTING ACT REGISTER

ABOUT THE AUTHORS

Cornelia Beck is a senior lecturer in the Discipline of Accounting at the University of Sydney Business School. Her primary research interest lies in the narrative organisations use to demonstrate their efforts in relation to environmental impact minimisation and maintaining a sustainable future.

Geoff Frost is an Associate Professor in the Discipline of Accounting at the University of Sydney Business School. His current research interests include reporting and accounting for sustainability activities, the accountant's role in the environmental management system, and the use of alternative reporting mediums by reporting entities.

Stewart Jones is a Professor in the Discipline of Accounting at the University of Sydney Business School. His current research interests include corporate financial reporting, credit risk modelling, accounting standards and accounting theory as well as issues in sustainability reporting.

Zornitza Baker holds a PhD in molecular biology from The University of Sydney. Zoe is a research assistant in the Discipline of Accounting working on projects with special focus on reporting for carbon, corporate sustainability, CSR assurance, and non-financial disclosures.

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LEGAL NOTICE

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EXECUTIVE SUMMARY

In 2007 the Australian Government introduced the National Greenhouse and Energy Reporting Scheme (NGERS), providing the first mandated national reporting guidelines for Australian companies. This research focuses on the public reporting practices on greenhouse gas emissions and energy usage of 51 Australian companies mandated to report under NGERS. The introduction of NGERS therefore provides a standard benchmark by which to evaluate voluntary external reporting practices that can be evaluated against the level of information mandated to be reported to government.

Across the aggregated sample of companies we observed in their publicly available reports an increase in the mean level of emissions and energy reporting with the introduction of NGERS. However, when the Federal Government announced the withdrawal of legislation designed to introduce a carbon trading scheme, we observed a decrease in mean level of disclosure. Voluntary reporting appears to be sensitive to the external environmental, particularly related government regulation.

The information available to support public reporting was underpinned by a single reporting scheme, however we observe significant variation in the level of reporting being undertaken by the sample companies. This would suggest that public reporting was being influenced by factors other the availability of performance data.

It is expected when considering the materiality of activities that not all companies would report against all categories. However, within industry categories significant variation was observed. For example, in 2013 for the financial services sector disclosures ranged from four observations to 16 for NAB. The results suggest that materiality of performance is not a determinant of the choice to publicly report carbon related information. Even within the context of the introduction of a carbon tax many companies chose to voluntarily disclose very limited levels of energy and emissions information.

High and low reporting companies were observed across all sectors. The results would suggest that industry alone did not determine the extent of carbon reporting.

The existence of NGERS has created a situation where the sample companies collect and report a consistent set of data (subject to operations and materiality) on emissions and energy usage. Theoretically, this sample of companies is capable of a high degree of comparability of voluntary reporting. The results of this study indicate this is not the case. The significant levels of variation observed has ramifications for those who advocate voluntary reporting guidelines.

1.1 BACKGROUND

The National Greenhouse and Energy Reporting System (NGERS) is a national reporting framework for information on the greenhouse gases emitted in Australia due to the activity of corporations.

Greenhouse gases are considered to be causing harmful climate change impacts and the Australian Government policy is to reduce the overall rate of Australian greenhouse gas emissions. At the time of the development of NGERS, Government policy was to reduce Australian emissions by five to 15 per cent of the year 2000 levels by 2020, with the possibility this target would be increased to 25 per cent should there be international agreement to a target of atmospheric concentrations of greenhouse gases of 450 parts per million. In August 2015, Australia submitted its intended nationally determined contribution (INDC) which sets out a greenhouse gas (GHG) emissions reduction target of 26-28 per cent below 2005 levels by 2030.

Under NGERS, corporations with certain thresholds of greenhouse gas emissions, energy consumption and energy production must report emissions and energy information to the Australian government on an annual basis. A summary of the reported information is made publically available via the website of the Department of Climate Change and Energy Efficiency.

NGERS is governed by the National Greenhouse and Energy Reporting Act, which came into force on 29 September 2007. The Act is administered by the Greenhouse and Energy Data Officer (GEDO) and is supported by regulations, amendments, determinations and guidance supplements. The system provides a single national reporting framework for the reporting and dissemination of information related to greenhouse gas emissions, greenhouse gas projects, energy consumption and energy production by corporations (National Greenhouse and Energy Reporting Act 2007 (Cth) section3).

The Government's objectives in introducing NGERS were to:

- inform Government policy ;
- inform the Australian public;
- meet Australia's international reporting obligations;
- avoid the duplication of similar reporting requirements in the States and Territories; and
- provide an information basis for any future emissions trading scheme.

NGERS reporting is based on the Greenhouse Gas Protocol published by the World Resources Institute and the World Business Council for Sustainable Development (WRI/WBCSD). To meet their NGERS reporting obligations, corporations typically implement a detailed organisation wide inventory of greenhouse gas emissions, energy consumption and energy production.

1.2 HOW THE SCHEME WORKS

1.2.1 THRESHOLDS FOR PARTICIPATION

There are two types of participation threshold – a corporate threshold and a facility threshold. The current thresholds are shown in Table 1. When the scheme commenced in 2008, the corporate thresholds were 125 kilo tonnes of carbon dioxide equivalent ($ktCO_2$-e)[1] for greenhouse gas emissions and 500 terra joules (TJ) of energy production or consumption. The corporate thresholds have since been reduced annually to the current thresholds of 50$ktCO_2$-e and 200TJ. The facility thresholds have not been altered since the start of the scheme at 25$ktCO_2$-e and 200TJ.

Table 1. NGERS corporation and facility thresholds effective from 1 July 2010.

TYPE OF THRESHOLD	THRESHOLD VALUE EFFECTIVE FROM 1 JULY 2010
CORPORATION	
Greenhouse gas emissions	50 kilo tonnes of carbon dioxide equivalent ($ktCO_2$-e)
Energy consumption	200 terra joules (TJ)
Energy production	200 terra joules (TJ)
FACILITY	
Greenhouse gas emissions	25 kilo tonnes of carbon dioxide equivalent ($ktCO_2$-e)
Energy consumption	100 terra joules (TJ)
Energy production	100 terra joules (TJ)

Companies that reach the corporate threshold for either energy or greenhouse gases must report for all facilities in the company. If a company does not reach the corporate threshold but reaches the facility threshold for either energy or greenhouse gases, it must report for each facility that reaches a threshold. The government publishes a list of registered corporations on its web site. As of 30 June 2010, 723 corporations were registered.

1.2.2 BOUNDARIES FOR REPORTING

GEOGRAPHICAL

Participating corporations are required to report on all activities within Australia. Activities in the Exclusive Economic Zone (EEZ), between 12 and 200 nautical miles from the coast, are excluded from mandatory NGERS reporting except for oil and gas extraction. NGERS requires reports on activities to be disaggregated by state or territory to enable alignment with state and territory reporting schemes.

ORGANISATIONAL

NGERS uses the concept of controlling corporation to define the scope of a company's reporting obligation. The controlling corporation is the entity responsible for reporting and record keeping on behalf of the organisation. A controlling corporation is a constitutional corporation that is registered under Pt 2A.2 of the Corporations Act 2001(Cth). A controlling corporation is the entity at the top of the organisation's hierarchy that has operational

[1] Further information on carbon dioxide equivalent emissions can be found at **http://www.environment.gov.au/node/22115** (sourced 2/11/15).

control over other companies in the group. For a controlling corporation there is no holding corporation in Australia.

The concept of controlling corporation refers to operating control not financial control or administrative control. A corporation has operating control over a facility when it has primary authority to implement operating policies, environmental policies or health and safety policies. This might include subsidiaries (as defined under the Corporations Act), joint ventures and partnerships, however only one company can be a controlling corporation for a facility. In circumstances where there is joint operating responsibility, the corporation with the most responsibility for operating and environmental policies is the controlling corporation. It may be necessary to refer to contract documentation to determine who has the most authority. If there is uncertainty, the GEDO may declare which entity has the greatest operational authority. This method aligns with concepts used in international reporting standards such as ISO 14064-1:2006 and the Greenhouse Gas Protocol.

The controlling corporation is required to keep the relevant greenhouse gas and energy records and report for all activities in a facility, including those activities undertaken by contractors and subcontractors when the controlling corporation is deemed to have operating control of the activity.

A facility is defined under NGERS as an activity or series of activities that:

- produce greenhouse gas emissions,
- produce or consumes energy,
- form a single undertaking, and
- are attributable to a single industry sector.

An example of a series of activities that comprise a facility provided in the NGERS Guidelines is steel manufacturing, which includes a series of processes (iron pelleting, blast furnace processing, coke manufacture and steel milling) to produce steel and steel products.

A facility may coincide with a physical location or, in the case of transport or networks, it may consist of multiple locations. For example, trucking operations or gas or electricity distribution networks would form a facility. For interstate networks, the facility data needs to be disaggregated by state or territory.

Determining what constitutes a facility needs careful consideration and the GEDO may make facility declarations either in response to a request from a corporation or on its own initiative.

REPORTING UNITS

The reporting units for NGERS are the corporation, business units, and facilities. For reporting to the government, corporations with multiple facilities are able to group facilities below the facility threshold. A business unit is defined as having administrative responsibility for one or more facilities. It may be used as a reporting unit for groups of facilities that do not meet the facility threshold. Reporting units under the level of the corporation need to be within a state or territory geographic boundary.

An amendment to the NGERS legislation in 2009 provided for the establishment of Reporting Transfer Certificates (RTC). These certificates allow a corporation with operational control of a facility, but not financial control, to transfer the reporting obligation for that facility to another corporation with the financial control. Holders of RTCs must provide a report to the government regardless of whether they meet an NGERS threshold.

GREENHOUSE GASES, ENERGY AND ACTIVITIES – CONCEPTS OF SOURCE AND SCOPE

The corporations activities that are included in NGERS information recording and reporting for energy and greenhouse gas purposes are manufacturing, utilities (electricity, gas or water), mining, commercial services, construction, transport and storage. The excluded activities are agriculture, forestry and fishing.

The greenhouse gases that must be reported are the same as those under the Kyoto protocol (carbon dioxide, methane, nitrous oxide, sulphur hexafluoride, certain hydrofluorocarbons and certain perfluorocarbons). These gasses are emitted during combustion and during certain other processes. The concept of source is used in defining the boundaries of the required information. The greenhouse gas sources that are included in NGERS are stationary energy (such as electricity), transport energy, industrial processes (such as CO2 from the production of clinker for cement), waste (such as methane and nitrous oxide from landfill or sewage treatment) and fugitive sources (such as methane from mines or hydrofluorocarbons from refrigeration units). Sources that are excluded are agricultural sources (such as methane from cattle) and land use or land use change sources (such as release of CO2 from the soil during land clearing).

To avoid double counting between reporting entities, NGERS uses the WRI/WBCSD Greenhouse Gas Protocol concept of scope to include emissions from sources that are either directly the result of the activities under the control of the corporation (Scope 1), or are the result of the production of electricity, steam or compressed air purchased by the company (Scope 2). Other emissions that occur elsewhere as a consequence of the entity's activities are referred to as Scope 3 emissions and are not included in NGERS reports. An example of Scope 3 emissions for a company would be the emissions from business air travel purchased from an airline company. The airline company would record such emissions as Scope 1 emissions. Sources of energy production and consumption that must be reported are defined in the NGERS regulations via an extensive list of energy commodity types.

INFORMATION REPORTED

For each of the facilities or groups of facilities to be reported, information needs to be provided on the historical greenhouse gas emissions, energy production and energy consumption for each activity, for each of the sources of emissions and types of energy over the previous financial year. The method of calculation and the factors to be used are defined in the NGERS (Measurement) Determination 2008. The regulations also provide for the voluntary reporting of context data such as emissions and energy intensity. The calculation of the required information can be quite complex, with the measurement guidelines document being over 350 pages.

Corporations are also required to maintain records that support the reports. These records should be sufficient to demonstrate the reports comply with the NGERS reporting principles of transparency, comparability, accuracy and completeness. The records may be subject to audit by the regulator. Participating corporations are likely to need an inventory information system to maintain these records.

1.3 NGER STREAMLINING PROTOCOL

When the Australian Government introduced NGERS in 2007, there were nine greenhouse gas emissions mandatory reporting schemes and six voluntary schemes across federal and state governments (de Wit & Coonan 2008).

One of the objectives of the NGERS scheme was to reduce the duplication of energy and greenhouse gas reporting schemes across federal, state and territory governments. The Government recognised that the proliferation and diversity of GHG initiatives imposed an administrative burden on business and had the potential to lead to inconsistency in reported data.

As a complement to the Federal Government's NGERS scheme, the Council of Australian Governments (COAG) developed the National Greenhouse and Energy Reporting Streamlining Protocol. This protocol was published in 2009 with the intention that governments standardise the collection of GHG and energy information nationally.

The NGER Streamlining Protocol has a wider scope than NGERS. Whereas the NGER Act requires the collection of information relating to historical energy consumption, energy production and GHG emissions, the Streamlining Protocol also covers the following information aimed at managing reductions in energy consumption and GHG emissions:

- Energy audit data
- GHG and energy projections
- Intensity indicators
- Action identification and costing
- Projected savings and reductions
- Achieved savings and reductions

The following table lists the major energy and greenhouse gas schemes that are currently active for larger Australian businesses. Schemes aimed at small and medium enterprises are not covered in this document.

Table 1. Main energy and greenhouse gas schemes for business

SCHEME	JURISDICTION
National Greenhouse Energy Reporting System (NGERS)	Federal
Energy Efficiency Opportunities (EEO)	Federal
Renewable Energy Target (RET)	Federal
Commercial Building Disclosure	Federal
Smart Energy Savings Program (SESP)	Queensland
Energy Savings Action Plans (ESAP)	New South Wales
Greenhouse Gas Abatement Scheme (GGAS)	New South Wales
Environment and Resource Efficiency Plans (EREP)	Victoria
Green Power	Joint initiative of ACT, NSW, SA, QLD, VIC and WA government agencies

1.3.1 STREAMLINING POTENTIAL

There are several aspects of reporting schemes that might be aligned to reduce business administration, improve consistency and accuracy, and reduce duplication. These are listed in Table 2, indicating the aspects that are included in NGERS and in the NGERS Streamlining Protocol. The Streamlining Protocol covers more reported information categories than are required for NGERS. These additional categories are those that are required for energy savings schemes such as Energy Efficiency Opportunities (EEO). The Streamlining Protocol also covers issues such as report boundaries, standards and aspects of the report scheme design such as information confidentiality, level of aggregation, and report entities. It does not, however, cover the streamlining of participant obligations, report types, report publication or reporting timetable.

Table 2. NGERS alignment areas

ALIGNMENT AREA	INCLUDED IN NGERS	STREAMLINING PROTOCOL
PARTICIPANT		
Obligations	Y	N
Thresholds for participation	Y	N
REPORT BOUNDARIES		
Geographical	Y	Y
Organisational	Y	Y
Reporting unit	Y	Y
Activity	Y	Y
Sources	Y	Y
Scopes (1,2,3)	Y	Y
INFORMATION REPORTED		
Historical energy consumption	Y	Y
Historical energy production	Y	Y
Historical GHG emissions	Y	Y
Energy assessment audits	N	Y
Energy and GHG action plans	N	Y
Energy savings	N	Y
GHG reductions	N	Y
Energy intensity indicators	N	Y
GHG intensity indicators	N	Y
Energy projections	N	Y
GHG emissions projections	N	Y

ALIGNMENT AREA	INCLUDED IN NGERS	STREAMLINING PROTOCOL
REPORT		
Entities	Y	Y
Aggregation	Y	Y
Types	Y	N
Reporting tool	Y	Y
Publication	Y	N
Timetable	Y	N
STANDARDS		
Methods	Y	Y
Payback period	Y	Y
Verification audit	Y	Y
Terminology	Y	Y

1.3.2 ALIGNMENT OF ENERGY EFFICIENCY SCHEMES

Four of the schemes in Table 2 (EEO, SESP, ESAP and EREP) are specifically aimed at achieving energy efficiency within business. The following tables summarise the alignment that is in place between each of these energy efficiency schemes and the alignment of these schemes with NGERS. The information is derived from documentation available from the scheme web sites.

Table 3. NGERS and energy efficiency scheme alignment – Scheme background

JURISDICTION	DATE COMMENCED	OBJECTIVES
NGERS – NATIONAL GREENHOUSE ENERGY REPORTING SYSTEM		
Federal	September 2007	• Underpin future emissions trading scheme • Inform government policy • Inform Australian public • Meet Australia's international reporting obligations • Assist other energy and GHG schemes • Avoid duplication of similar reporting requirements
EEO – ENERGY EFFICIENCY OPPORTUNITIES		
Federal	July 2006	• Reduce demand on energy and energy infrastructure
SESP – SMART ENERGY SAVINGS PROGRAM		
Queensland	July 2009	• Reduce growth in Queensland electricity demand • Increase energy efficiency by business • Encourage positive energy management practices • Reduce business energy costs • Reduce GHG emissions in Qld commercial and industrial sectors

JURISDICTION	DATE COMMENCED	OBJECTIVES
ESAP – ENERGY SAVINGS ACTION PLANS		
New South Wales	May 2005	• Reduce peak electricity loads and protect electricity supply reliability • Reduce business electricity costs • Reduce GHG emissions in the electricity sector • Save water
EREP – ENVIRONMENT AND RESOURCE EFFICIENCY PLANS		
Victoria	March 2008	• Reduce energy and water use • Minimise waste • Reduce business costs

Comments on scheme background:

- The New South Wales and Victorian governments include water efficiency in their schemes. The Victorian scheme also covers waste reduction.
- The state schemes identify business energy cost savings as an objective, presumably to encourage business to participate and in preparation for expected price on carbon and energy cost increases in the future.
- Electricity is the focus of the Queensland and New South Wales schemes.

Table 4. NGERS and energy efficiency scheme alignment – Participation

OBLIGATIONS	THRESHOLD FOR PARTICIPATION
NGERS – NATIONAL GREENHOUSE ENERGY REPORTING SYSTEM	
• Register • Keep certain GHG and energy records • Report to government on GHG and energy usage	**Corporation per year (as of 2010-2011)** • GHG emissions: 50kT CO_2-e • Energy Consumption: 200 TJ • Energy Production: 200 TJ **Facility per year** • GHG emissions: 25kT CO_2-e • Energy Consumption: 100 TJ • Energy Production: 100 TJ
EEO – ENERGY EFFICIENCY OPPORTUNITIES	
• Register • Assess energy use (80% of energy) • Identify and plan cost effective energy saving actions • Report publically on proposed actions and outcomes • Report to government on actions and outcomes	**Corporation per year** • Energy Consumption: 0.5PJ
SESP – SMART ENERGY SAVINGS PROGRAM	
• Register • Assess energy use • Identify and plan energy saving actions • Report action commitment publically • Report to government on actions and outcomes	**Site per year** Energy consumption: • FY ending 30 June 2010: 100 TJ but less than 500 TJ • FY ending 30 June 2011, 2012, 2013, 2014: 30 TJ but less than 500 TJ • FY ending 30 June 2015: 10 TJ but less than 500 TJ
ESAP – ENERGY SAVINGS ACTION PLANS	
• Participants notified by government • Assess energy and water use • Identify and plan energy and water saving actions • Implement cost effective actions • Report to government on actions and outcomes	**Business site per year** • Energy consumption: 10 GWh • Water usage: 50ML **Local council** • Populations greater than 50,000 people **NSW Government agencies per year:** • Energy consumption: 10 GWh
EREP – ENVIRONMENT AND RESOURCE EFFICIENCY PLANS	
• Register • Assess energy, water and waste • Identify and plan energy, water saving, waste reduction actions • Implement cost effective actions • Report to government on actions and outcomes	**Site per year** • Energy Consumption: 100TJ energy • Water usage: 120ML

Comments on participation:

- The New South Wales (ESAP) and Victorian (EREP) schemes oblige the implementation of identified actions, while the Queensland (SESP) and Federal (EEO) schemes require public reporting of commitments but do not oblige their implementation.
- The NSW threshold for participation is measured in gigawatt hours (GWh), all other schemes use terajoules (TJ) or in the case of EEO, petajoules (PJ). 1GWh = 3.6TJ (elec). 1PJ=1,000TJ
- NGERS has a lower threshold for participation than EEO.
- The Queensland scheme threshold is designed to align with the EEO scheme by including only those sites that are under the EEO threshold. The thresholds for New South Wales and Victoria are not aligned with other schemes. Some sites in Victoria and New South Wales will need to participate in both EEO and state schemes.
- The state schemes are site based, while the federal EEO scheme is focused on the corporation. NGERS has both corporation and facility thresholds.

Table 5. NGERS and energy efficiency scheme alignment – Boundaries

GEOGRAPHICAL	ORGANISATIONAL	REPORTING UNIT	ACTIVITY	SOURCES	SCOPES (1,2,3)	REPORTING PERIOD
NGERS – NATIONAL GREENHOUSE ENERGY REPORTING SYSTEM						
Australia excluding Exclusive Economic Zone (EEZ) but includes oil and gas exploration in EEZ. Reports disaggregated by state or territory	Constitutional corporations. Covers activities over which the corporation has operational control, including those conducted by contractors and subcontractors	**Corporation** Business unit (Identified by corporation as having administrative responsibility for one or more facilities) **Facility (An activity or series of activities that** • produce GHG emissions, consume or produce energy • are part of a production process • occur at a single site (except for networks and transport) • are attributable to a single industry sector	**Manufacturing** Electricity, gas, water, **Mining** Commercial services, **Construction** Transport and storage *Excludes:* Agriculture, forestry, fishing	Stationary energy, transport, waste, fugitive emissions, industrial processes *Excludes:* Agriculture land use, land use change, forestry	1,2	Financial year
EEO – ENERGY EFFICIENCY OPPORTUNITIES						
Australia	Controlling corporation	Corporation	As for NGERS	As for NGERS	1,2	Financial year
SESP – SMART ENERGY SAVINGS PROGRAM						
Queensland	Business sites (excluding those covered by EEO)	Site	Business	Electricity or processed natural gas	Part of 1, 2	Financial year

GEOGRAPHICAL	ORGANISATIONAL	REPORTING UNIT	ACTIVITY	SOURCES	SCOPES (1,2,3)	REPORTING PERIOD
ESAP – ENERGY SAVINGS ACTION PLANS						
New South Wales	Business sites Local council areas; NSW government agencies	Site Local government Government agency	Commercial, Industrial, Local and state government	Stationary equipment	Part of 1, 2	Financial year
EREP – ENVIRONMENT AND RESOURCE EFFICIENCY PLANS						
Victoria	Business sites	Site	Commercial, Industrial, Intensive agriculture, *Excludes:* Residential dwellings, non-intensive agriculture, temporary construction activity	Stationary equipment, Transport (electricity, steam, compressed air, combustible fuels) *Excludes:* waste	1,2	Financial year

Comments on boundaries:

- NGERS and EEO cover corporations and certain facilities while the state based schemes cover sites within the state. The NGERS and EEO Corporation and facility definitions have been standardised, however, there may be cases where a site boundary at the state level may differ slightly to a facility boundary. A facility is defined by certain activity at a location, while site is defined by an address.
- The scope of sources and activities differ slightly between schemes. Queensland and New South Wales exclude transport. None of the schemes include scope 3 activities.
- EEO boundaries were aligned with NGERS in 2008.

Table 6. NGERS and energy efficiency scheme alignment – Information reported

NGERS	EEO	SESP	ESAP	EREP
HISTORICAL ENERGY CONSUMPTION				
Y	Y	Y	Y (incl peak)	Y
HISTORICAL ENERGY PRODUCTION				
Y	Y	N	N	N
HISTORICAL GHG EMISSIONS				
Y	N	N	Y	N
ENERGY AUDITS OR ASSESSMENTS				
N	Y	Y	Y	Y
ENERGY AND GHG ACTION PLANS				
N	Y	Y	Y	Y
ENERGY BASELINE				
N	Y	Y	Y	Y

NGERS	EEO	SESP	ESAP	EREP
ENERGY SAVINGS				
N	Y	Y	Y	Y
GHG REDUCTIONS				
N	N	N	N	N
ENERGY INTENSITY INDICATORS				
Y	Y	Y	Y	Y
GHG INTENSITY INDICATORS				
Y	N		Y	N
ENERGY PROJECTIONS				
N	Y	N	N	N
GHG PROJECTIONS				
N	N	N	N	N

Comments on information reported:

- All the savings schemes require baseline data, however, there are slight variations in selecting the period to measure the baseline.
- The NSW (ESAP) scheme requires peak period consumption, reflecting the scheme focus on reducing demand on electricity infrastructure.

For both report preparers and report users the reduction of complexity of multiple reporting systems and the removal of variations that existed in different state jurisdictions should have had significant positive benefits. NGERS have now provided a singular national approach to measuring and reporting greenhouse gas emissions.

2. RESEARCH COMPONENT

2.1 METHOD

A sample of 51 companies was drawn from the ASX100 and the NGERS Register 30 June 2010. From this sample of companies the annual reports, annual summary/shareholder review, EEO, CDP, NGERS and any sustainability CSR and Environmental reports produced by the company were captured from company websites for the years 2006-2013.Each report was analysed against 19 categories (as defined below).These categories are drawn from the NGERS reporting requirements, as such for most categories the reporting entity would have to provide a disclosure to the government agency. While for some categories it may be arguable as to whether there is any underlying material information to report, it would be expected that without substantial change in the operational activities there would be consistent reporting across the time period analysed. The results of the analysis are provided in the next section.

The metrics and category definitions are described below:

REPORTING MEDIA	INCLUDE SHAREHOLDER REVIEW (OR BY ANY OTHER NAME) IN THE REPORTING MEDIA
If this report is a subset of another report with identical content, indicate the report it is copied from and do not code the Disclosure Content; or else code n/a and continue with coding the Disclosure Content.	
DISCLOSURE CONTENT	*Narrative details (give page number of the report)*
Organisational targets	• *specified* = targets given for the following year • *mentioned* = they say have targets however specificvalues are not given • *no* = no stmt made. (note: a statement of intention to save energy or emissions is not classed as an organisational target).
Organisational initiatives identified	• *Yes* = either an energy reduction or a greenhouse gas reduction initiative has been identified. The initiatives may be business unit specific or be organisation wide. • *No* = no initiatives have been identified. Provide examples and page numbers in the comment field.
ENERGY	
Measurement	• *specified* = tells us what standards are used to measure • *mentioned* = say that they do measure • *no* = nothing given.
Energy consumption	could be identified as energy usage or energy intensity; assume if energy is measured then it is consumed.
Energy production	energy that is produced for sale or internal consumption; energy refining is energy production.
Energy savings	• *specified* = identifies the amount or intensity saved • *mentioned* = a stmt that energy was saved • *no* = none saved or no stmt; if emissions were saved do not assume energy was saved. If EEO reports indicate initiatives have been implemented or commenced with savings estimated, code this as specified.
Energy Saving Targets	• *specified* = targets or expectations given for the following yr as absolute number, an intensity or a % with a baseline • *mentioned* = they want to save energy in the future • *no* = no stmt made. If EEO reports indicate initiatives have commenced or are to be implemented and have savings estimated, code this as specified.

REPORTING MEDIA	INCLUDE SHAREHOLDER REVIEW (OR BY ANY OTHER NAME) IN THE REPORTING MEDIA
History of Energy usage provided	is the history provided for more than 1 yr, note the number of years provided here.
Specific Opportunities identified	• *Yes* = an energy reduction initiative has been identified. The initiatives may be business unit specific or be organisation wide. • *No* = no energy reduction initiatives have been identified. Provide examples and page numbers in the comment field.
Renewable Energy	• *specified* = initiatives identified or % of energy consumption from renewable sources specified • *mentioned* = general stmt made on supporting or using renewable energy, • *no* = no stmt made; indirect renewable via MRET or energy provider does not equate to renewable energy usage by the company. Renewable energy must be direct.
EMISSIONS	
Measurement (how are scope 1 and 2 measured?)	• *specified* = tells us how they measure • *mentioned* = say that they do measure, no = nothing given
Emissions made	• *specified* = identifies the amount or intensity emitted • *mentioned* = a stmt that emissions were made • *no* = no stmt; assume if emissions are measured then they are consumed.
Emissions change over previous year	• *specified* = identifies the change amount or intensity change • *mentioned* = a stmt that emissions or energy were reduced • *no* = no stmt
Cost of emissions	• *specified* = identifies the emission $ cost • *mentioned* = a stmt that emissions had a $ cost • *no* = no stmt; or speculation about potential cost; does not include assurance costs; add a comment if they speculate about costs.
Emissions history	is the history provided for more than 1 year, note the number of years provided here.
Emission Reduction targets	• *specified* = targets given for the following year • *mentioned* = they want to save emissions in the future • *no* = no stmt made.
Specific Opportunities identified	• *Yes* = either a greenhouse gas reduction initiative or an energy reduction initiative that is not related to renewable energy has been identified (the logic is that saving energy saves emissions). The initiatives may be business unit specific or be organisation wide. • *No* = no initiatives have been identified. Provide examples and page numbers in the comment field.
Investments in Emission reduction	• *specified* = identifies the $ invested in the company to reduce emissions (does not include offsets and does not include investment intentions) • *mentioned* = a stmt that $ are being spent but not how much • *no* = no stmt
Disclosure on offsets	• *specified* = identifies the offset initiative • *mentioned* = mention that they use offsets • *no* = no info

3. RESULTS

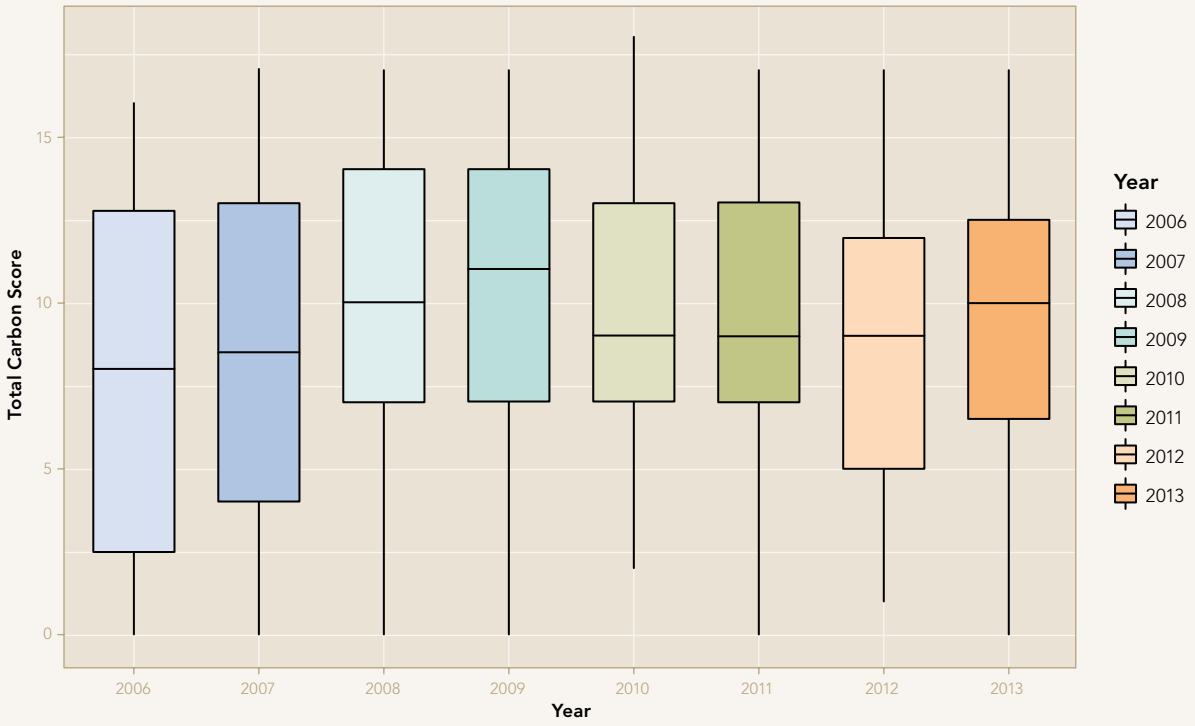
The boxplot displays five statistics: minimum value, first quartile, median value, third quartile, and maximum value. The horizontal line represents the median number of observations, the vertical line represents the range of observations, while the box represents the first and third quartile either side of the median.

3.1 LONGITUDINAL

LONGITUDINAL ANALYSIS

Figure 1 reports on the total disclosures over the period 2006-2013 for the sample of 51 companies.

Figure 1. Total Disclosures (n = 51). Box plot graph of total carbon scores by year: 2006 – 2013



A number of observations can be made from the data:

- There is an observable increase in the mean level of disclosure for the period 2006-2009. From 2010 the mean total disclosures for the sample commenced to decline. These changes to reporting patterns coincide with a number of key dates related to the governments and government regulation.
- The increase in reporting for the initial period of analysis coincides with the 2007 introduction of the National Greenhouse and Energy Reporting Scheme (NGERS) and the subsequent requirement to commence reporting to the Greenhouse and Energy Data Officer representing the Department of Climate Change and Energy Efficiency (from 1 April 2012 the Clean Energy

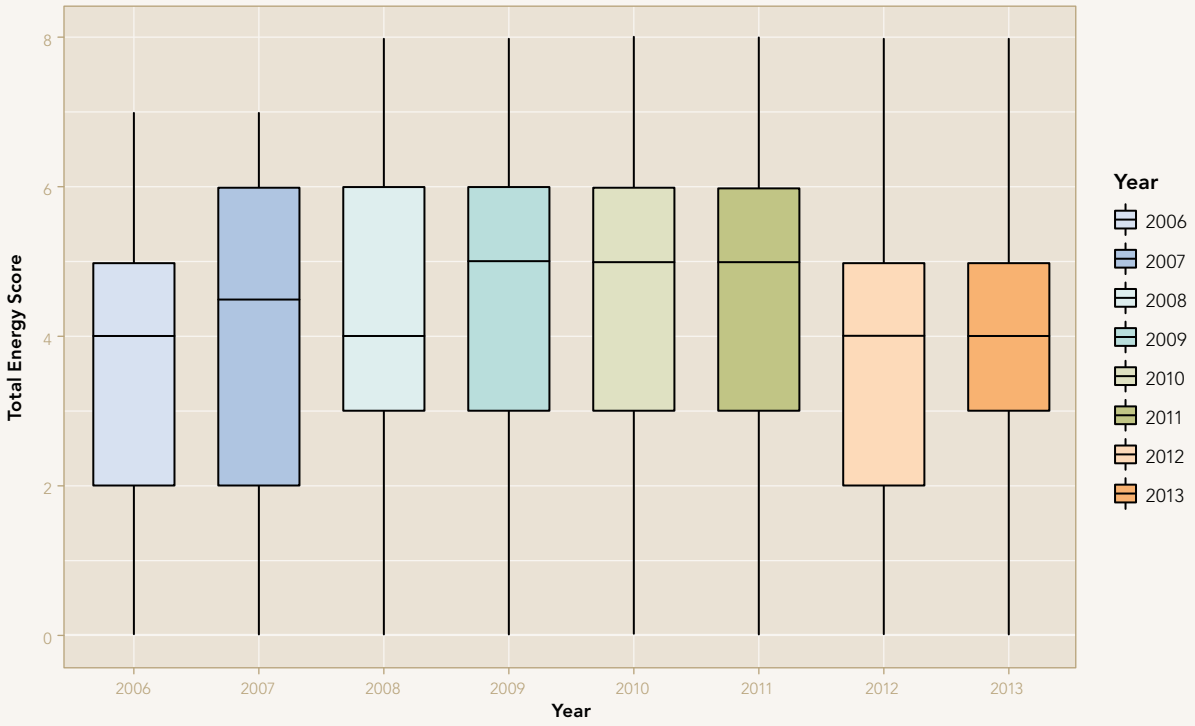
Regulator assumed the role of data collection). In practice NGERS compliant corporations now had a single reporting framework by which to structure both the data collection and reporting output. More importantly, reporters now also had the underlying data available to report to external stakeholders.

- It should be noted the level of disclosure continued to increase until 2009.This may have been as a result of a delayed reaction in the public reporting of total emissions and energy information where there may not have been alignment of available data and actual external disclosure.
- The underlying reporting requirements with respect to NGERS remained stable and therefore we should expect the level of information available to companies to be considered for external reporting to remain stable. However, the variation observed would suggest that availability of data alone may not be the sole driver of external reporting.
- In 2007 a new Government was elected with a platform that included the introduction of carbon trading. It should be noted that both major political parties had committed to some form of carbon trading scheme.
- In 2008 the Government announced the proposed Carbon Pollution Reduction Scheme (CPRS) to be implemented in 2010.This announcement put carbon trading, and corporate carbon performance, front and centre of both the political and broader sustainability debate. Within this context it would not be surprising to observe a significant increase in the corporate engagement on carbon performance.
- In April 2010, after a series of setbacks in getting the legislation approved, the Government announced that the CPRS was to be deferred. 2010 also saw a decline in the level of total disclosure observed across the sample companies. This period saw a marked change in the nature of the overall conversation about carbon performance, and certainly moved the context to the science and political environment and away from a focus on corporate performance.
- This was also the start of an overall decline in the level of total energy and emissions disclosures that continued until 2012.
- In 2011, the Government announced the introduction of a Carbon Tax 2012, with plans for this to be replaced by an Emissions Trading Scheme in 2015. This announcement was opposed by the Opposition. Again the individual carbon emissions performance of companies was in the spotlight and from 2013 individual companies were incurring a direct expense on carbon emissions. Within this context there was an increased pressure for companies to reduce emissions as a cost reduction imperative.
- It is interesting to note where there were zero observed disclosures even after the introduction of NGERs. It would be unlikely that the same companies provided zero disclosures to the relevant government regulator.
- At the other end of the scale, a number of companies disclosed on 15 or more categories prior to the introduction of NGERs.

EMISSIONS DISCLOSURES

Total aggregate carbon disclosures consist of both emissions data and energy data. Reported below are the results for the emissions data.

Figure 2. Total Energy Disclosures (n = 51). Box plot graph of total energy scores by year 2006 – 2013



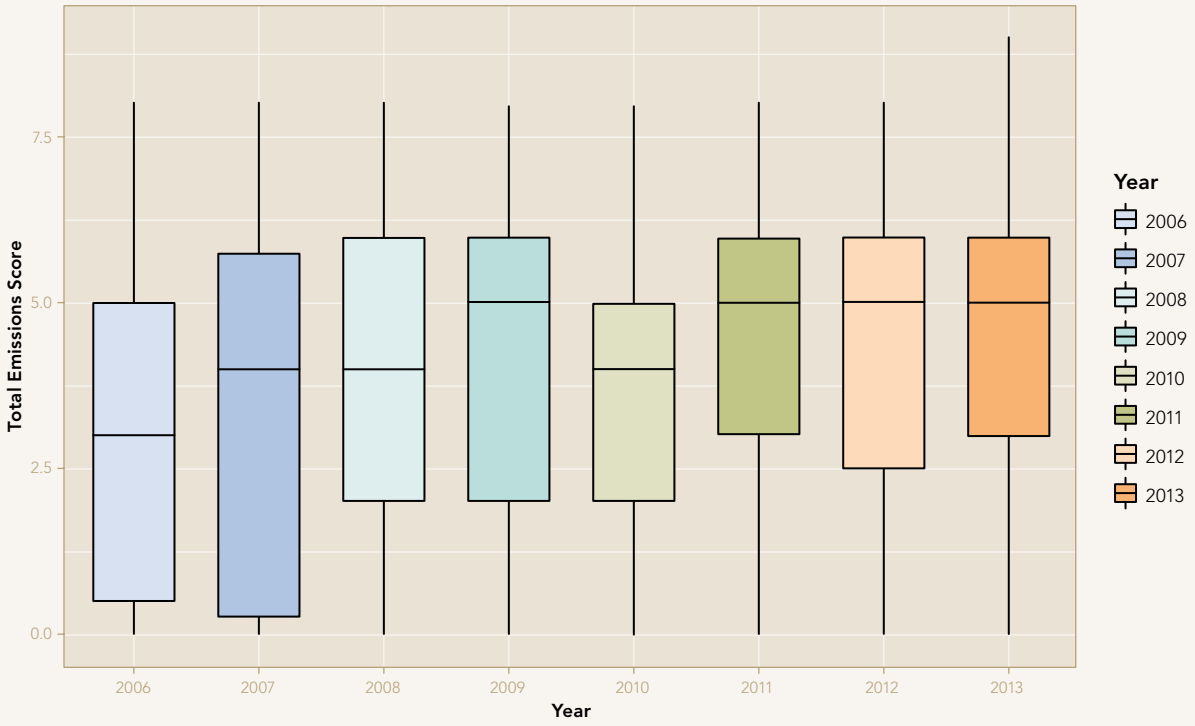
A number of observations can be made from the data:

- Consistent with total aggregate disclosures we observed an increase in total reporting over the initial years until 2009. However, this reflected an increase of approximately one disclosure per sample company.
- While in 2010 there was a slight dip in the aggregate disclosures, the average level of disclosure drop was equivalent to one half or a reporting category per sample company.
- In relative terms there was little variation in the overall level of reporting for the sample companies post-2008.
- Minor variations in total disclosures should not be unexpected even with the underlying single reporting framework being applied by the sample. Such variations may be explained by the variation in the materiality of the emissions data.
- The zero score we observed for a number of companies is perplexing. For companies not generating energy (Scope 1 emissions), it is their energy usage (Scope 2) that qualifies them as NGERs compliant. As such it would be expected that energy would be material for these companies, and therefore worthy of reporting to external stakeholders

ENERGY DISCLOSURES

Reported below are the results for the energy data.

Figure 3. Total Emissions Disclosures (n = 51). Box plot graph of total energy scores by year 2006 – 2013



A number of observations can be made from the data:

- What is most interesting is that the disclosure pattern for energy is consistent with the total disclosures observed.
- Over the period analysed, energy and the related costs are incurred independent from the carbon tax or proposed trading schemes. These schemes would incur additional costs, however, they would represent a fraction of the overall energy costs of many organisations. Any actions resulting in reduced energy usage would have greatest cost benefits on the cost of acquisition.
- The zero disclosure score for some organisations may be justifiable if they are not primary producers of energy (Scope 1).The greater dispersion of scores may therefore be tied to the materiality of emissions produced by each company.

3.2 INDUSTRY FOCUS ANALYSIS

To provide greater context of actual reporting practices by the sample companies, we have provided in the following sections descriptive analysis of the disclosure patterns for the seven industry sectors within the sample. We have not sought to directly compare the observations with the prior macro level data as the small sample size within each industry precludes a direct analysis. In the first instance we have provided a descriptive analysis of 2013, the last year of analysis, so as to provide a greater understanding of current depth and focus of reporting practices. The second section provides observations over the time period analysed, 2006-2013, with an emphasis on a descriptive analysis of the changes in reporting practices within each industry.

3.2.1 OVERVIEW OF 2013 RESULTS

Financial Services (see Appendix)

From the six organisations in this industry sector the following observations could be made:

- Out of the six organizations on this group, four produced an Annual review/Shareholder review in addition to their Annual report and five produced at least one sustainability/CSR style report (all except Macquarie group).
- Five out of the six outlined specifically which individual or group held ultimate responsibility for emissions/energy consumption within the company, with only the Macquarie Group not disclosing in this category.
- In their annual reports, all organisations included data on their emissions measurement standards and almost all on their emissions volumes. The most substantial reporters in regards to emissions factors in the annual reports were Macquarie Group and CBA, although all had relatively high reporting rates in this subdivision.
- In the Organizational Targets/Initiatives categories all organizations reported at least something in one of their reports. However only CBA reported fully in both categories in their annual report
- In the "Energy" set of categories the most detailed reports were NAB's Sustainability Report and ANZ, CAB, NAB and Westpac's EEO reports. The most commonly reported on categories in this set were the "Measurement" and "Energy Consumption" categories, with all companies reporting on these in at least one of their reports. Besides these, the "Energy Savings" and "Specific Initiatives" categories were extensively reported on by most companies.
- ANZ Annual Review p.20: "Committed $1.2 million in energy efficient lighting across four commercial offices, with 30% savings in lighting energy worth around $0.3 million per annum. This has contributed to a broader reduction in energy and gas consumption across our offices and branch network in Australia and New Zealand delivering $1.5 million per annum in energy cost savings from 2011 levels."
- NAB Environment Report p.6: ".. improving energy efficiency in our buildings by: vacating a number of older, less efficient buildings; installing energy efficient lighting; using new technologies in our Australian retail store network such as heat reflective roof paint etc."
- The most detailed reporting in regards to the Emissions categories overall, could be found in ANZ's 2013 CR report and CBA, Westpac and AMP's Carbon Disclosure Project reports. In these four reports almost all of the categories under the "Emissions" title were reported on. The only category which consistently scored a "no" or "maybe" in this set of four was the "cost of emissions" category.

- Overall, the most reported on categories in the "Emissions" sub division were the "Measurement" and "Emissions made" categories. The "Emissions Change", "Emissions History" and "Specific Initiatives" categories were also well reported on.
- ANZ 2013 CR Report p.60: "We have established a new target of a global three percent reduction in greenhouse gas emissions associated with electricity usage from 2013 to 2014, across all our locations."
- Westpac CDP Report P.19: "Reducing the types of vehicles from nine to four with better fuel efficiency credentials. Drivers are to use/purchase E10 provided the vehicle they are using supports the use of E10."

Other Services

From the eight companies in this category the following observations could be made:

- The variety of reports produced in this industry sectors was somewhat more limited than the previously analysed financial services group, with only three formats of report being observed. Besides the annual report, all companies except for Ramsay Healthcare produced an EEO report, and most companies (except Transfield Services, Asciano and Ramsay) produced a Sustainability report.
- In the "Energy" set of categories, the most extensively reported-on categories were the "Measurement", "Usage", and, thanks to the abundant availability of EEO reports, "Energy Savings" and "Energy Targets" categories. The categories which were least reported on were "Renewable Energy" and "History of energy consumption". "Renewable Energy" was only reported in Telstra's Sustainability report supplement, where the company gives the values for their solar energy use for the past three years (energy generated by Telstra itself). The "History of energy use" category was only reported on three times in this entire set of Company reports, namely in Asciano's Annual Report, in Qantas' Sustainability report and in Telstra's Sustainability report supplement.
- The most detailed reports in general in regards to the energy use subsection came from Qantas (Sustainability report) and Telstra (Sustainability report supplement).
- "Fleet renewal is being complemented by the following additional fuel efficiency activities:
  - Improved flight procedures including MidSegment climb.
  - Optimised flight planning over individual sectors, including dynamic route planning and 'Flex Tracks'.
  - Required Navigation Performance (RNP) implementation in five Australian ports, resulting in smoother and shorter take-off and landing." p.40 Qantas Sustainability report 2013.
- "Projects included installation of fresh air cooling systems in mobile sites, new economy cycle systems, lighting control systems, air conditioning control system upgrades and retrofitting high efficiency fans into air conditioning units." p.8 Telstra Sustainability report supplement.
- In the Emissions sub-section, the most consistently reported on categories were the "Measurement" and "Emissions made" categories. The only company which failed to report in these categories was Ramsay Healthcare. The least reported on categories were the "Investments in Emission reduction" and "Disclosure of Offsets" categories, where the former was only specified in the Crown Ltd Sustainability report and the Telstra Sustainability report supplement, while the latter was only mentioned in the Qantas Sustainability report. The direct references for these are as follows:

  - "Over the same period, more than $10 million was spent on resource savings projects, such as the energy reduction, water conservation and waste minimisation projects outlined below. Crown Melbourne's Eco-Shoots team (comprised of volunteer employees) was formed in 2011 and continues to conduct monthly environmental awareness events that encourage employees to reduce, re-use and recycle. This year's major campaigns included Mobile Muster, Battery Recycling, and Corks for the Elephants." p.7 Crown Ltd Sustainability report.
  - "We're two years into a five-year strategy that outlines a capital investment program of $41.3 million to make our facilities more energy and carbon efficient." p.7 Telstra Sustainability report supplement.
  - "Qantas has a number of Carbon Offset initiatives:..The Qantas Group has an off-take agreement to purchase carbon credits from Henbury Station property in central Australia – a former pastoral property being regenerated to restore natural vegetation and remove carbon dioxide from the atmosphere. Credits will support both the voluntary carbon offset program, and will be used to offset part of the Group's Australian carbon price liability. Etc." p.41 Qantas Sustainability Report.

- Overall, the most detailed reports in the Emissions sub section were Qantas' Sustainability report and Telstra's Sustainability supplement report. Both specified their means of measuring their greenhouse gas emissions, NGERS and the GHG protocol respectively, as well as their emissions history for at least 3 years prior. Besides that both mentioned specific emission reduction initiatives undertaken by the company.
- "Aviation fuel constitutes over 94% of the Qantas Group's domestic carbon footprint. As such, the reduction of carbon emissions from aviation fuel is a core environmental priority for the Qantas Group. Fuel optimisation and fuel efficiency improvement continue to be key focus areas for the Group's energy conservation measures and are key elements in the Group's environmental improvement strategy."p.39 Qantas Sustainability report.
- "We expect continued improvements in our carbon emissions efficiency due to better utilisation of network equipment and a continued dedicated investment in energy and carbon efficiency projects. We've set a target for a further 15 per cent reduction in emissions intensity in 2013/14." P.8 Telstra Sustainability report supplement.

Food and Retail

From the eight companies in this category the following observations could be made:

- Besides the annual report, five out of the eight companies produced a separate sustainability report and five out of the eight companies also produced and EEO report. Only one company (Stockland Units) produced a carbon-style report, in this case under the Carbon Disclosure Project's framework.
- In the Energy subset of categories, the most extensive reporting occurred in the "Measurement", "Energy Used" and "Energy Savings" categories with all companies except for one (Metcash) specifying these in at least one of their reports. There were no complete absences of reporting in any of the "Energy" categories but "Renewable Energy", "History of Energy Use" and "Energy Production" were relatively low in terms of reporting rates.
- The most detailed reports produces in reference to the Energy set of categories were Coca Cola Amatil's Sustainability Report and Stockland Units' Sustainability Report.
  - "CCA's Group strategy for delivering energy and climate strategy encompasses:

Improving optimal power performance with Power Factor Correction (PFC); Investigating alternate fuel sources; Educating all CCA personnel on the value of energy efficiency." p.131 CCA Sustainability Report

- "To effectively manage our performance in this area [Energy efficiency] we employ evidence-based decision making tools and certification. Our use of carbon abatement cost curves has influenced ongoing financial analysis in our Commercial Property business and the CCAP Precinct tool has been used to assess and prioritise the energy initiatives that deliver the greatest emission reduction outcome for the lowest cost in our Residential and Retirement Living businesses. We use the Green Building Council of Australia's (GBCA) Green Star rating system as both a tool to support the design and delivery of energy improvements across our portfolio, and as a means of certifying our performance." p.2 Stockland Units Sustainability Report

- In the Emissions set of categories, the highest level of reporting occurred in the "Measurement", "Emissions Made", "Emissions Change" and "Emissions History" categories. All companies within this sample, except for Harvey Norman and Metcash, disclosed specified figures or statements for all of these categories.The least disclosed categories in this set were the "Investments in Emission Reductions" and "Disclosure of Offsets" categories. Only Woolworths and Stockland Units made specified statements for these categories.
  - "That is why we have invested $87 million in energy efficiency and low carbon technology since 2009" p.5 Woolworths 2013 Sustainability Report
  - "Sustainability HVAC[2] includes building tuning, economy cycles, thermal roof paint, CO2 monitoring, Switchboard Work, Power Factor, LEDs, Escalator optimisation, waste management, furniture, alternate energy investigation - program to reach CPO and CPR targets. Investment required (unit currency - as specified in Q0.4): 18000000." p.15 Stockland Units 2013 CDP Report

- The most detailed reports produced by this industry sector overall were Woolworths' Sustainability Report and Stockland Units' Sustainability Report. These two reports addressed the majority of categories for both the Energy and Emissions subsets.
  - "In FY09 our Commercial Property business committed to a 20 per cent reduction in energy and carbon intensity by FY14 and a NABERS Office Energy portfolio average rating of 4.5 Stars. Despite selling some of our more efficient buildings since 2009, our office portfolio has continued to deliver energy efficiency through a strong focus on management." p.3 Stockland Units' Sustainability Report.
  - "Photovoltaic systems at Petrol sites in Hume and Belconnen in the Australian Capital Territory generated 86,641 kWh, reducing carbon emissions by 92 tonnes – the equivalent of taking 21 cars off the road". p.35 Woolworths 2013 Sustainability Report

[2] Heating, Ventilation and Air Conditioning.

Energy and Utilities

From the seven companies in this category the following observations could be made:

- Out of the seven companies in this industry sector, six produced a sustainability report in addition to their annual reports. Five companies also produced an EEO report and one (Caltex) produced a carbon report based on the Carbon Disclosure Protocol's standards.
- From the Energy set of categories, the most consistent reporting throughout the companies occurred in the "Measurement", "Energy Consumed" and "Energy Production" categories. Only AWE and Worleyparsons failed to specify their energy consumption and only Worleyparsons failed to specify its energy production.
- In general, most other categories in the Energy subset were somewhat poorly reported by this industry sector, with the most notable omissions being the "History of energy use" and "Renewable Energy" categories. Only Woodside Petroleum and AGL specified the former and only AGL specified the latter.
- The most detailed and extensive reporter in this set of categories was Woodside Petroleum with their Sustainability report which specified all categories except for "Renewable Energy".
  - "In July 2013 Woodside implemented a flare and recovery system at the Okha FPSO, which produces oil from the Cossack, Wanaea, Lambert and Hermes fields. This was a first for FPSO operations in Australia. In addition a pellet ignition flare system was installed which removed the requirement for a continuously burning pilot flame." p.43 Woodside Petroleum 2013 Sustainability Report.
  - "During 2013 we completed Energy Efficiency Opportunity (EEO) assessments of three facilities, as part of a five year assessment cycle. Seventeen opportunities were identified, representing facility energy savings of 12%. While most are still under investigation, six opportunities have already been actioned, with an expected energy saving of 1%."pP.42 Woodside Petroleum 2013 Sustainability Report.
  - In the emissions set the most consistently reported-on categories were "Measurement", "Emissions made" and "Emissions Change over Previous Year" with only Worleyparsons failing to specify either of these categories. The least reported-on categories were "Investments in emission reduction" and "Disclosure on offsets" with only Caltex and AGL specifying data for the former and Woodside Petroleum and AGL specifying data for the latter.
  - "We have also made significant investment into offsetting emissions as part of delivering Pluto LNG. Through Woodside's $100 million offset project undertaken in conjunction with CO2 Australia, Woodside has now planted over 25 million trees across 7000 hectares in rural NSW and WA through what is now Australia's largest commercial native planting offset." p.43 Woodside Petroleum 2013 Sustainability Report.
  - "During FY2013, AGL also commissioned a 21 MW natural gas fired cogeneration plant at the Qenos facility in Altona, Victoria. This $45 million project built, owned and operated by AGL, will reduce Qenos' greenhouse gas emissions by over 100,000 tCO2e per annum through the efficient generation of electricity and steam for use in their manufacturing processes." p.77 AGL 2013 Sustainability Report.
- The best reporters in this set of categories were Woodside Petroleum and AGL with their sustainability reports. In both instances these companies only failed to disclose in one of the categories out of the set – Woodside failing to mention any investments in emission reduction and AGL failing to disclose their emission reduction targets (they did however specify these in their Annual Report).

Capital Goods/ Pharmaceuticals

From the three companies in this industry category the following statements can be made:

- Besides their annual reports, all companies in this industry sector produced a separate Sustainability report (sometimes multiple separate sustainability reports in the case of Leighton Holdings) and two out of the three also produced an EEO report (Leighton and CSR).
- In the Energy subset, almost all categories were consistently reported by the three companies with only "Energy Production", "Energy Targets" and "Renewable energy" not specified by ALL companies.
- The least amount of reporting occurred in the "Energy Production" and "Renewable energy" categories, with only one company mentioning or specifying these in their 2013 reports (Leighton Holdings).
- The most detailed report overall in regards to the energy subset of categories was Leighton Holdings' EEO report, where all categories except for "Renewable Energy" were specified.
  - "Over past 18 months, Leighton Contractors has been working hard to streamline and centralise our energy reporting systems, management processes, knowledge resources and tools. This work has built a strong foundation for energy management across our dynamic and ever changing business in coming years. In 2014 we are committed to leveraging and building on the work to date in order to systematically identify, implement and monitor efficiency improvements across our business. We look forward to working with our supply chain and business partners to achieve the many environmental, community and business benefits of improved energy efficiency and to continue to fulfil our company value of 'respect for the community and environment'. Craig Laslett, Managing Director" p.3 Leighton Holdings 2013 EEO Report.
- In the Emissions subset of categories the most detailed reporting occurred under the "Measurement", "Emissions Made", "Emissions Change" and "Specific Initiatives" headings, with all three companies specifying all these categories in at least one of their reports.
- The categories least reported on in the Emissions set were "Cost of emissions", "Investments in Emission Reduction" and "Disclosure on Offsets" with all companies failing to mention these in any report, as well as the "Emissions Targets" category, which was only mentioned by CSR and CSL.
- The most detailed report with respect to the Emissions subset of categories was CSR's Sustainability Report. Here all categories, except for those mentioned above, were specified and Emissions targets were mentioned.
  - "We have articulated our commitment to minimise the impact on our environment with specific targets to reduce greenhouse gas emissions and waste production and the consumption of energy and water used in production. By 2020, CSR is targeting a 20 per cent reduction in the following categories using 2009/10 as the base year: Scope 1 and scope 2 greenhouse gas emissions through a reduction in carbon dioxide equivalent per tonne of saleable product. Etc.." p.18, CSR 2013 Sustainability Report.

Materials

From the 14 companies in this industry sector the following observations could be made:

- Besides their annual reports, nine out of the fourteen companies produced a separate sustainability report and ten out of the fourteen produced a report under the EEO framework. Besides these, a special note must be made about Rio Tinto Ltd who, besides producing a general sustainability report also produced a separate sustainability report for each of their Australian operating sectors (i.e. Coal, Iron Ore etc.) as well as separate EEO reports for their Alcan Gove and Pechiney facilities.
- The most consistently reported on categories in the energy subsection for this industry sector were "Measurement", "Energy Use" and "Energy Savings", with all companies specifying the first and only James Hardie and Macarthur Coal failing to specify the second and third in any of their reports. Other highly reported on categories in this subsection were "History of Energy Use" (7/14 companies reported) and "Specific Initiatives" (11/14 reported).
- The most rarely specified category in this subsection was the "Renewable Energy" category, with only Sims Metal Management specifying their usage in their Annual Report.
- Fortescue Metals and Rio Tinto produced the most detailed and extensive reports in regards to the Energy subsection, with Fortescue Metals' Sustainability report only failing to specify their renewable energy use and Rio Tinto's Combined Sustainability report failing to specify their energy production and renewable energy use.
    - "As part of our participation in the EEO program, we have continued to implement and monitor a number of initiatives that were identified as cost-effective energy efficiency measures. In the 2011-12 year these included:
        - the installation of automatic engine shutdown systems on locomotives to reduce fuel use during stationary idle time, and similar shutdown systems on train unloaders.
        - improved programming of secondary crushing circuits to enable automatic shutdown when empty.
        - high efficiency air conditioning and heat pump hot water services in new buildings and camp facilities.
        - redesign of trucking routes to allow fewer stops and improve fuel efficiency by continuous driving." p.17 Fortescue Metals 2013 Sustainability Report.
    - "Iron Ore's Rail division in the Pilbara has saved A$2 million in diesel usage through two fuel efficiency projects as part of a fuel consumption reduction plan. The team identified several energy efficiency projects, each targeting a specific aspect of the rail system, with a focus on reducing locomotive diesel consumption. Energy Efficiency Opportunities specialist Michael Davis said the plan aims to eliminate waste, reduce emissions, and meet efficiency and cost reduction targets. "The A$2 million savings were achieved by off-lining one of the loaded locomotives and using the locomotive auto engine stop-start feature," Michael said." p.47 Rio Tinto 2013 Combined Sustainability Report.
- The categories which showed the most consistent reporting within the "Emissions" subsection within this industry group were "Measurement" and "Emissions Produced", with only Boral, Iluka Resources and James Hardie failing to specify the former and Bluescope, James Hardie and Newcrest Mining failing to specify the latter. These last three companies were also the only ones who failed to specify their change in emissions from the previous year. Another highly reported on category was "Emissions History" with eight out of the fourteen companies in this industry sector giving values for their GHG emissions for three or more years.

- The most sparsely reported on categories in the Emissions subsection were "Investments in Emissions Reduction" and "Disclosure on Offsets", with only Amcor Ltd specifying either of these. Another rarely specified category was "Emissions reduction targets" with only Amcor, Orica, Onesteel and Rio Tinto reporting their values.
- Overall, the most extensive reports in regards to the Emissions subsection were Amcor Ltd's Sustainability report and Rio Tinto's Combined Sustainability Report with the former only failing to report in the "Cost of Emissions" category.
- "Reduction of our greenhouse gas (GHG) intensity index is one of seven Group key performance indicators. In 2008 we set a target of ten per cent reduction in total greenhouse gas emissions intensity, to be achieved by 2015. Current performance exceeds this target. We will continue to seek opportunities to maintain and improve our performance, and will establish a new target beyond 2015 that takes account of our performance to date. Between 2008 and 2013, Rio Tinto's GHG emissions intensity had reduced 17.3 per cent, largely due to the 2009 divestment of the Ningxia aluminium smelter in China, closure of the Lynemouth aluminium smelter in 2012, divestment of the Sebree smelter in 2013 and improved measurement methodology for coal seam gas at our Australian coal mines." p. 44 Rio Tinto 2013 Combined Sustainability Report.
    - "In FY2010-2011, at the end of the first five-year EnviroAction period, we had reduced our waste to landfill intensity by 59% and our water use intensity by 46%, whilst our greenhouse gas emissions intensity decreased by 4.5% from the baseline. We determined the second round of reduction targets to be: Greenhouse gas (GHG) emissions: > 10% reduction in GHG emissions intensity from FY2010-2011 by FY2015-2016;… These targets use a financial intensity measure, with gross profit as the denominator because it is centrally consolidated and can therefore be used as a common indicator across our businesses. In addition, gross profit is externally audited as part of our statutory accounts and is likely to correlate with production volumes. Variations in sales revenue are likely to be offset by corresponding changes in the cost of goods (raw material inputs). As a result, gross profit provides the best indicator of the environmental intensity of our production processes i.e. how efficiently, in environmental terms, we convert raw materials into packaging products." p.56 Amcor 2013 Sustainability Report.

Real Estate

For the five companies in this industry group the following statements could be made:

- The companies in this industry sector produced a number of different report types with two out of the five presenting a separate sustainability report (to their annual report), three presenting reports based on the EEO framework and one company presenting their response to the CDP annual survey.
- From the "Energy" subsection of categories, the most frequently specified values were "Measurement", "Energy Use", "Energy Savings" and "Energy Targets" with only one or two companies out of the sample failing to report on any one of these. The least reported categories in this subset were "History of Energy Usage" and "Renewable Energy", with only one company even mentioning that they employed energy from renewable sources (they failed however to specify the amount). The most extensive reports in regards to the energy set of categories were Dexus Property Group in their Annual Review and Westfield Group in their Sustainability Report. In each case the reporting company only failed to specify one or two of the categories within the energy subsection. Dexus failed to specify Energy production and

Renewable energy while Westfield did not mention their history of energy usage or any specific initiatives in regards to energy savings.

- Driven by a commitment to leading practice in sustainability, DEXUS has focused on improving the sustainability performance of its buildings and resource consumption.
  - "The DXS office portfolio achieved a 4.7 star NABERS Energy rating and a 3.5 star average NABERS Water rating following the completion of the three year DEXUS NABERS Energy and NABERS Water Rating Improvement Program in 2012. In the IPD Green Building Index, DEXUS outperformed the Green Star benchmark by 190bps and outperformed the NABERS benchmark by 110bps." P.34 Dexus 2013 Annual Review
  - "In Australia, increases in electricity consumption due to the completion of project centres, for example, were offset by the implementation of IELVS (Integrated Extra Low Voltage Systems) systems at Burwood and Bondi and ongoing saving initiatives at other centres. In addition, the move of Westfield's corporate headquarters in 2011/2012 to the Westfield Sydney precinct (which includes the newly constructed 6-star green star office tower at 85 Castlereagh Street, and the 5-star green star refurbished office tower at 100 Market St) contributed to the reduction of headquarter electricity consumption." p.8 Westfield 2013 Sustainability Report
- In regards to the "Emissions" set of categories, the most widely specified were "Measurement" and "Emissions Made" while the least reported on were "Cost of Emissions" and "Disclosure on Offsets". In general, the emissions set of categories had a much lower level of disclosure that the energy set of categories within this industry group. The worst reporter as far as companies were concerned was GPT Group who failed to specify a single emissions category throughout all of their 2013 reports. The most extensive reporters of emissions activities were Dexus in their Annual Review and Mirvac Group in their 2013 CDP Response.
  - o"5.1a2 Emission reporting obligations: i. Mirvac Asset Management has invested in an in-house Sustainability Team to manage reporting costs and retain IP and corporate knowledge. Non-compliance with emissions reporting legislation carries significant penalties; the NGERs Act carries maximum penalties of $220,000 and daily penalties for continuing offences. CEOs can also be liable. Non-compliance with EEO legislation can incur fines of $110,000 per offence. ii. Mirvac Asset Management has managed this risk by employing an in-house Sustainability Team to undertake a range of functions such as energy auditing, performance monitoring and reporting, allowing Mirvac to develop internal expertise which can be utilised and called upon for assistance. Data collection and reporting is ongoing to ensure efficient monitoring and reporting processes. An example of our risk management methodology is the checking procedures in place to ensure data accuracy. Energy invoices are checked against smart meter data to identify anomalies and ensure accuracy. iii. Mirvac has calculated the financial benefit of developing an in-house capability as $900,906 compared to the projected consultant costs for the same services. In addition to these costs savings the team has secured over $5.8 million of government funding and supported the achievement of $2.9 million dollars of ongoing energy & water cost savings across the office portfolio." p.14 Mirvac 2013 CDP Report

3.3 COMPARISON 2006 – 2013 RESULTS

Financial Services

- For the Energy and Emissions "Measurement" category, the only company to report from the start of the time frame i.e. from 2006, was NAB. During this year, the majority of companies mentioned that they were using measurement frameworks without specifying those frameworks, while CBA and Macquarie made no mention of measurement for either emissions or energy consumption.
- During 2007, NAB continued to specify their frameworks in both categories, CBA now specified that they employ the EEO frame work for their energy consumption measurement and Westpac specify they use "AGO factors and methods" in measuring their emissions. The rest of the companies mention that they measure without specifying frameworks in both categories, with the exception of Macquarie which does not mention anything.
- From 2008 onwards ANZ, CBA, NAB and Westpac consistently specify their measurement frameworks for both energy consumption and emissions, these being EEO, NGERS or both in all cases. Macquarie again fail to report while AMP mention that they measure their energy consumption but do not disclose specifics.
- From 2009 onwards AMP began to disclose both their energy and emissions measurement methods, these being EEO and NGERS. Macquarie also begins to disclose their emissions measurement method at this point, this being the GHG protocol.
- Interesting things to note are that from 2009 onwards: All specific disclosures are made within the annual reports of companies whereas beforehand they were mostly spread out amongst various sustainability reports. Also, in general, the level of disclosure in these "Measurement" categories increases over time for most corporations except for Macquarie, whose level and means of disclosure varied from year to year.

Other Services

- For the eight companies in this industry section, the Energy and Emissions "Measurement" category was initially reasonably reported on, with Downer EDI, Transfield Services and Telstra all specifying their means of measuring either their energy consumption of emissions (both in the case of Telstra). Downer EDI employed the EEO standards to assess its energy usage, while Transfield and Telstra both employed the AGO standards for their assessments. Crown Ltd and Ramsay healthcare both failed to mention energy use or emissions production measurement. It should be noted that Asciano did not start reporting under NGER until 2008 so data for them for the first two years of the study was not gathered.
- 2007 saw a downturn in reporting in this category with both Transfield and Telstra now failing to specify their measurement protocols and only Downer continuing to disclose that they employ the EEO standards to assess their energy usage.
- In 2008 there was a sharp rise in the level of reporting under this category, with a lot of companies producing an EEO report for the first time and hence employing the EEO standards to assess their energy consumption. These companies were Crown, Ramsay Healthcare, Toll holdings and Downer EDI. Besides these, Asciano and Qantas both began to specify their Energy consumption and emissions measurement protocols, these being NGERS and EEO/GHG protocol respectively.

- 2009 saw every company in this industry group, except for Transfield services, disclose either their energy or emissions measurement protocols. These protocols were mainly EEO and NGERS, while some still employed the AGO factors (Telstra) to assess their emissions.
- These high rates of reporting under this category continued for most companies until the end of the assessment period (2013), with one exception. Ramsay healthcare employed the EEO standards up until 2010 in order to assess their energy use. After 2010 they no longer disclosed either their energy use or emissions assessment protocols.

Food and Retail

- At the start of the assessment period, the level of disclosure for the "Measurement" category was quite high for this industry sector. From the eight companies in this cohort, four specified their energy measurement protocols (they employed either EEO of NGERS) and four specifies their emissions measurement protocols (AGO factors, GHG protocol of NGERS were employed).
- Only one company (Harvey Norman Holdings) failed to even mention both their energy and emissions measurement protocols and the majority of disclosures for these two categories were contained in sustainability/carbon reports rather than annual reports.
- In 2007 the overall level of disclosure did not change from the previous year, with four companies fully disclosing in both the energy and emissions measurement categories.
- As in the previous year, the majority of disclosures occurred in companies' sustainability reports. The only notable difference from the previous year was that Coca Cola Amatil decreased their level of disclosure for both of these categories to nothing.
- In 2008 there was a marked increase in the level of disclosure for both of these categories, with seven out of the eight companies specifying their energy measurement methods (EEO or NGERS were employed by all companies) and six of the eight companies specified their emissions measurement methods (NGA methods workbook, AGO factors or NGERS were employed).
- The only company that failed to even mention a measurement category was Harvey Norman in reference to their emissions measurement methods.
- The level and means of disclosure for both these measurement categories remained the same from 2009 until the end of the assessment period. With the majority of companies disclosing in both categories, generally through their sustainability or auxiliary reports rather than their annual reports. The methods employed did not change either with companies specifying they employ EEO/NGERS or both in most instances.
- The most consistent reporters in regards to the energy measurement category were Fosters, Wetfarmers and Stockland Units, with these companies specifying their energy measurement methods for every year in the assessment period.
    - We use the Green Building Council of Australia's (GBCA) Green Star rating system as both a tool to support the design and delivery of energy improvements across our portfolio, and as a means of certifying our performance. All new Commercial Property developments are required to achieve a minimum 4 Star Green Star rating, with a focus on energy." p.2 Stockland Units 2013 Sustainability Report

- The most consistent reporters in regards to the emissions measurement category were Westfarmers and Stockland Units with these two companies making specific disclosures in this category for every year throughout the assessment period.
  - "We report our **Scope 1** and **Scope 2** emissions according to our operational control boundary under the National Greenhouse and Energy Reporting Act (2007) (NGERA). We voluntarily report select **Scope 3** emissions in accordance with the GHG Protocol Corporate Standard." p.12 Stockland Units 2013 Sustainability Report.

Energy and Utilities

- At the start of the assessment period none of the seven companies in this industry sector specified their means of energy use measurement, with four failing to even mention that they used energy, and only one (Origin Energy) specified their carbon emissions measurement protocol, this being the AGO's carbon protocols.
- The exact same pattern of disclosure was repeated in 2007.
- In 2008 there was a marked increase in the level of disclosure for the two measurement categories, with five companies now specifying their energy use assessment protocols and three companies now specifying their emissions protocols. The five companies (AWE, Caltex, Origin, Santos and Woodside) that specified their energy use assessment means stated that they employed either the NGERS or the EEO reporting frameworks. AWE, Caltex and Origin, the companies that specified their means of emissions assessment, stated that they employ the Department of Climate Change National Greenhouse Accounts (NGA) Factors and NGERS to measure their emissions.
- The level of disclosure for this category remained the same for 2009, except one more company (Santos) began specifying their emissions assessment method, which they stated was done via the NGERS protocols. The only company now failing to even mention measurement for their energy use was AGL.
- In 2010, disclosure increased yet again with all companies except one (Worleyparsons) now specifying their energy use measurement means, with EEO and NGERS being the protocols of choice. The number of companies specifying their emissions assessment means also grew from four to five.
- During 2011, the number of companies that disclosed their energy use measurement grew to seven, while emissions disclosure remained the same. These levels of disclosure remained more or less the same until the end of the assessment period. The disclosures themselves also remained the same, with almost all companies reporting that they employed either the EEO or NGERS, or both, protocols to assess their emissions and energy usage. Overall, the most consistent reporters in these two categories were Origin and Santos, with the majority of their disclosures coming from their sustainability or EEO reports.
- "We actively report and disclose our climate change performance and meet numerous reporting commitments including:
  - quarterly reports to our Environment, Health, Safety and Sustainability Committee of the Board
  - Santos' website and annual and sustainability report disclosures
  - National Greenhouse and Energy Reporting (NGER)
  - Carbon Disclosure Project (CDP)
  - annual reporting of air emissions to the National Pollution Inventory (NPI)

  - periodic review by external audit of Santos climate change management" Santos 2013 Sustainability Report
- "The energy industry and the projects we manage are highly regulated when it comes to carbon emissions reporting. Relevant Australian laws and regulations that we abide by include the *Environmental Protection Act 1994*, the *National Greenhouse and Energy Reporting Act* (NGER Act), the *Energy Efficiency Opportunities Act 2006 and the Clean Energy Act 2011*. Each year, we are required to report our audited emissions to regulators. We measure and report our emissions from CSG exploration, production, processing and transport under the NGER Act. We have done this since it was established in the 2009 financial year." Origin 2013 Sustainability Report

Capital Goods / Pharmaceuticals

- In the 2006 set of reports from this industry sector only one out of the three companies analysed specified their energy and emissions measurement protocols. This was Leighton Holdings, who stated that they participated in both the EEO and Greenhouse Challenge Plus government reporting schemes in their annual report.
- In 2007, both Leighton holdings and CSR now specified their energy measurement protocols (EEO) and Leighton holdings continued to specify its emissions measurement protocol (GCP). CSL still failed to mention anything in either of these categories.
- 2008 saw Leighton holdings stop reporting on their energy measurement protocols entirely and only mention that they produced GHG emissions rather than how they were calculating them. CSR now specified their protocols in both categories (EEO/GCP) while CSL provided data for both energy use and GHG emissions in their sustainability report but failed to specify how that data was calculated.
- In 2009 all three companies specified both their energy and their emissions measurement protocols in their sustainability reports. All three now specified that they employed the NGER framework.
- The picture remained much the same from 2010 until 2013, with all companies in this industry sector reporting their energy and emissions protocols. In all cases these were both the EEO and NGERS protocols.
  - "This report covers CSR's activities (including safety performance, emissions and energy data, waste and water use) for the period of 1 July 2012 to 30 June 2013 to be consistent with the national greenhouse and energy Reporting (NGER) scheme." p.8 CSR Sustainability report.
  - "Leighton Holdings Limited, we are registered to report under the National Greenhouse and Energy Reporting (NGER) Act 2008 and Energy Efficiencies Opportunities (EEO) Act 2006. Systems are in place to track and report our energy use and calculate our GHG emissions." p.39 Leighton Holdings Theiss 2013 Sustainability report.

Materials

- At the beginning of the assessment period the general level of reporting in the "Measurement" categories was relatively low, with four out of the fourteen companies in this industry sector reporting their energy measurement protocols and only two out of the fourteen specifying their emissions measurement protocols. In regards to energy measurement, the reporting companies employed either the EEO or Energy Savings Action Plan (ESAP) standards. Emissions were reported as being measured either according to Australian Greenhouse Office or Greenhouse Challenge Plus Scheme standards.
- 2007 saw a marked increase in the level of reporting in regards to energy measurement, with eight out of the fourteen companies now specifying their energy measurement protocols. Almost all specified the EEO framework as their means of assessing their energy usage, with just one of the reporting companies (Onesteel) employing another set of guidelines (ESAP). On the other hand, there was only a marginal increase in the level of emissions measurement disclosure, with only three out of the fourteen companies specifying their protocols. Rio Tinto and Sims Metal Management employed the Carbon Disclosure Project's GHG protocol while Oz Minerals reported that they employed the Australian Greenhouse Office's set of methods and guidelines.
- The following year almost all companies (13/14) in this industry sector specified their energy measurement protocols with only Macarthur coal failing to do so. All of the reporting companies specified that they employed the EEO standards to assess their energy usage. This year also saw a significant increase in the number of companies (7/14) reporting their emissions measurement protocols. Four out of the seven reported that they employed the NGERS protocols to assess their emissions, two stated that they used the Greenhouse Challenge Plus methods, while the remaining employed the CDP's Greenhouse Gas protocols.
- In 2009, the level of disclosure in regards to energy measurement remained much the same as the previous year, with 13 out of the 14 corporations specifying their protocols. The majority of companies reported the EEO set of standards as their protocol of choice. This profile of reporting continued until the end of the assessment period, with 2010 onwards seeing all companies within this industry sector reporting their energy measurement protocols. The only notable exception in terms of protocols employed would have to be Macarthur coal who from 2011 onwards became a subsidiary of American firm Peabody Energy. Peabody continued to report on their Australian activities but specified that Macarthur coal was subject to NGERS regulations and therefore that was the set of standards which they employed to measure their energy and emissions use. This is in contrast to other companies in this industry sector who on the whole specified that they employed the EEO protocols as their means of energy assessment.
- In 2009, there was another marked increase in the level of reporting in the emissions measurement category, with 12 out of 14 companies specifying their protocols. The majority of companies employed the NGERS set of protocols, while a couple specified that they used the CDP's GHG protocol. This picture remained much the same for the remainder of the assessment period, with any given year up to 2013 seeing 12-14 companies specifying their emissions protocols.
- It should also be mentioned that this industry sector included one unique case in regards to reporting. Rio Tinto, instead of submitting one combined Sustainability report for all of their operations, chose instead to present individual sustainability reports for each of their Australian sites/mines. Early on in the assessment period this confused results as some sites would not report their measurement protocols while others, being based in different states in Australia, would report their protocols but would employ different means depending on

the state that they were in. From 2011 onwards, however, Rio Tinto produced a combined sustainability report for all of their operations in which they consistently specified EEO/ NGERS to be their energy/emissions measurement protocols of choice.

- The most consistent reporters in for the entire assessment period in regards to energy/ emissions measurement were Rio Tinto and Sims Metal Management who both specified their measurement protocols for the entire period.
- "The Group is subject to environmental regulations and reporting requirements in Australia as well as other countries in which it operates. The Group has operating licenses and consents in place at each of its operating sites as prescribed by relevant environmental laws and regulations in each respective location and comprehensive environmental management systems and audit procedures to support compliance. The Group's Australian operations are not captured under the Australian Carbon Tax, but are subject to the reporting requirements of both the Energy Efficiency Opportunities Act 2006 ("EEO Act") and the National Greenhouse and Energy Reporting Act 2007 ("NGER Act"). The EEO Act requires the Group to assess the energy usage of its Australian operations, including the identification, investigation and evaluation of energy saving opportunities, and to report publicly on the assessments undertaken, including intended actions by the Group. The Group continues to meet its obligations under the EEO Act. The NGER Act requires the Group to report its annual greenhouse emissions and energy use of its Australian operations and the Group has implemented systems and processes for the collection and calculation of the data required so as to prepare and submit the relevant report to the Greenhouse and Energy Data Officer annually. Previously, the Group was also required to report under the Victorian Government's Environment and Resource Efficiency Plan, but this reporting requirement was withdrawn in February 2013 due to duplication with the Federal Government's reporting requirements under the EEO Act and NGER Act." p.34 Sims Metal Management 2013 Annual Report
- "In addition, Australian corporations that exceed specific greenhouse gas emissions or energy use thresholds have obligations under the Australian National Greenhouse and Energy Reporting Act 2007, the Australian Energy Efficiency Opportunities Act 2006 (EEO), and the Australian Clean Energy Act 2011 which establishes the carbon pricing mechanism. Three main Rio Tinto entities, Rio Tinto Limited, Alcan Gove Pty Limited and Pechiney Consolidated Australia Limited, are covered under each of these Acts. Each submitted their National Greenhouse and Energy reports by the required 31 October 2013 deadline and completed the required EEO public reporting. Twenty-eight EEO assessments for the second five-year assessment cycle have now been completed. One remaining assessment is scheduled in 2014. All compliance obligations under the carbon pricing mechanism, including reporting and surrender of carbon units by liable entities, were completed in the required timeframes. Liability information is publicly available on the Clean Energy Regulator's website (as per legislative requirements)." p.45 Rio Tinto 2013 Annual Report.

Real Estate

- At the start of the assessment period there was already a relatively high level of disclosure of energy and emissions measurement protocols within the real estate industry group. Out of the five companies in this set, two specified their energy measurement and three specified their emissions measurement means. The energy assessment protocols were specified as being the Australian Building Greenhouse Rating (ABGR) methods while the emissions measurement protocols employed were mostly based on the GHG protocols developed by the WRI.
- In 2007, the number of companies reporting their energy assessment protocols rose to four out of five, while the number of companies reporting emissions protocols remained the same. As far as the types of protocols employed goes, there was a general swing to employing the EEO framework in order to assess energy usage, and emissions production was almost exclusively measured via the GHG protocols.
- The following year saw all companies in this industry sector report their energy assessment protocols (usually EEO) and four out of the five report their emissions measurement protocols (GHG protocol). This picture of disclosure remained much the same until the end of the assessment period, with the only notable change occurring from 2010 onwards. This was the shift of reporting companies employing NGERS instead of the GHG protocol in order to assess their emissions production.
- Overall, the most consistent reporter in terms of both their energy and emissions assessment protocols was Mirvac, who specified both measurement means for the entire eight year assessment period.
  - "Mirvac triggers the threshold of the National Greenhouse and Energy Reporting ("NGER") Act 2007 that requires large energy-using companies to report annually on greenhouse gas emissions, reductions, removals and offsets, and energy consumption and production figures. Mirvac engaged Net Balance to provide limited assurance over Scope 1, 2 and 3 NGER data. After falling below the energy usage threshold for the Energy Efficiency Opportunities program, Mirvac deregistered from the program in December 2012. Mirvac continues to drive energy efficiency and closely monitors energy consumption and greenhouse emissions." p.42 Mirvac 2013 Sustainability Report.

CONCLUSIONS

The Australian Federal Government has, over recent years, failed to provide policy consistency with respect to climate change and greenhouse gases emissions. This environment of political and policy uncertainty has translated into volatility of engagement and accountability through reporting on emissions and energy by the Australian corporate sector. The research highlights that changes in the mean level of public greenhouse gas reporting corresponds with changes to government regulation with respect to greenhouse gas reduction.

There are a number of possible explanations for the response by companies through public reporting. Certainly companies would need to be seen to be proactive on issues of significant public debate, particularly where there are related financial costs to the company. This is reflected in the number of companies that recognised the implications of regulation, such as NGERs and EEO. Additionally, the existence of regulations such as the NGERs and EEO has resulted in the further development of effective means by which companies can measure, collate and report on performance related to greenhouse gas emissions. For the sample companies, the introduction of regulation such as NGERs negated any further need to debate the validity of data capture with respect to underlying performance.

The results of the study do provide insights into the debate of mandatory versus voluntary public reporting of sustainability information. Typically, such debate is clouded by questions of the existence of the underlying data and the relevance of the issues with respect to the actual management of the organisations' operations. For the sample of companies surveyed there already exists a data set of greenhouse gas emissions that utilises a common method of capture and collation, and therefore can be comparable between organisations and across time. The only variable revolves around whether companies choose to make such data available through their public reporting mediums. The variation in reporting levels observed suggest that the availability of data alone is not a sufficient catalyst for all organisations to choose to be proactive in the reporting data related to greenhouse gas emissions. This raises the questions as to what influences the management of some of the companies surveyed to more fully disclose than other companies.

The variation of reporting practices was most obvious when observing within sectors. For example, it would be difficult to argue that large firms within the financial services sector had significantly different issues to address with respect to greenhouse gas emissions. It would there be expected that the data sets generated by these organisations would be similar. However, when comparing the reporting levels across the sector, or even individual firms across time, it was surprising to observe significant differences in the level of information provided.

The introduction of regulation such as NGERs plays a significant role driving the development of cohesive management systems that enables external reporting. However, the results of this survey suggest that mandatory reporting to a government agency is not sufficient to achieve consistent and comparable reporting practices for a large number of corporate reporters. Such an observation lends weight to arguments that mandatory reporting guidelines may be necessary to achieve high-quality public reporting.

Prior to the Paris Climate Conference (COP21) the Australian Government, in its 2015 submission to the United Nations Framework Convention on Climate Change, indicated it intends to reduce greenhouse emissions from 26 to 28 per cent below 2005 levels by

2030. This is an economy wide commitment for reduction, with a recognition of policy addressing emissions reductions, renewable energy and energy efficiency. The corporate sector, as a significant contributor to overall greenhouse gas emissions, will continue to shoulder considerable responsibility in the delivery of energy efficient and greenhouse gas emission reductions for the proposed target to be delivered. COP21 reminds us that despite government indecision on the regulatory environment, climate change and greenhouse gas emissions remain a significant threat and challenge for the corporate sector and the broader economy.

APPENDIX 1

1. AGL Energy Limited
2. Amcor Limited
3. AMP Limited
4. ANZ Banking Grp Ltd
5. Asciano Limited
6. AWE Limited
7. BHP Billiton Limited
8. Bluescope Steel Limited
9. Boral Limited
10. Caltex Australia Limited
11. Coca-Cola Amatil Limited
12. Commonwealth Bank of Australia.
13. Crown Limited
14. CSL Limited
15. CSR Limited
16. Dexus Property Group
17. Downer Edi Limited
18. Fortescue Metals Group Ltd
19. Foster's Group Limited
20. Goodman Fielder Limited
21. GPT Group
22. Harvey Norman Holdings Limited
23. Iluka Resources Limited
24. James Hardie Industries Se
25. Leighton Holdings Limited
26. Lend Lease Group
27. Macarthur Coal Limited
28. Macquarie Group Limited
29. Metcash Limited
30. Mirvac Group
31. National Australia Bank Limited
32. Newcrest Mining Limited
33. Onesteel Limited
34. Orica Limited
35. Origin Energy Limited
36. Oz Minerals Limited
37. Qantas Airways Limited
38. Ramsay Health Care Limited
39. RIO Tinto Limited
40. Santos Limited
41. Sims Metal Management Limited
42. Stockland
43. Telstra Corporation Limited
44. Toll Holdings Limited
45. Transfield Services Limited
46. Wesfarmers Limited
47. Westfield Group
48. Westpac Banking Corporation
49. Woodside Petroleum Limited
50. Woolworths Limited
51. Worleyparsons Limited

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