

Does GRI Reporting Impact Environmental Sustainability? An Industry-Specific Analysis of CO₂ Emissions Performance between Reporting and Non-Reporting Companies

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Abstract

The stated goal of the Global Reporting Initiative (GRI) reporting framework is two-fold: to make it easier for organizations to communicate their sustainability performance to stakeholders, and to drive companies to become *more* sustainable. Our aim in this paper is to assess if GRI-reporting has any direct and positive impact on sustainability performance, and more specifically on CO₂ emissions of the reporting companies. This study is the first that attempts to answer this question in a quantitative and systematic manner. We analyze the CO₂ emissions data from 40 A-level GRI-reporting companies, over a period of six years and across five industry sectors, comparing them with a control group of 24 non-reporting companies, to assess any direct impact of reporting on emissions. We perform an industry-specific analysis of the CO₂ emissions of both reporting and non-reporting companies for each industry sector. We find that amongst all reporting companies and industries, only the Utilities industry exhibits a dramatic decrease in emission intensity between 2007-2012, while the others show only minimal reductions, while the overall absolute emissions levels have grown significantly for both sets of companies. On the more qualitative side, we also note, based on our own experience in undertaking this study, that the GRI reports are not conducive to providing stakeholders with a coherent, user-friendly or transparent structure of a company's sustainability performance in general, or improvement thereof, concluding that neither of the GRI stated goals are currently attained. Finally, we provide constructive recommendations on how the GRI reporting process could better achieve its stated purpose. Academics, investors and analysts alike might find the review, the analysis as well as the recommendations of this paper useful, as they directly address the core objectives of the GRI reporting process and how it could be improved to have the desirable impact.

Keywords: GRI reporting, sustainability performance, carbon emissions, GHG emissions, CO₂ emission intensity

1. Introduction

In 1997, a Boston, Massachusetts coalition of over 50 investor, environmental, religious, labor and public interest groups called the Coalition for Environmentally Responsible Economies (CERES) noted its dissatisfaction with three emerging phenomena (Global Reporting Initiative) (Willis, 2003); namely that (i) companies were increasingly receiving multiple diverse, incompatible and time consuming requests for information about their environmental and social performance; (ii) reporting by companies to stakeholders and analysts about these aspects of performance was varied in content, inconsistent, incomplete, lacked comparability between companies and reporting periods, and even irregular in frequency, and (iii) there were signs of increasing numbers of reporting guidelines and frameworks being introduced in various countries and sectors and from various sources.

The solution that occurred to the leaders at CERES and endorsed by the United Nations Environmental Programme (UNEP) was to develop a global standardization of format and content for corporate reporting on environmental and social performance. Thus was born the Global Reporting Initiative (GRI) in late 1997, funded and administered through CERES. Its stated mission was to elevate sustainability reporting to the same level as financial reporting in terms of rigor, comparability, auditability and general acceptance (Willis, 2003).

The GRI is an independent organization that aims to encourage and support sustainability reporting by providing a reporting framework to participating organizations. GRI states that it “*works towards a sustainable global economy by providing organizational reporting guidance.*” (Global Reporting Initiative, 2011). It provides one of the most accepted definitions of sustainability reporting: “Sustainability reporting is the practice of measuring, disclosing, and being accountable to internal and external stakeholders for organizational performance towards the goal of sustainable development”. (GRI, 2006) The original reporting framework was developed as an independent project within the organization, whose aim was to enforce existing guidelines on corporate environmental conduct.

In its *GRI Learning Series*, entitled “GRI Sustainability Reporting: How valuable is the journey?”, in answer to “Section 1: Why do organizations embark on a sustainable reporting process?”, Answer 1.c states: “To plan activities, become more sustainable and position the company” (Global Reporting Initiative). On page 14, the report specifically states: “Underlining the drive to build a continually improving sustainability management system is the ultimate objective of becoming a more sustainable and more coherent organization. The GRI reporting process incorporates many elements specifically designed to contribute to setting up such a system.” The report further elaborates: “These organizations prepare a sustainability report to: (i) take early steps towards operating in a more sustainable fashion, (ii) facilitate implementation of a sustainability strategy, (iii) create greater awareness of sustainability issues and commitment throughout the organization, (iv) enhance the ability to track progress against specific targets, (v) identify cost savings, (vi) identify new business models, adapted to future business contexts” (Global Reporting Initiative).

It is now widely accepted that GRI reporting serves two main purposes (Lozano, 2013): (i) to assess the triple-bottom line (economic, environmental and social dimensions) of an organization, and (ii) to communicate the company’s efforts and progress in Sustainability to its stakeholders (Dalal-Clayton & Bass, 2002).

As of December 2013, GRI stated that “Nearly 80 percent of the largest 100 companies in 41 countries worldwide now use the GRI Guidelines. The survey also found that 93 percent of the world’s largest 250 companies carry out non-financial reporting, of which 82 percent refer to the GRI Guidelines” (GRI, 2013). Another report by KPMG (Klynveld, Peat, Marwick & Goerdeler) points out that 95% of the Forbes top 250 companies published sustainability reports in 2011, and 81% used GRI as standards for reporting (KPMG). These reports are currently categorized by GRI’s Application levels, and given indicators such as A+, A, B+, B and so forth, depending on how much sustainability information a company chooses to divulge from a set of selected performance indicators and profile disclosures. It is important to note that these application levels do not reflect a company’s sustainability *performance*, but rather their level of sustainability *reporting*. Thus, the application level does not reflect on the level of sustainability of the company, but rather on how many sustainability indicators a company is willing to disclose, regardless of how good or poor its performance actually is or how it’s currently trending. The “+” is added to a reporting company’s application level if the report has been externally verified (GRI, 2012).

Interestingly and notwithstanding the extensive literature on sustainability reporting in general and GRI in particular, there has been, to our knowledge, no study that attempted to look at the impact of reporting on any specific sustainability metric relative to non-GRI reporting companies. This, in our opinion, is the acid test of whether sustainability reporting truly helps drive forward sustainability performance. In this paper, we probe whether GRI reporting in itself makes a material difference in motivating and driving sustainability performance by analyzing the one metric (CO₂ emissions) that is the most widely reported among both GRI and many non-GRI reporting companies. More specifically we chose to analyze both the CO₂ emission in absolute values (Metric-tons of Scope 1+ Scope 2 CO₂ emissions) as well as the emissions intensity defined as the amount of metric tons of CO₂ (Scope 1 + 2) per millions of dollars of revenues (Metric-ton/\$M). We collect the CO₂ emission data as well as associated revenues from 64 companies, across five major industry sectors and over a six-year period (2007-2013). Our main limitation in seeking a larger sample size was the quickly shrinking number of publically trading non-reporting companies whose emissions data reporting goes back to 2007 and for which financial data was readily available.

2. Background Literature

There is an ongoing debate between the proponents and the detractors of GRI-reporting and its alleged impact on sustainability performance. In this review, we will present a representative sample of the literature that covers equitably both sides of the debates and their main arguments.

2.1 The Proponents’ View

Adams and Frost (2008) attempted to make a direct connection between the reporting aspect and the integration

thereof in management practices by directly interviewing personnel from four British and three Australian companies (Adams & Frost, 2008). Adams & Frost acknowledged however, that it was not the purpose of [their] study to review performance to determine the extent to which it had changed, but rather to examine how social and environmental information is used in decision-making and performance management. They also suggested that further research was required to explore the link between the measured indicators and the impact on performance.

Another study by Chen et al. explored the correlation between the Environmental Management Practices (EMP), as reflected by their GRI reporting, and the financial performance of manufacturing companies in Sweden, China and India (Chen, Tang, & Feldmann, 2014). They found no positive correlation between EMP and financial performance, and a negative correlation between the *environmental standard for suppliers* and *sales growth*. Their study however did not look at correlation between EMP and the actual environmental or social performance.

In attempting to explain the motives of corporate sustainability reporting, and drawing from prior literature (Morhardt, 2002), Skouloudis et al. underline four main reasons (Skouloudis, Evangelinos, & Kourmousis, 2009); namely (i) reduction of operating costs; (ii) promotion of stakeholder relations; (iii) the perceived environmental visibility of the firm, and (iv) the notion that reporting on such issues can yield competitive advantages.

The underlying, albeit implicit, assumption behind these reasons is clearly that the reporting is expected to improve the sustainability and environmental performance of the company; otherwise how else could this non-financial accounting alone help achieve the above objectives?

Proponents of sustainability reporting claim that the assessment of future competitive advantage is one of the key areas where sustainability reporting can support investor decision-making (Slater & Gilbert, 2004). According to them, the quality of sustainability management can help investors distinguish between companies that are efficient and well positioned to protect their market competitiveness and those that are headed for a bumpy ride. They argue that GRI's Sustainability Reporting Guidelines have emerged as the leading global framework for sustainability reporting. According to them Sustainability reporting allows companies to capture the influence they have on their stakeholders and the physical environment—and vice versa. They conclude that a clear business case has emerged that sustainability performance is relevant to creating or destroying shareholder value, but traditional financial reporting structures are ill equipped to deal with it. The growing field of sustainability reporting has begun to contribute to closing this gap.

In a 2006 study, Herremans and Herschovis conducted an extensive study of the sustainability practices of Suncor Energy Inc., and reported that Suncor has raised the standard for sustainability reporting as the first company in Canada—and one of the first in the world—to produce a report that is *in accordance with* GRI reporting principles (Herremans & Herschovis, 2006). They conclude their study by suggesting that “If more companies were to adopt the benchmarking approach that Suncor has developed, they would take a giant step toward providing more consistency and comparability in future sustainability reports—while also improving their overall environmental, social, and economic performance”.

In a 2012 study by Brown Flynn, the author investigated the significance of the ratings of various GRI reporting companies (Brown Flynn & CSRHub, 2012). The report concluded that the GRI application level *serves as a proxy for sustainability performance management* and that the GRI framework has implicit quality controls [...] that encourage high quality sustainability disclosures. Furthermore, the paper concludes that companies achieving A and B ratings must already have an established framework in place for collecting and reporting sustainability data, thus suggesting that those companies are more likely to have comprehensive sustainability management strategies. Their findings show that companies already focused on sustainable practices should strive for a B level or above.

However, rather than showing that GRI reporting drives sustainability, this report merely suggests that already sustainable companies are more likely to report at a higher level. While this and the other above-mentioned papers clearly reflect a widespread belief that GRI-reporting drives better sustainability performance, none of them provides any compelling evidence that companies are more likely to become more sustainable due to GRI reporting.

2.2 The Detractors' View

On the other side of the fence, research from the University of Waterloo concludes that the application level system used by GRI, far from driving sustainability, may actually help to disguise unsustainable behaviours and

companies (Fonseca A. , 2010). The researchers claim that one of the flaws of the GRI framework is that it lacks contextual reporting- that is, the framework and the application levels do not give readers a real idea of a company's sustainability performance. They recommend the use of contextual reporting, better external verification systems and engaging stakeholders to truly drive corporate sustainability. They further suggest that since organizations can achieve A+ simply by observing the principle of materiality, hiring external assurance and disclosing or justifying lack of disclosures on every core indicator they may sometimes miss the "bigger picture".

In a paper by Isaksson and Steimle, the researchers attempt to answer the question of what value GRI provides to the customer and whether it "contains the elements for describing corporate sustainability" (Isaksson & Steimle, 2009), specifically within the cement industry. The paper measures GRI reports on four parameters: (i) relevance of the indicators, (ii) clarity of indicators, (iii) clarity of improvement, and (iv) the system view or how well the indicators relate to a larger sustainability context. Upon analyzing reports from five major companies in the cement industry, it concludes that very few indicators are compared with national or industry averages, thus making it difficult for readers to evaluate true sustainability performance. The study also finds that even fewer companies set sustainability targets with respect to external national or global targets, concluding overall that the indicators lack clarity and are only partially relevant and contextual.

In yet another pertinent critique of GRI reporting, Milne and Gray offer a report on the disconnect between sustainability and Triple Bottom Line (TBL) reporting on the one hand, and the urgent challenge of the sustainability of the earth's ecology on the other (Milne & Gray, 2013). They conclude that the TBL and the GRI are insufficient conditions for organizations contributing to the sustaining of the Earth's ecology. Paradoxically, they may reinforce business-as-usual and greater levels of un-sustainability. Clearly, having a system in place for collecting and reporting sustainability information does not necessarily indicate or drive better performance (Cohen, CSR Reporting: The A+ Myth of Sustainability Reporting: Stop the Hype, 2012).

Mark McElroy, Executive Director of the Centre for Sustainable Organizations, recently discussed the need for context-based sustainability Metrics (CBM), which he believes are the only true indicators of sustainability performance. While absolute and relative metrics are valuable starting points, context-based metrics, according to him, express performance relative to contextually relevant social or environmental thresholds and constitute norms or standards of performance that organizations can voluntarily embrace as a basis for assessing and managing their own sustainability (McElroy, 2012). CBM provides information that traditional indicators may not, such as emissions per unit of product, with respect to the amount that a company must reduce in order to fairly and proportionately contribute to the reversal of climate change and help restore CO₂ concentrations to prescribed levels. Such reporting, while providing much more meaningful and actionable information about the state of sustainability of an organization, is currently adopted by none of the organizations that we have investigated.

Finally, Moneva et al. investigated the potential impact of GRI reporting and the subsequent application of the concept of sustainable development by businesses and industries (José M. Moneva, Pablo Archel, Carmen Correa, 2006). They suggest that a major problem with sustainable policy and business issues is the inherent vagueness of the term "sustainable" in that it may be conveniently appealing to many policy-makers and business leaders, precisely because it can mean "anything they want it to mean." In order to assess the contribution of GRI reporting in driving corporate sustainability, the authors suggest eight key questions to frame the debate, that include issues such as what exactly we wish to sustain, the gap between the present and a sustainable future, the extent of the change required, and the nature of the process required to carry out this change. The researchers conclude that the triple bottom lines approach adopted by the GRI in developing its reporting initiative is a "reductionist" approach and does not truly address the key questions that affect the sustainability debate. That is, this approach does not suffice to truly embed sustainability into corporate culture but simply constructs a set of disjointed indicators of corporate sustainability.

Clearly, the above literature, on both sides of the fence, leaves the reader wanting for a more definitive and quantitative answer to the obvious question; has GRI-reporting made any significant impact on the sustainability performance of the participating companies? That is precisely the aim of this paper, limiting our study exclusively to the carbon emissions metric.

3. Research Procedure & Methods

We selected sixty-four companies belonging to five industries for our research project. The industries in question were: (i) Mining and materials, (ii) Utilities, (iii) Energy, (iv) Chemicals, and (v) Automotive. The companies studied are shown in Table 1 below. We focused on these five industry sectors specifically because, as shown by

Fig.1, they were identified as responsible for over 95% of the total stationary Carbon emissions according to the Carbon Disclosure Project (CDP) database (CDP, 2011), shown in the chart below. Note that the automotive sector falls under the “consumer” category in Figure 1 and that we have chosen to separate the Chemical category from the very broad Materials category as defined in the CDP database. We then collected the emission-data for a set of comparably sized GRI Reporting and non-GRI Reporting companies in each industry.

Table 1. List of the analysed 64 publically traded companies across 5 industry sectors

Industry Sector	GRI-Reporting	No.	Non-GRI Reporting	No.
Mining & Materials	Barrick Gold; Arcelor Mittal (South Africa); Compania Minera Dona Ines Collahuasi; Freeport McMoran; Rio Tinto (UK); Sesa Goa; Teck; Vale (Global); Vedanta (India)	9	Centerra Gold; Independence Group; MacArthur Coal	4
Utilities	American Electric; CLP; Enbridge; Enel; Iberdrola; RWE; Snam	7	Centrica; Duke Energy; Electricité de France; Emerson Electric; National Grid; PG&E; Anadarko; Apache; Chevron;	5
Energy	BG Group; British Petroleum; Ecopetrol; Eni S.P.A; Hess; Petrobras; Repsol; Shell; Statoil; Suncor Energy; TOTAL	11	Exxon Mobile; Halliburton; Marathon Oil Corp; Imperial Oil; Schlumberger; Spectra Energy; Enbridge	10
Chemical	Air Products & Chemicals; BASF; Dow Chemical; E.I. du Pont de Nemours; Praxair	5	Air Liquide; Potash	2
Automotive & Transportation	Daimler; Ford; General Motors; Hyundai; Maruti Suzuki; Nissan; Toyota; Volkswagen;	8	Honda; Mitsubishi; CSX	3
TOTAL	GRI-Reporting	40	Non-GRI Reporting	24

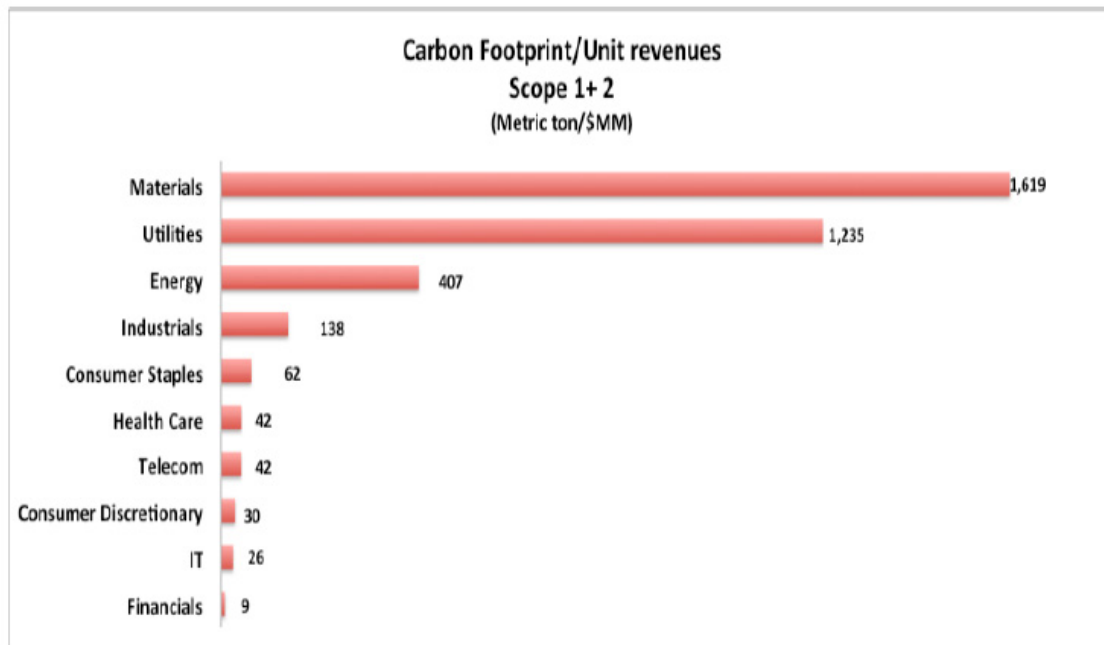


Figure 1. Most polluting industries by emission intensity, i.e. t CO₂/\$M of revenues (CDP, 2011)

3.1 Data Collection

For the GRI Reporting companies, the GRI Report database was used to select companies in the “Large” and “Multinational Enterprise” categories that had submitted reports for the entire 2007-2012 period, and had received either an A or A+ ratings from GRI throughout those 6 years (Global Reporting Initiative). These criteria were the key limiting factors in collecting a greater number of qualifying companies. Emissions data was collected in units of equivalent metric tonnes of CO₂, and includes both direct (Scope 1) and indirect (Scope 2) sources (Note 1), resulting from the company’s total industrial activities on a global basis. This data was recorded for these companies for the years in which they had submitted a GRI report. We used both the GRI report as well as the CDP Database to extract the emission data for each company and corroborate the accuracy of that data through cross-checking between the two sources. In the few cases where the emission data from the GRI reports was unclear, missing or otherwise inaccessible, we relied on the emissions data from the CDP database. As for the non-GRI reporting companies, we relied solely on the CDP database.

Our exclusive focus on CO₂ emissions was dictated both by the utmost importance of this metric to environmental sustainability and climate change, as well by sheer necessity. This is the *only* metric that is reported uniformly and fairly consistently in terms of Scope 1 and Scope 2 measurements by all the GRI-reporting as well as non-GRI companies that subscribe to the Carbon Disclosure Project (CDP). Hence it offers both the ideal and only metric available for comparison between the two groups for our purpose.

We also collected global revenues in millions of USD for all the companies, over the same time period, using financial data from Nasdaq (Nasdaq, 2014). For many foreign companies that did not post their revenues on Nasdaq, we used their annual reports to extract their revenues in USD for those seven years. Companies for which we could not extract either the revenues in a reliable way, or for which CO₂ emissions were not reported in a given year were simply dropped from our list.

To analyze a company’s sustainability performance, we selected two metrics: (i) the absolute CO₂ emissions in Metric-tons and (ii) the Carbon Emission Intensity metric defined as the company’s global metric tonnes of total CO₂ emitted per million USD in total revenue (tCO₂/\$M) for a given year. The chosen intensity metric is the so-called “sales intensity” suggested, but not enforced, by the G4 GRI scheme (Global Reporting Initiative). We then analyzed both metrics over the time period of 2007-2013. We proposed to view the intensity metric as a “proxy” for the (environmental cost)/(economic value) that a given company creates for society, where the CO₂ emissions are a surrogate, albeit only partially, for the environmental “cost” to society and the environment, and the revenues represent the economic “value” that society accords to this company. Unlike other intensity metrics, such as tCO₂ per unit produced or per employee/year or per function, the intensity metric as defined here, has not

only the advantage of being applicable to all industries and relatively easily obtainable, regardless of what they produce, but also of taking into account the impact of economic growth (or the lack thereof) on the total emissions of a company, whereas the absolute emissions metric by itself could be unduly punitive or generous to companies that are either fast growing or shrinking respectively.

Short of being able to answer the full question as to whether GRI reporting drives overall sustainability performance, we thus restrict our investigation to a single, but most important sustainability metric, namely CO₂ emissions. Our reformulated hypothesis is hence:

Does A-level compliance with the GRI process drive materially higher reduction in CO₂ emissions in absolute and intensity levels, relative to non-reporting entities?

We performed an industry-specific comparison of the evolution of CO₂ emissions intensity from 2007-2012 for reporting vs. non-reporting companies. In other words, we used the non-GRI reporting companies as a “control group” to isolate the impact of the GRI process from other factors such as macro-economic trends, economic recession, government regulations, and industry-specific market changes that could drive changes, positive or negative, in CO₂ emissions that are outside the control of the individual companies, but nonetheless common to the whole industry. While collecting this data, we also kept careful notes of the “qualitative” ease of access to GRI’s reports by an interested researcher or analyst, as impacted by the user-interface of the GRI website, the format of the GRI reports by each individual company, the report availability, the ease of access to the relevant indicators and metrics, the language, the year-over-year consistency, the units of reported data and coherence of the report in general.

3.2 Key Findings

We present in Figure 2 a graphical representation of the emissions annual timelines of the aggregated data of the five selected industries between 2007-2012. Each data point is the combined emission intensity for all companies, GRI and non-GRI combined, in a given industry in a given year. Figure 4 shows that amongst all reporting companies and industries, only the Utilities industry exhibits a dramatic decrease in emission intensity between 2007-2012, while the others show only minimal reductions.

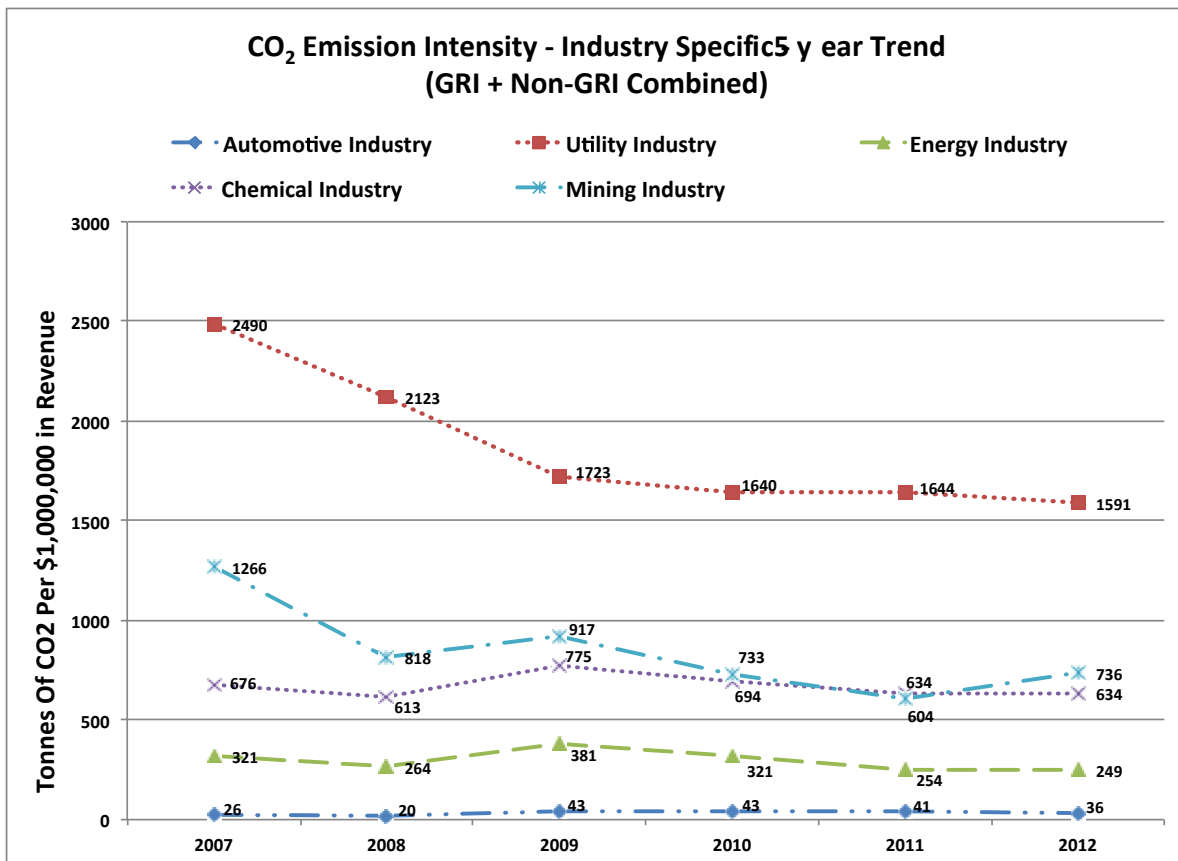


Figure 2. Aggregate average emission intensity per industry sector, for GRI and non-GRI reporting companies combined

For most industries, and with very few exceptions, emission intensities remain fairly consistent over the six-year period. It is noteworthy that most industries exhibit a spike in emission in 2009. A likely explanation is that it is a macro-economic effect caused by the global recession that led to an across-the-board reduction in revenues with a relatively lower reduction in CO₂ emissions, which are driven in large part by the fixed portion of the operational cost of their production lines. Additionally, for most industries, it is the companies with the worst initial performance, i.e. the utility and mining sectors, that show the most dramatic decreases in emissions from 2007-2010, but with still significantly higher intensity levels than the other companies. This suggests again that these reductions were mostly driven by the switching to natural gas as mentioned before, rather than by any significant and ongoing energy conservation measures. Once the switch is mostly complete, the reduction in emissions will tend to level off as observed in Figure 2. We will show in the following charts that this plateau regime tends to hold separately for both groups of companies.

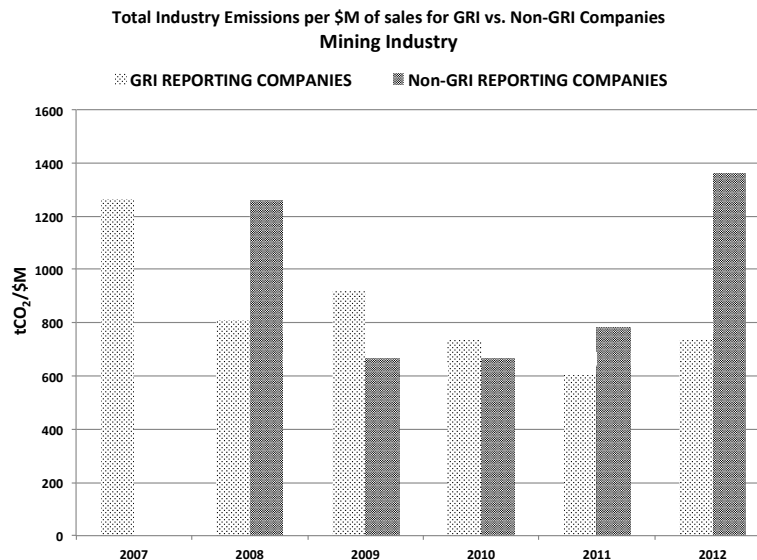


Figure 3. Emissions intensity of the mining industry

Figure 3 shows the average emission intensity for the mining industry for both GRI and non-GRI entities. The data shows that, except for the 2009 spike noted above, in general GRI-reporting mining companies tend to maintain their reduction in emissions. While the rate of reduction remains fairly consistent, there is an overall reduction in emissions per unit revenue over the first five years, followed by a 25% increase in 2012. In this industry, GRI reporting companies significantly out-performed non-GRI reporting companies, and despite the increase in emission intensity in the final year, they show an overall 42% decrease in emission intensity over the six-year period, with most of it achieved in 2008, however. Note also the disconcerting year-over-year (YOY) increase in emissions in 2012 of about 22% and 74% for GRI and non-GRI data sets respectively, suggesting once more that the reduction in improvements is levelling off and that further significant reductions are going to prove quite more difficult to achieve regardless of whether the companies are reporting their emissions data or not. Unlike 2009, which was an economic recession year, the same explanation cannot be invoked for 2012. As shown in Figures 3 thru 6, this levelling off of emission intensity from 2008 and onward seems to hold true for the other four industries as well.

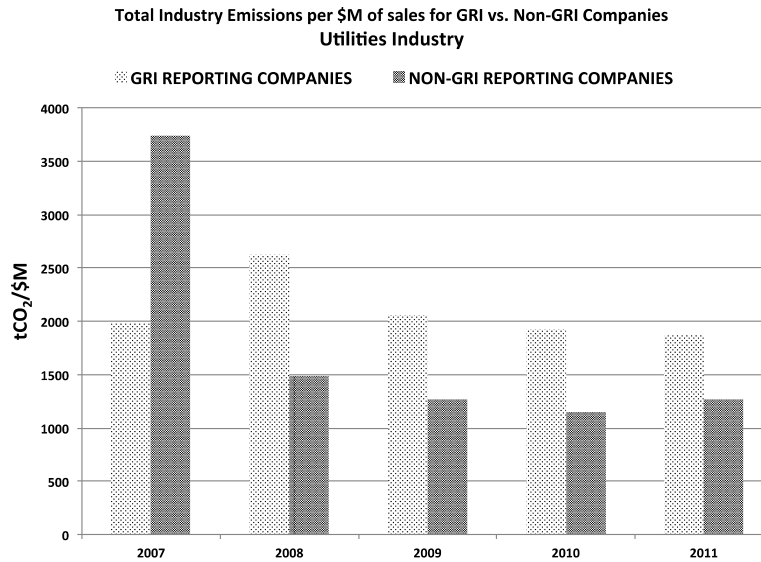


Figure 4. Emissions intensity of the utilities industry. As of the writing of this paper, the 2012 CO₂ emission data was still not available for all the companies in this sector

Figure 4 shows quite a different comparison than Figure 3 between the reporting and non-reporting groups. While there is an overall reduction in intensity for GRI companies, especially from 2008 onward, the non-GRI reporting companies follow the same trend but show *consistently* lower emission intensity than their GRI-reporting counterparts, suggesting that this reduction is due to external, industry-wide factors rather than being driven by GRI reporting, e.g. increasing adoption of natural gas. Furthermore, emission intensity still remains significantly higher than other industries surveyed, and has not decreased significantly over at least the last four years, again suggesting a levelling off of emission reductions.

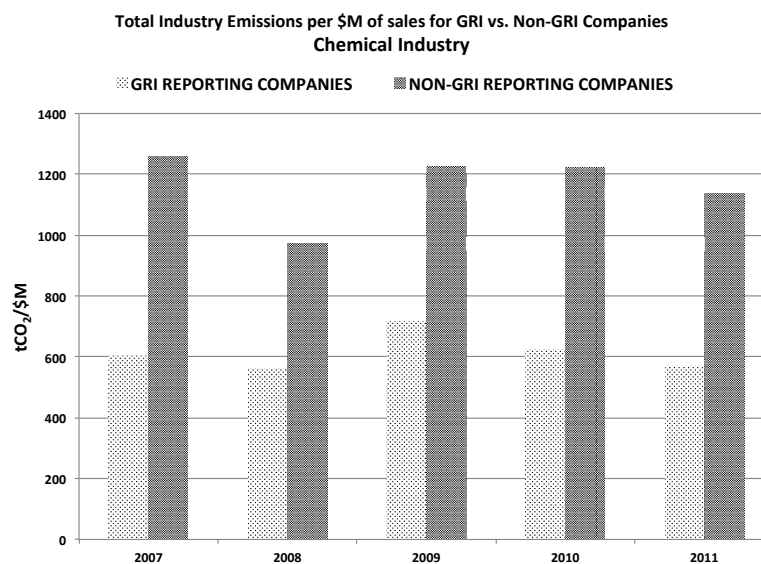


Figure 5. Emission intensity for the chemical industry. As of the writing of this paper, the 2012 CO₂ emission data was still not available for all the companies in this sector

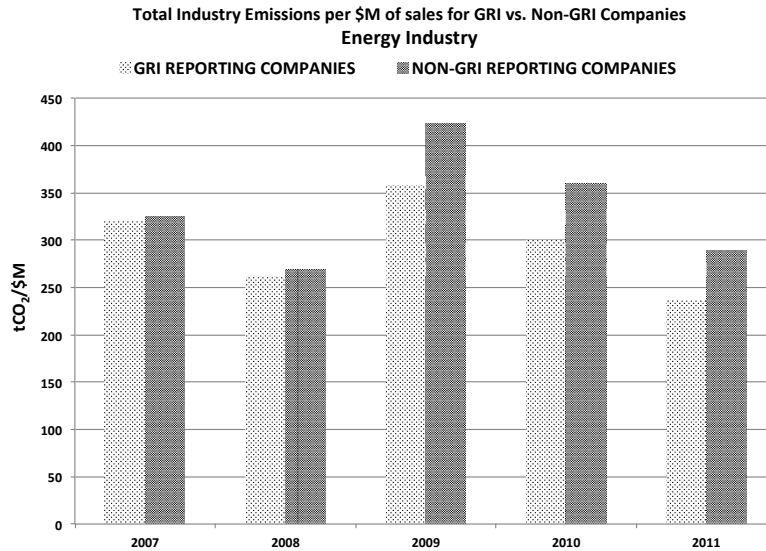


Figure 6. Emission intensity for the energy industry. As of the writing of this paper, the 2012 CO₂ emission data was still not available for all the companies in this sector

As with the utilities industry, there is a nominal reduction over time in emission intensity in the chemical industry (Figure 5). Here, there does seem to be a significant reduction in emission intensity by the GRI-reporting companies in comparison with the non-reporting companies from 2009 and onward. However the annual emission intensity change patterns for the reporting group appears to follow the non-GRI reporting companies. The GRI companies in the energy industry shown in Figure 6 also follow a near-identical trend to the non-GRI companies, suggesting an external, industry-wide pressure causing changes in emission intensity rather than improvement due to GRI. Once again, there are overall reductions in emissions intensity, but it is not dramatically different from non-GRI companies. The automotive industry intensity trends are presented in Figure 7.

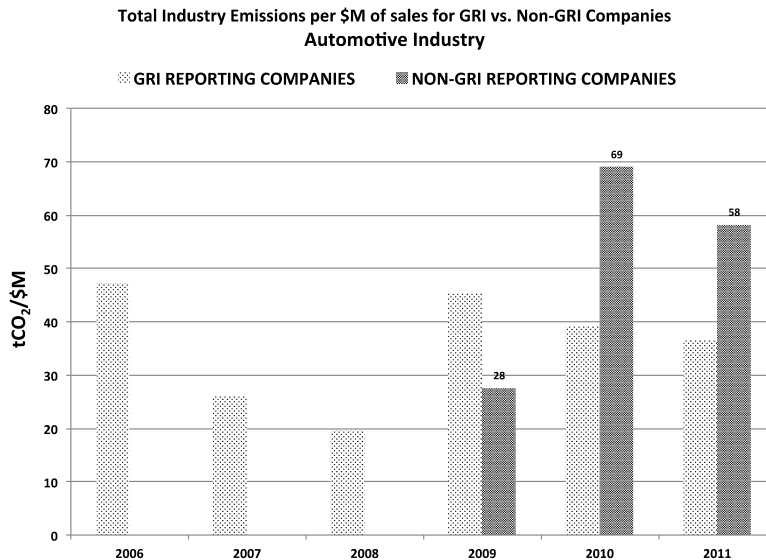


Figure 7. Emission Intensity- Automotive Industry (Note: no non-GRI emission data was available prior to 2009)

The automotive industry, as shown in Figure 7, on the other hand displays a sporadic trend in emissions intensity, with some companies exhibiting dramatic increases in intensity in a single year. That said the GRI-reporting companies as a whole show a very large increase in emissions intensity from 2008 to 2009, from which they consistently drop year over year but don't quite fully recover to the 2008 levels, which remain the lowest they've

reached in their 7 years of reporting. Also, unlike the other industries, the GRI-reporting companies in the automotive sector exhibit a consistent decrease in emissions intensity in years 2009-2012, while the non-GRI companies exhibit an anomalously low level of emissions intensity in 2009 followed by a sharp increase in 2010 and then a consistent annual decrease afterward. We do not have an explanation for this anomaly. A major limitation to our comparison however is due to a sample of one company only (i.e. Honda Motors) in the non-reporting automotive group, and which has only started reporting its carbon emission to CDP in 2009.

In order to capture any long-term trend in emission intensity and compare the reporting companies with their non-reporting counterparts, we show in Figure 11 the net change in emissions intensity for each industry over the six-year period (2007-2012) subject to the availability of data. One would expect that a 6-year period should be long enough to deploy a sustainability strategy with demonstrable improvements on all the major sustainability indicators, but most and foremost on carbon emissions. Figure 8 shows side-by-side summaries of our findings for each of the five industries. The data paints a mixed picture at best; while the GRI-reporting companies in the mining, energy and automotive sectors seem to fare relatively better than their non-reporting peers, the opposite occurs in the utility sector, while there is no significant difference between the two groups in the chemical sector. Note again here that the automotive comparison cannot be taken too seriously due to the sample of one company only in the non-reporting group, while the reporting group comprises seven companies. Also, the level of reductions in both the utility and chemical sectors among the reporting companies is only of 11% and 6% respectively over the whole 6-year period. That amounts to average annual reductions in emission intensities of only 1.8% and 1% for each of the utility and chemical industries respectively. The reader should note here that the companies that have achieved sales growth of more than those percent reductions, which is mostly the case here, would actually produce to a *net increase* in absolute CO₂ emissions within that industry sector. The mining industry seems to be the only sector where GRI-reporting seems to correlate with a significant reduction in emission intensity of about 42%, as compared to an increase of 8% among the non-reporting companies. This finding is consistent with the sustained efforts and evolution of sustainability reporting in the mining industry since the 1990's. An in-depth assessment and review of that evolution was well documented by Perez and Sanchez and the references within (Perez & Sanchez, 2009). All the above taken into consideration, we would however strongly caution against taking the above observations as conclusive given the fairly small number of companies in each industry-specific group. Indeed, given the large fluctuations between companies within the same sector, the inclusion (or exclusion) of a single entity can cause a large swing in the value of the average emission intensity in its corresponding sector.

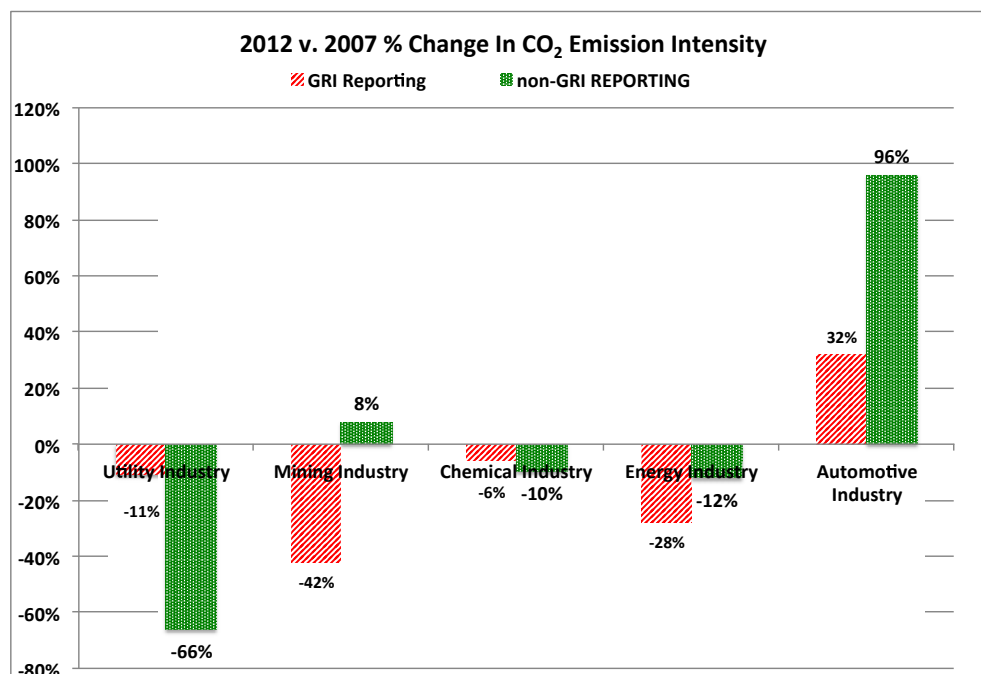


Figure 8. Six year change in emission intensity comparing GRI v. non-GRI reporting companies

Note that the non-GRI data for the automotive sector is limited to only one company and from 2009-2012. For the mining industry, % change in CO₂ emission intensity is between 2012-2008 due to lack of data in 2007.

We would like now to report on other ancillary and qualitative, but nonetheless important findings pertaining to the reporting process and its impact on the level of ease, or lack thereof, of researching and analysing said reports. A major issue encountered with the GRI report database was that despite the GRI reporting guidelines and a framework of data that must be included to meet a specific application level, the method of presenting this data is left to a high level of discretion to the reporting company. Perhaps unsurprisingly, this encourages an extensive amount of “greenwashing” and “window dressing” (Laufer, 2003) of reports especially in industry sectors that are notoriously unsustainable such as the energy, utility, materials, mining and the automotive sectors. This greenwashing is usually in the form of uplifting introductory messages from executives and directors, pictures depicting “green” activities, indigenous communities and pristine landscapes, and extensive descriptions of the company’s sustainability and eco-friendly values and mission.

Many reports exceed 100 pages in length, with sustainability indicators buried amidst lengthy chapters filled with descriptions of business vision and mission statements, operations, practices, strategies and case studies. Reported units of key indicators and metrics are rarely consistent within an industry, especially for parameters that are harder to quantify such as water usage (e.g. freshwater usage, groundwater usage, recycled water, etc.), human rights protection and safety indicators. Even for CO₂ emissions data, some companies would switch from one year to the next from reporting Scope 1, 2 and 3 separately, to “direct emissions” (Scope 1) and “indirect emissions” (Scope 2 and 3 combined), making it impossible to extract the Scope 2 data. Another limitation is that GRI does not save a local copy of the sustainability reports on its server, but rather points the researcher to a supposedly persistent link on the company’s website. In several cases, those links were not persistent, and we had to do a separate search for that report before we could download it. In all cases, the data overload of the reports tends to (intentionally or otherwise) obfuscate true sustainability indicators. Ultimately, this customized report structure lacks consistency and comparability between other reports of other reporting companies within the same industry or otherwise. This lack of transparent consistency and standardization between companies’ reporting schemes makes it exceedingly difficult for stakeholders to truly evaluate a company’s sustainability performance.

4. Discussion & Recommendations

4.1 Discussion

In this paper, we have analysed two key emission metrics, namely the absolute CO₂ emissions and CO₂ emission intensity level over a 6-year period, for 64 publically traded companies in 5 different industries. In both cases, we limited our analysis to Scope 1 and 2 emissions only. To answer our research question as to whether GRI reporting drives significant reduction in CO₂ emissions, we compared, at the industry level, the performance of GRI-reporting versus non-GRI reporting companies (control group) as reflected by those two metrics.

In our industry-specific analysis, the emissions intensity followed almost identical trends between the two sets of companies, suggesting that other factors such as economic pressures, increased use of natural gas, industry-wide performance and the global market may be driving those changes instead of internal control measures by the individual companies. Except for the utility sector, the GRI-reporting companies appear to consistently show lower overall emission intensity than their non-reporting counterparts. However, their level of reduction year-over-year (percent-wise) is very similar to that of the control group. As for the utility sector, and in stark contrast with the other industry sectors, it appears that the non-reporting companies have achieved not only lower emission intensity but also higher levels of reduction since 2007 than their GRI-reporting counterparts. Another somewhat disturbing result is that emission intensity appears to level off, and in some cases even significantly increase (i.e. mining sector), between 2011 and 2012, for all the industries, except for automotive. This is indicative of a state of diminishing returns suggesting that the companies, whether reporting or not, have implemented all the easy fixes, (e.g. switching to natural gas) but are still lacking the more rigorous management systems and improvement processes that will enable them to achieve further material and sustained reductions on a systematic basis. The exception for this trend is the automotive sector, which shows significant reduction between 2011 and 2012, but where the 2012 emission intensity level is still higher than that of 2007, and hence suggesting that the automotive industry actually lags behind the other industries in even implementing those easy fixes.

4.2 Recommendations

During the course of undertaking this study we identified several key improvements that could be used to streamline GRI Reporting, making it truly coherent, transparent and indicative of a company’s sustainability performance both in relative and absolute terms. While not guaranteed, we believe such a streamlined form of reporting would provide a stronger incentive for sustainability improvements for the reporting companies.

These recommendations are listed below:

1) Standardize reporting via a database of historical data

Rampant greenwashing (Laufer, 2003) makes it difficult for readers to identify and interpret key sustainability indicators. Many companies report targets for reductions and conservation, and yet without easy access to historical data as to whether or not they have met previous targets. This is practically meaningless information. As it stands, researchers and analysts interested in corporate sustainability trends have to read lengthy individual reports from each year. In the place of company-produced reports that are more likely to be cumbersome at best, and disingenuous at worst, GRI could institute a questionnaire format that only covers essential information that requires unambiguous interpretation. Aggregating this data and sorting it by categories such as “Water consumption,” “CO₂ emissions”, etc. along with financial and employment metrics, for all years that a company has made a disclosure and identifying gap years, would significantly alleviate this process. This data could then be more readily accessed and compared across a large number of companies and industries by researchers and analysts alike, and would provide a more transparent basis for assessment and comparison of sustainable performance of the reporting companies.

2) Categorize the data by geographic region and specific site

Currently, most reporting companies report a single aggregate value for their sustainable parameters without any breakdown by region. The site-specific categorization of data would provide appropriate context that will make the interpretation of sustainability indicators much more meaningful. For example, a company using a certain quantity of fresh water in a water-dense region might be sustainable, while the use of that same quantity of water in water scarce region might be completely unsustainable. Furthermore, that contextual data could be valuable for the purpose of sustainable water planning, for example (Gleick, 1998).

3) Evaluate future impact of G4 guidelines on voluntary reporting

Assess if the omission of the scoring system from the new G4 guidelines will demotivate coherent sustainability reporting (Fonseca A. e., 2012); and if so, devise an alternate system that incentivizes true transparency in reporting, rather than simply the number of indicators disclosed. Also, instead of eliminating the Application Levels altogether, perhaps it would be more helpful to maintain them, but make them more representative of the level of compliance with the streamlined process and the level of contextual reporting instead.

4) Present data in conjunction with industry specific local and global goals

Contextual reporting for emission reduction makes it easier for consumers to understand how companies are performing with respect to a meaningful target as well as with respect to other companies in the same sector. This would constitute the stepping-stone to integrating those metrics within a company management system for continuous improvement, reminiscent of a Total Quality Management system.

5) Discard the oversimplified idea that reporting alone promotes sustainable behaviour

While reporting may be an essential ingredient in a company’s sustainability strategy, GRI should concurrently promote sustainability behaviour by offering companies guidelines on target reductions, encouraging them to implement a “Plan, Do, Check, Act” (PDCA) management system of continuous improvement that (i) enforces contextual and site-specific reporting, (ii) evaluates a company’s performance based on meaningful targets and relative to its peer group, and (iii) provides a feedback loop for corrective actions and follow-ups on targets set in prior GRI report submissions. Only then, would the reporting process provide the basis for the sought after sustainability assessment and improvement, and position GRI to live up to its mission of communicating and driving sustainability.

5. Conclusion

In conclusion, our study, despite its limitations, appears to be the first of its kind to investigate the largest available sample of GRI and non-GRI reporting companies, across five important industry sectors and for which CO₂ emissions and financial data are publically available. We found no systematic material performance improvement between the reporting and non-reporting companies.

In light of our quantitative and qualitative findings described above, we conclude that despite GRI’s claims of transparency and accountability in measuring and reporting sustainability, the current structure of the personalized reports achieves neither; and in some cases even helps conceal unsustainable behaviour. While it may certainly play a role in sustainability, as it currently stands, GRI does not appear to *drive* corporate sustainability so much as *recount* pre-existing trends. This does not have to be the case. We strongly recommend that GRI take concrete steps, now that it has emerged as the dominant international reporting standard and

secured the commitment from thousands of companies, to raise the bar of reporting to the level where its impact on sustainability performance becomes more measurable. Another derivative contribution of this study is that it provides for the first time a baseline emission intensity profile for each industry studied. We believe that this data will be helpful in assisting individual companies to evaluate their performance relative to their industry average as well as across industries.

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Notes

Note 1. Scope 1 emissions include all direct GHG emissions that are owned or controlled by the reporting entity such as emissions from the entity's vehicles, stationary sources, on-site landfills and wastewater treatments, etc. Scope 2 emissions include all indirect GHG emissions from consumption of purchased electricity, heat or steam.

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