



Supplement to Standards Outcome Review

Non-Renewable Resources

This is a supplement to the Standards Outcome Review report for the Non-Renewable Resources sector, prepared for the SASB Standards Council meeting on December 19, 2013. This supplement contains detailed feedback from SASB Industry Working Groups (IWG) for this sector. The Standards Outcome Review report addresses these comments, and based on a review of the comments and additional research, the SASB Standards Development team will put forward for a 90-day public comment period (PCP) on January 14, 2014, accounting standards for the eight industries in the Non-Renewable Resources sector.

Section 1 -

This section provides the percentage of IWG members that determined each issue in an industry, for all eight industries, to be material. Green bars indicate that the IWG respondent agrees that the issue is material, Red bars indicate that the IWG respondent disagrees, and Blue bars indicate that the IWG participant considers that the issue maybe material, but has substantial reservations. These responses determine which issues the SASB Standards Development team investigates further in greater detail to present material issues for public comment.

Section 2 -

Section 2 lists all the comments received during the IWG, including: the industry, disclosure topic¹, question type on the survey, interest group, suggested disclosure topic where IWG members suggested adding a topic, or response to whether an issue presented to the IWG is considered material, and detailed comments.

Comments related to issues on which there was IWG consensus regarding materiality will be considered when creating issue descriptions for the sustainability accounting standards, and revising industry briefs.

Comments related to other issues have been considered when revising or eliminating issues as being material, as discussed in the Standards Outcome Review report.

Comments related to suggestions for new issues have been considered when adding material issues to an industry, as discussed in the Standards Outcome Review report.

All other comments relate to industry definitions, SASB's overall approach, and IWG participation experience, and will be considered for process improvements.

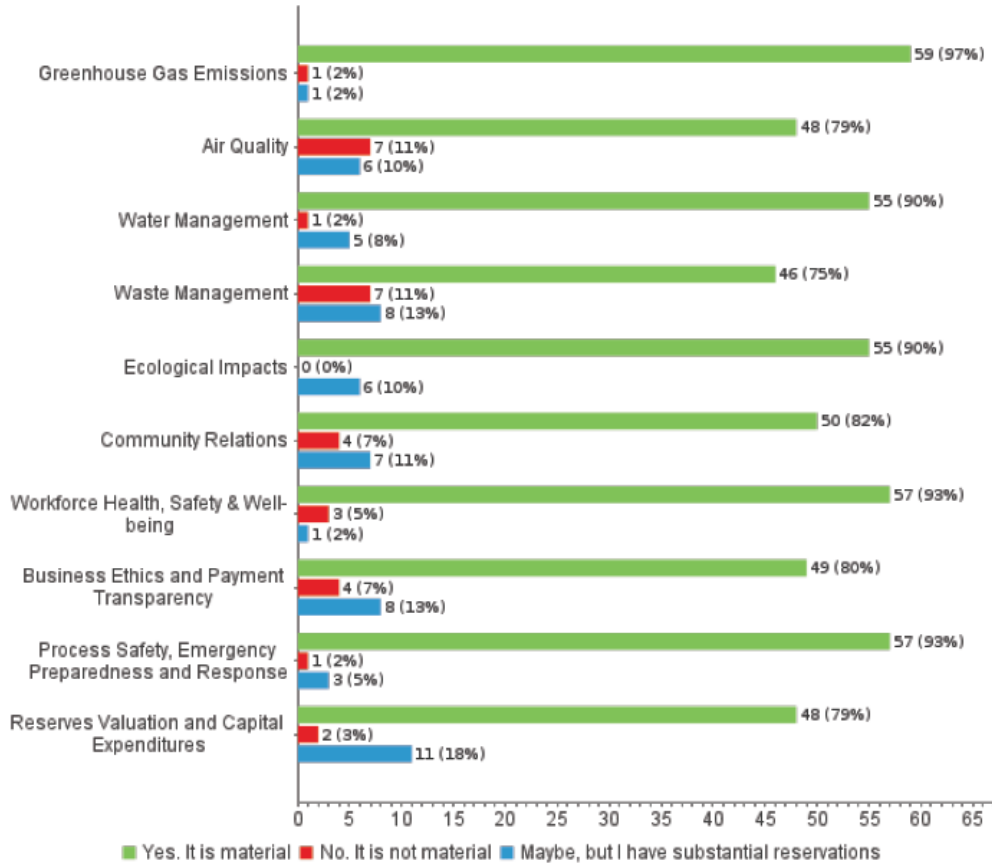
¹ In cases where general comments were made that related to a sustainability topic already presented by SASB for an industry, these comments have been mapped back to the topic.



Section 1 - IWG Assessment of Materiality

Oil & Gas Exploration and Production

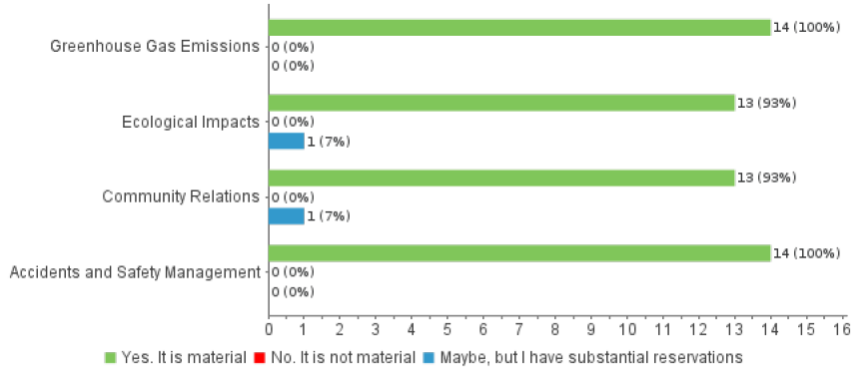
[Material] In your opinion are the following material sustainability issues to the Oil Gas – Exploration Production industry?



Oil & Gas Midstream

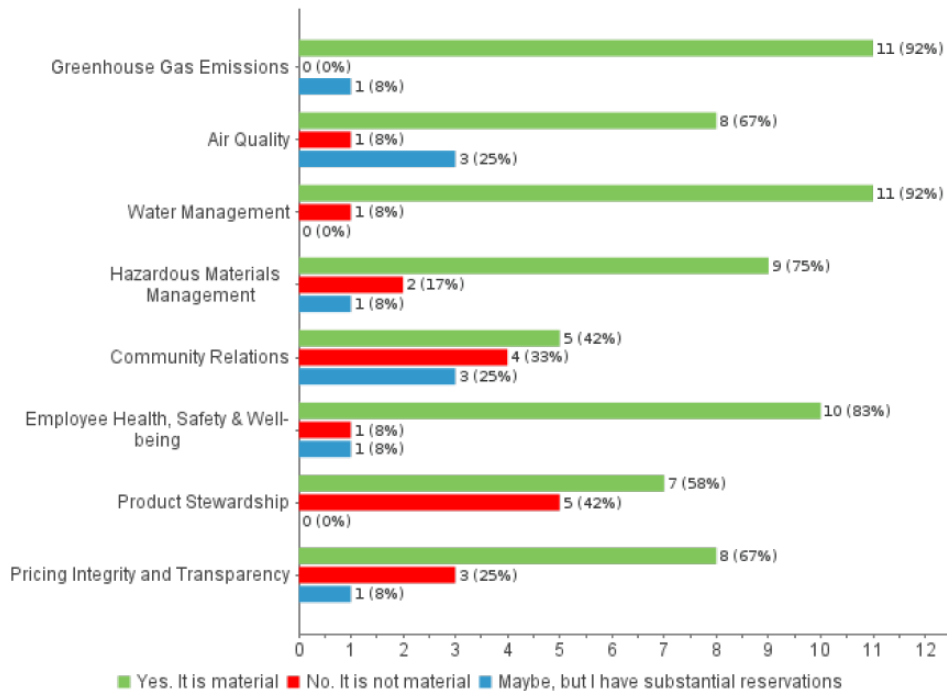


[Material] In your opinion are the following material sustainability issues to the Oil Gas – Midstream industry?



Oil & Gas Refining and Marketing

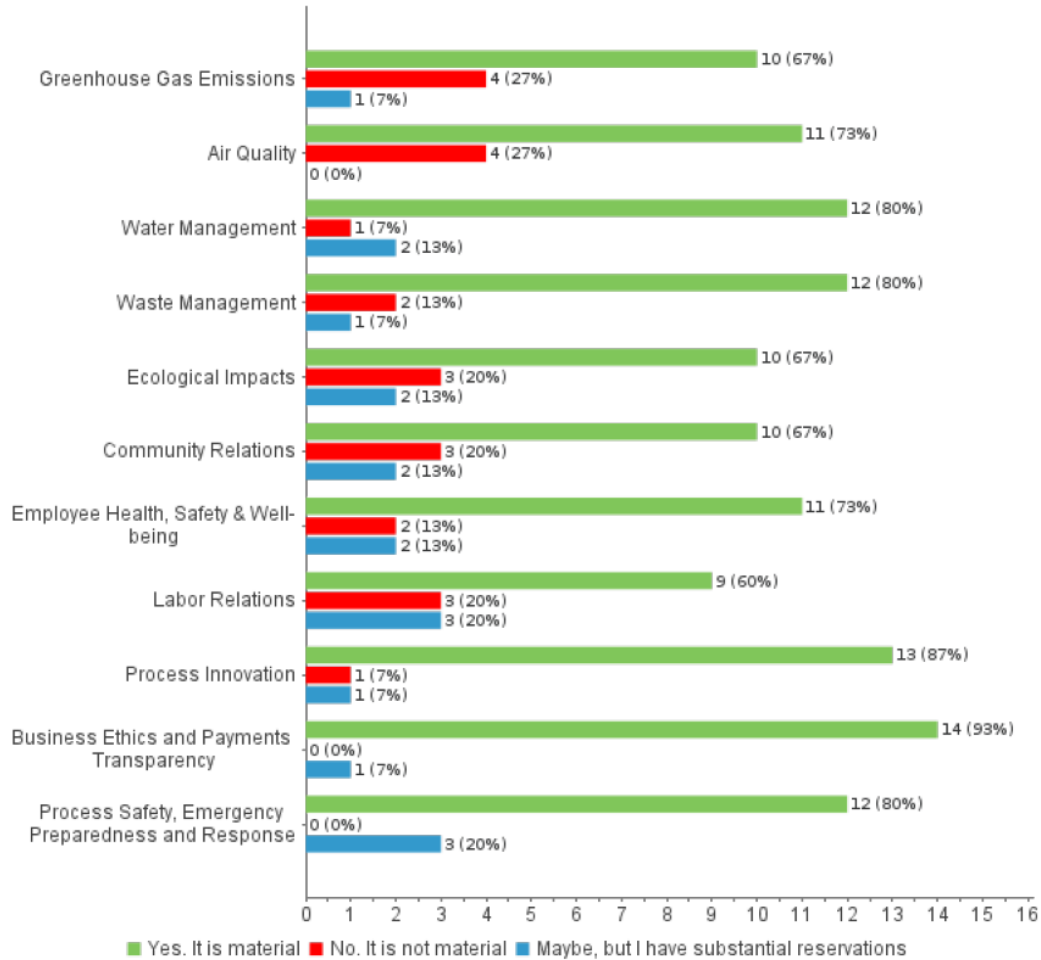
[Material] In your opinion are the following material sustainability issues to the Oil and Gas - Refining Marketing industry?





Oil & Gas Services

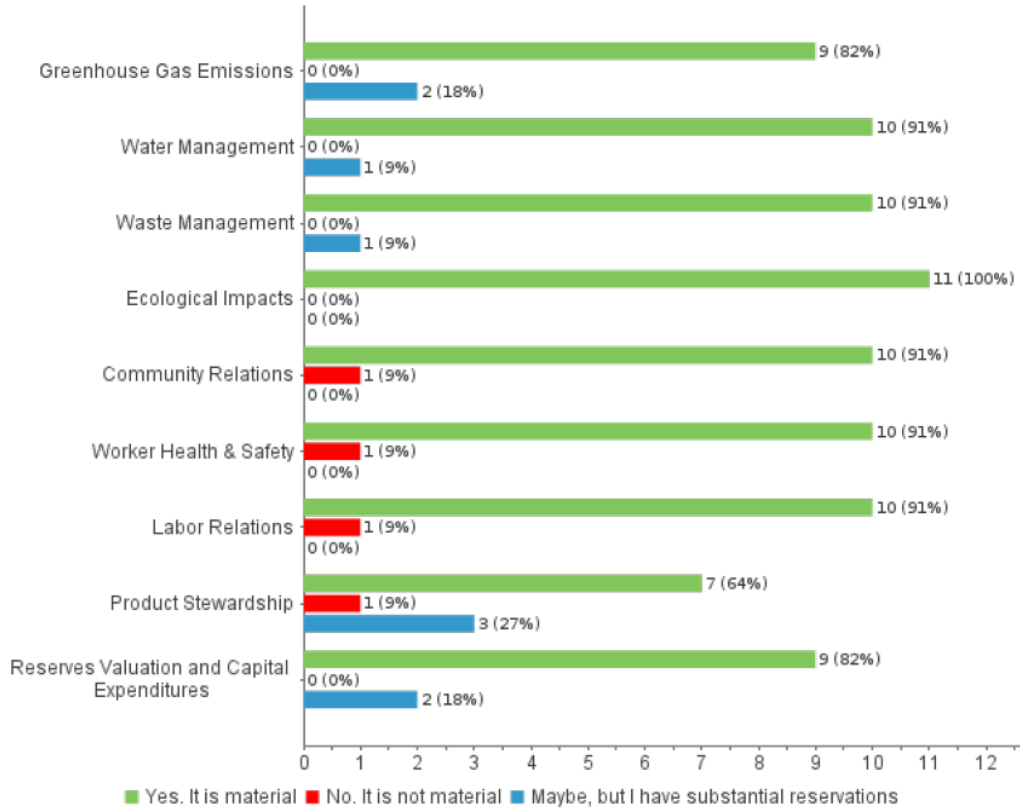
[Material] In your opinion are the following material sustainability issues to the Oil Gas - Services industry?





Coal Operations

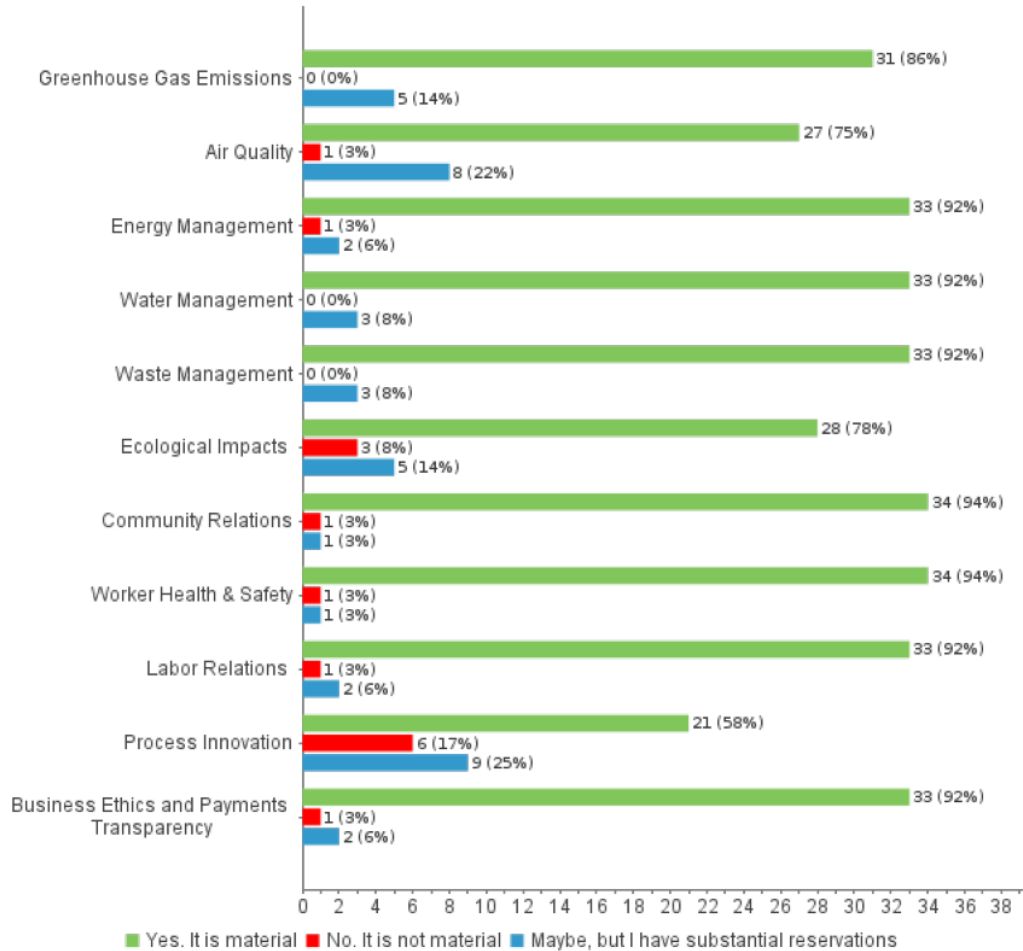
[Material] In your opinion are the following material sustainability issues to the X industry?





Metals & Mining

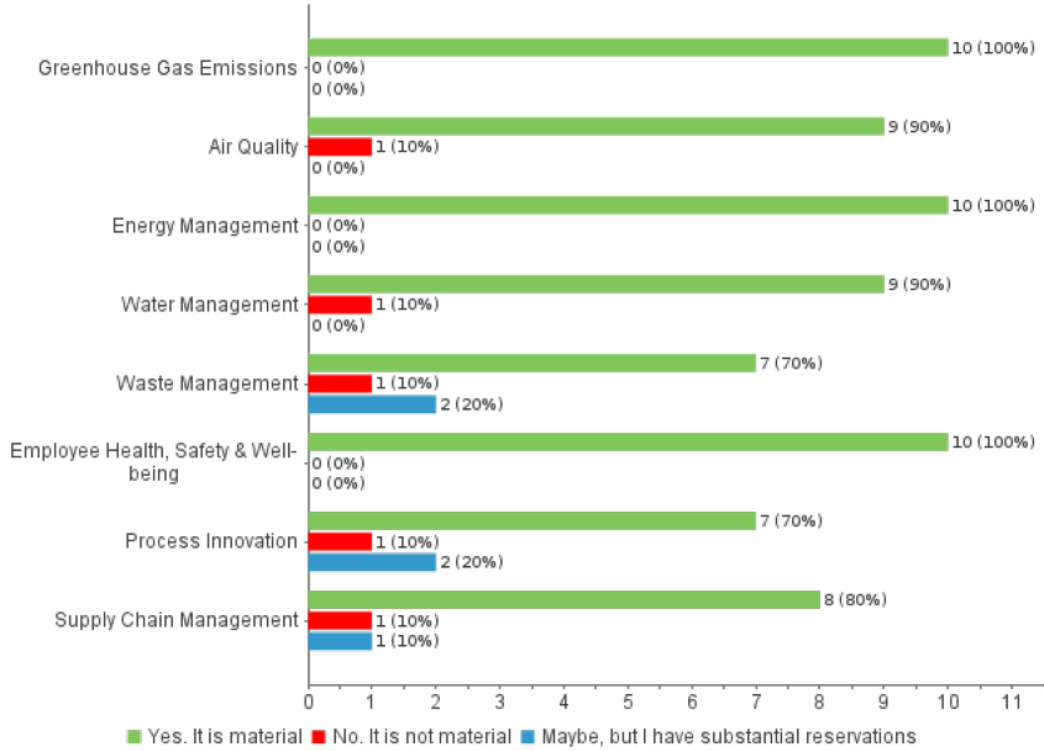
[Material] In your opinion are the following material sustainability issues to the Metals and Mining industry?





Iron & Steel Producers

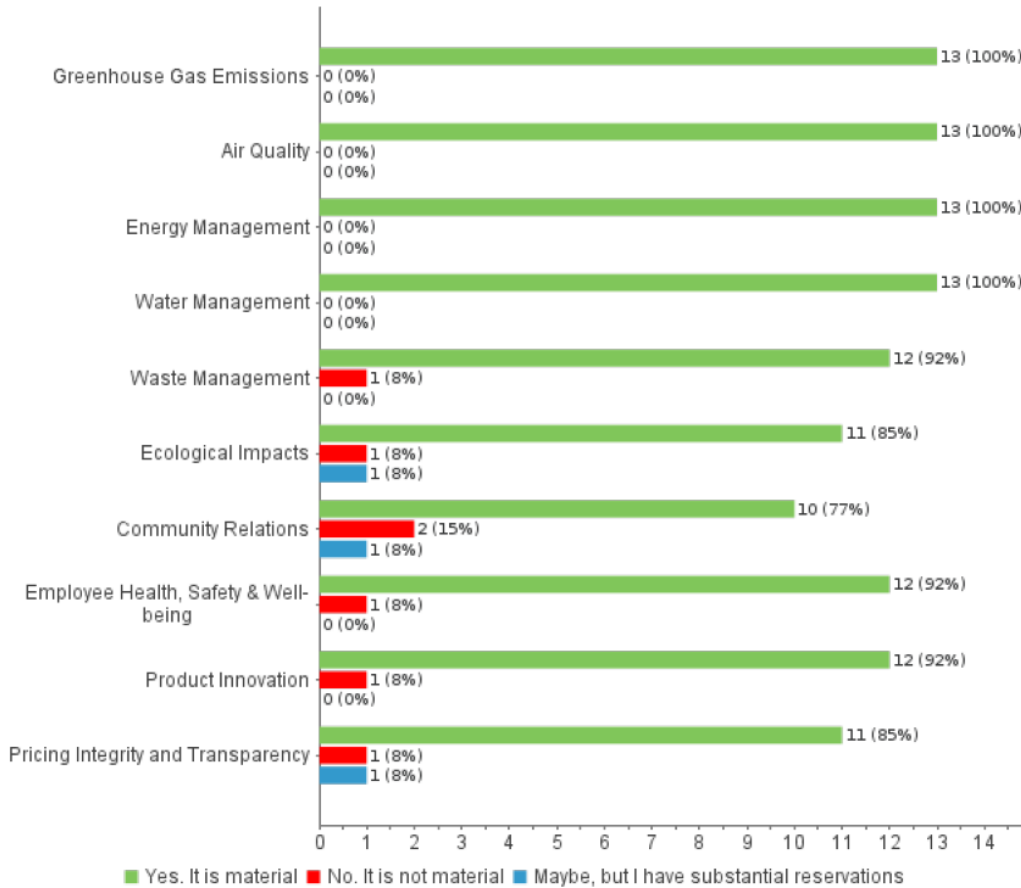
[Material] In your opinion are the following material sustainability issues to the Iron Steel Producers industry?





Construction Materials

[Material] In your opinion are the following material sustainability issues to the Construction Materials industry?





Section 2. IWG Comments on Disclosure Issues

Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/Response	Comment
Coal Operations	Community Relations	Add Issue	Public Interest	Human rights and community health impacts	(This is related to community relations but involves serious additional risks for a subset of US coal mining companies). Public health research has documented serious health impacts from mountaintop removal coal mining in Appalachia. Air pollution from blasting and water pollution from mine runoff has been linked to cancer, respiratory problems, and premature death. This exposes companies to litigation risks, although good luck finding a lawyer in West Virginia willing to sue Arch Coal or Alpha Natural Resources. That said, the Sierra Club and other environmental groups have been filing and winning several lawsuits on water contamination issues. Reputationally, a UN delegation on business and human rights recently called for an investigation into potential violations of human rights by mountaintop removal mining practices.
Coal Operations	Community Relations	Add Issue	Corporation	land use / management	are there reclamation/decommissioning applications in place for areas of disturbance? how much land is being disturbed per area of industry?
Coal Operations	Community Relations	Material issue?	Market Participant	No	It's rarely a material factor in company performance.
Coal Operations	Community Relations	Material issue?	Market Participant	Yes	Local community relations are very different than regional relations. How well the industry or company works both locally and regionally with the community has a direct impact on the future of the company
Coal Operations	Community Relations	Material issue?	Market Participant	Yes	Without the continued support from the local community and its labor force, mining activity could become restricted, if not suspended indefinitely through strike activity/loss of local permits. To remain a Going Concern, strong Community Relations are essential for coal mining companies.
Coal Operations	Community Relations	Material issue?	Corporation	Yes	- I have no additional thoughts outside of those raised in the Coal Operations Industry Brief, except to perhaps emphasize the legal ramifications that may impact coal operations that do not effectively establish community relations and their social licence to operate. Individuals protesting coal operations are at risk of delaying mine development or disrupting mine production, even without an appropriate legal argument; courts may cease production as they work through the facts and legal nuances.
Coal Operations	Community Relations	Material issue?	Corporation	Yes	They are most immediately affected by your activity.
Coal Operations	Ecological Impacts	Material issue?	Market Participant	Yes	Any mining impacts, air, water, land and the biosphere
Coal Operations	Ecological Impacts	Material issue?	Corporation	Yes	- ICMM's Principle 6 (continual improvement of environmental performance) requires member companies to have effective closure plans in place (and adequate resources to meet the closure requirements) for all operations and new projects.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Coal Operations	Ecological Impacts	Material issue?	Market Participant	Yes	Putting mining waste into rivers affects living organisms.
Coal Operations	Ecological Impacts	Material issue?	Market Participant	Yes	Mountain top removal has been made the poster child of coal mining campaigns in the United States. This has not been brought out in the current brief.
Coal Operations	Ecological Impacts	Material issue?	Corporation	Yes	Land reclamation and habitat preservation must be an integral part of a well run operation to the meet the needs of all constituents, human, animal or plant.
Coal Operations	Greenhouse Gas Emissions	Inaccuracy	Public Interest	D.N.A. - Inaccuracy	Not really an inaccuracy, but I would recommend treating carbon capture and storage initiatives with greater skepticism, since there are deep doubts about the technical and economic viability of CCS.
Coal Operations	Greenhouse Gas Emissions	Inaccuracy	Market Participant	D.N.A. - Inaccuracy	Greenhouse Gas Emissions (Page 4) ".....it requires six times the energy needed to mine industrial metals..." The word metals should be replaced with the word minerals. Also, the comparison is not reasonable. Coal Mining is much more similar to industrial metal mining in scope and the BTU/ton of material mined is similar.
Coal Operations	Greenhouse Gas Emissions	Material issue?	Market Participant	Maybe	GHG emissions from these type of industries may be material but should be calculated and explained more clearly
Coal Operations	Greenhouse Gas Emissions	Material issue?	Corporation	Maybe	As a gating factor, there are reservations as to whether Climate Change is real or not, so the impact of greenhouse gases on the environment must be treated accordingly. Additionally, if an investor is investing in a fossil fuel industry such as coal or natural gas, it's not clear to me how they would benefit from disclosures in this area (i.e., if an investor was concerned about Climate Change and greenhouse gases, would they even be interested in investing in a fossil fuel industry or why would they need disclosures on this?).
Coal Operations	Greenhouse Gas Emissions	Material issue?	Corporation	Yes	increased public scrutinty, more regulatory requirements, methodoligy needs to be consistent for data banchmarking
Coal Operations	Greenhouse Gas Emissions	Material issue?	Corporation	Yes	- Global regulatory and public pressure to lower GHG emissions - Increased pressure to lower energy use (and associated GHG emissions) to lower production costs - Operations are feeling pressure to lower GHG emissions even in those countries where they operate without regulatory requirements to do so. If one operation within a large, global organization is required to lower GHG emissions for legal purposes, we are seeing pressure to lower emissions (and share learnings) across all operations (regardless of legal requirements). - Increased trend to set GHG reduction and production / GHG intensity targets. - Physical impacts of climate change are being considered on company risk registers (risks of disruption of service, damage to equipment, flooding of mine area, etc)
Coal Operations	Greenhouse Gas Emissions	Material issue?	Market Participant	Yes	As the most carbon intensive fossil fuel, it is logical that coal is first in line to be impacted as emissions constraints continue to spread and come in to force.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Coal Operations	Greenhouse Gas Emissions	Material issue?	Corporation	Yes	Through the lens of overall conservation of global resources. Not as a definitive view of climate or a pre-emptive action item. Informational at this time.
Coal Operations	Does Not Apply	Comment on Brief	Market Participant	D.N.A. - Comment on Brief	The more appropriate question is: Did the industry brief provide the SASB perspective and SASB understanding of the industry. The industry brief provided me the perspective of SASB and their researcher.
Coal Operations	Does Not Apply	Comment on Brief	Public Interest	D.N.A. - Comment on Brief	See comments about mountaintop removal, community health, human rights, and regional economic risks.
Coal Operations	Does Not Apply	Add Issue	Corporation	Mine 5 year operating plan	Be careful of disclosing factors such as specific volume targets that may affect competitiveness or markets
Coal Operations	Labor Relations	Material issue?	Market Participant	No	It's rarely a material driver of company performance.
Coal Operations	Labor Relations	Material issue?	Market Participant	Yes	Labor relations have a long and tumultuous history
Coal Operations	Labor Relations	Material issue?	Market Participant	Yes	Given that coal mining is a labor intensive process that can not be automated, maintaining satisfactory labor relations is of the utmost importance to ensure mining activity continues. Further, a properly trained, protected, and motivated work force could potentially minimize contingent liabilities arising from mining accidents.
Coal Operations	Labor Relations	Material issue?	Corporation	Yes	Strong link with community relations (labor force is often from the community around the coal operation) - ICMC Sustainable Development Framework, Voluntary Principles, etc all highlights the importance of managing and upholding human rights.
Coal Operations	Labor Relations	Material issue?	Corporation	Yes	High risk operation, both in physical operations and resource management - you need a motivated workforce.
Coal Operations	New Issue	Add Issue	Corporation	Energy Management	Coal operations are energy-intensive for similar reasons to those companies that fall under the 'Mining & Metals' framework. Granted that there is likely more electricity use in other metals production (e.g. aluminum), there is still significant energy use in coal operations and electricity is still a significant source of energy use at most coal operations (e.g. coal crushing, drag lines, conveyor systems, electric diggers, etc). For these reasons I argue that Energy Management should be included for many of the same reasons as those described in the 'Mining & Metals' industry brief.
Coal Operations	New Issue	Add Issue	Corporation	National Security	Access to control over fuel resources is a crucial component of national security.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Coal Operations	New issue	Add Issue	Market Participant	Non-GHG airborne emissions	The current categories do not appear to include other air quality issues such as mercury or particulates. In the US, it has been MATS regulations on Mercury which have already put pressure on the viability of old coal plants due to retrofitting costs. Similarly in China it is concerns over urban air quality which are making this a political issue resulting in China aiming to peak its coal use sooner.
Coal Operations	New Issue	Add Issue	Public Interest	Regulatory Capture and Political Influence	I recommend you add this back in, at least for US coal companies. The real sausage gets made at the state level, where coal companies not only dictate any legislative outcomes that could impact their business in West Virginia or Kentucky, at least, but have set up a pretty well-lubricated revolving door between state environmental agencies that has created an environment of acute state-level regulatory capture. This exacerbates environmental risks faced by companies, since regulators aren't regulating effectively, and exposes companies to risks from third-party litigation from environmental groups.
Coal Operations	Product Stewardship	Material issue?	Market Participant	Maybe	The product from coal mining is coal, a rock of the earth with a high carbon content. The product is specified based on carbon, ash, sulfur and moisture content. It is hard to understand what Product Stewardship might mean in this context.
Coal Operations	Product Stewardship	Material issue?	Market Participant	Maybe	Clearly, actions taken by coal mining companies to improve the case and outlook for "Clean Coal" are important. However, these types of disclosures seem less relevant on a company by company basis (in terms of my investment decision making process) and more relevant if managed by a trade/industry group (i.e. American Coal Council) that is capable of providing an aggregate picture of steps taken by the collective industry to move towards "Clean Coal."
Coal Operations	Product Stewardship	Material issue?	Corporation	Maybe	"Clean coal" often refers to carbon capture, which is not proven technology and is quite expensive. In an environment in which industry dynamics overall are extremely challenging, it is not realistic to expect a coal producer to have the wherewithall to invest in these types of technologies.
Coal Operations	Product Stewardship	Material issue?	Market Participant	No	It's rarely a material driver of company performance.
Coal Operations	Product Stewardship	Material issue?	Corporation	Yes	I have no additional thoughts outside of those raised in the Coal Operations Industry Brief, except to say that perhaps Product Stewardship is more material to the Coal Operations industry than others simply because of the greater risk and pressure being placed on Coal Operations by customers moving to alternative (cleaner) fuels.
Coal Operations	Product Stewardship	Material issue?	Market Participant	Yes	I am not sure the product stewardship term works that well for coal. As noted in the brief, there is a limit to what can be done to produce 'clean coal'. This limited potential makes the risk even greater as the market cannot be easily extended through product stewardship.
Coal Operations	Product Stewardship	Material issue?	Corporation	Yes	The proper transport and management of the delivery process is important from many perspectives including value, resource management, financial and safety.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Coal Operations	Reserves Valuation and Capital Expenditures	Other Comment	Market Participant	D.N.A. - Other Comment	Coal's share might progressively decrease in the total primary energy consumption worldwide in the next decades. Therefore, it is important for investors to know how existing coal companies project themselves in such long term scenarios. Competition between players might be more and more acute, and only those with excellent industrial and ESG records would be able to survive in the market. For all coal companies, the question of long term strategy and innovation is therefore crucial: how do they see their value creation in a world where environmental and social concerns could make their traditional business model irrelevant? These questions might not be specifically material or easily quantifiable and comparable today, but they are nevertheless of major importance for investors seeking a long term outlook. The issues of the unburnable carbon and of the price of ecological pollution might impact traditional coal and mining companies on a much shorter term than currently estimated. Addressing these questions on a qualitative level in the current ESG performance evaluation standards, might be interesting and useful for the investor community.
Coal Operations	Reserves Valuation and Capital Expenditures	Add Issue	Public Interest	Lack of diversification risk and its impacts on coalfield economies	You all would probably know how to articulate this better for investors, but the bottom line in Appalachia is that coal is slowly dying as an industry, and rather than be smart about this and start diversifying or thinking ahead, coal producers in the US have circled their wagons and staked their future on fighting back against a so-called "war on coal" that is largely illusory and definitely one they cannot win. Due to cost pressures, global demand trends, and regulatory changes, Appalachian economies need to diversify and adapt. This cannot end well, either for coal companies or the communities that depend on them.
Coal Operations	Reserves Valuation and Capital Expenditures	Material issue?	Market Participant	Maybe	The objective of this disclosure seems more fitting to a Risk Factor disclosed in the 10-K that proven/probable reserves may not be fully produced due to environmental regulation. Proven/Probable reserve reporting in its current form is reasonable, and should future legislation prevent or restrict coal-fired power, the price of coal will drop accordingly and uneconomic reserves will be written off.
Coal Operations	Reserves Valuation and Capital Expenditures	Material issue?	Corporation	Maybe	As with my comments above, it's not clear to me why someone who invests in a fossil fuel-producing industry would care about the carbon content of the reserves. They would be better served to look at the overall industry dynamics, regulatory environment, etc. to assess their investment rather than the carbon content of the reserves.
Coal Operations	Reserves Valuation and Capital Expenditures	Material issue?	Market Participant	Yes	mining is capital intensive using large complex and expensive machines.
Coal Operations	Reserves Valuation and Capital Expenditures	Material issue?	Public Interest	Yes	Carbon Tracker's reports highlight risk of overvaluation of coal reserves and possibility that some reserves may not be profitable to mine if likely regulatory changes reduce value of coal.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Coal Operations	Reserves Valuation and Capital Expenditures	Material issue?	Corporation	Yes	I have no additional thoughts outside of those raised in the Coal Operations Industry Brief.
Coal Operations	Reserves Valuation and Capital Expenditures	Material issue?	Market Participant	Yes	These are material things to consider when evaluating companies.
Coal Operations	Reserves Valuation and Capital Expenditures	Material issue?	Market Participant	Yes	The business model of the coal mining companies starts to unwind if they do not have a market going forward. Some operators have tried to offset this through exports, but have still seen downgrades from credit ratings agencies as future revenues and the validity of further mine development are called into question.
Coal Operations	Reserves Valuation and Capital Expenditures	Material issue?	Corporation	Yes	Capital expenditures are the lifeblood of the operation and a critical indicator of financial strength. Likewise reserves valuation, the latter additionally in the specific consideration of resource management.
Coal Operations	SASB Approach	Comment on Brief	Corporation	D.N.A. - Comment on Brief	very well prepared brief; perhaps a greater industry perspective
Coal Operations	SASB Approach	Inaccuracy	Corporation	D.N.A. - Inaccuracy	I suggest that you also consult industry publications and organizations to further balance your analysis. While I understand that EPA and New York Times share a certain viewpoint, it would be wise to fully consider all sides of the equation. Each industry would likely have its own organization (such as the National Mining Association) that may have relevant views to this area.
Coal Operations	SASB Approach	Other Comment	Market Participant	D.N.A. - Other Comment	This is an interesting process. I applaud SASB for moving ahead with the Standards. I also urge caution as you proceed. There are many organizations and many standards. When working with a historic industry that has been active for hundreds of years, such an organization could be devalued quickly. best regards, Barbara
Coal Operations	SASB Approach	Other Comment	Market Participant	D.N.A. - Other Comment	Overall, great work! I look forward to seeing the fruits of your labor materialize in the form of enhanced sustainability reporting across the US coal mining industry.
Coal Operations	SASB Approach	Other Comment	Corporation	D.N.A. - Other Comment	Whilst I appreciate these may be specified more closely later by SASB, I think providing very clear guidelines on reporting scope and boundary for each of the indicators / performance assertions will be extremely important in helping establish the accuracy, completeness and comparability of reported information. Thank you for letting me be a part of this process. I look forward to seeing the Standards during the public comment period.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Coal Operations	SASB Approach	Other Comment	Corporation	D.N.A. - Other Comment	I was hopeful that the SASB process would make sustainability a more doable exercise, as compared with GRI. However, it seems to me that many of the suggested statistics are not currently tracked and would not be feasible to require all companies to track. Particularly if this information would be required to be presented in a Form 10-K, I believe this would substantially increase the cost of a public company's reporting.
Coal Operations	SASB Approach	Other Comment	Corporation	D.N.A. - Other Comment	You are doing valuable and important work. Thank you for the opportunity to participate.
Coal Operations	Waste Management	Material issue?	Market Participant	Maybe	The industry is heavily regulated including waste
Coal Operations	Waste Management	Material issue?	Market Participant	Yes	The amount of waste generated relative to the volume of ore extracted (i.e. strip ratio) is material in the sense that it demonstrates the quality/ ease of access/profitability prospects of the Company's mining deposits relative to its peers. Further, the more overburden generated relative to the ore produced indicates possibly higher risk of contingent liabilities related to reclaiming the property.
Coal Operations	Waste Management	Material issue?	Corporation	Yes	not all wastes are tracked effeciently
Coal Operations	Waste Management	Material issue?	Corporation	Yes	I have no additional thoughts outside of those raised in the Coal Operations Industry Brief.
Coal Operations	Waste Management	Material issue?	Market Participant	Yes	Coal mining companies are building up growing liabilities which investors need to monitor through M&A activity, otherwise they could left as a shareholder in the entity which literally holds the toxic assets.
Coal Operations	Waste Management	Material issue?	Corporation	Yes	Most important to re-use, recycle or convert waste to energy and thereby preserve resources.
Coal Operations	Water Management	Material issue?	Market Participant	Maybe	The industry is heavily regulated, especially acid mine drainage
Coal Operations	Water Management	Add Issue	Corporation	Regulatory Performance	how many reportable/recordable air/water/land/admin contraventions?
Coal Operations	Water Management	Material issue?	Market Participant	Yes	Water management and the consumption thereof relative to the available water supply in the local ecosystem is material to understand not only the sustainability of ongoing mining activity but also the impact on local communities & whether the local water supply can support both the community & mining activity. Additionally, Life of Mine (LOM) compliance with the Clean Water Act is critical to understanding potential contingent liabilities due to clean-up costs and whether the company has adequately made reserves for asset retirement obligations on its balance sheet.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/Response	Comment
Coal Operations	Water Management	Material issue?	Corporation	Yes	- Growth at an operation results typically in growth of the workforce and the communities around that operation (local population and residences, ancillary services, etc) - all of which have competing demands on water supply. - Consistency of water supply can't be effectively managed in arid areas. - Increased regulatory or public pressures to reduce industry water consumption - Challenges in effective management of groundwater supplies.
Coal Operations	Water Management	Material issue?	Market Participant	Yes	Water is essential to the coal value chain and therefore cannot be ignored as an issue. This could be due to scarcity or flooding.
Coal Operations	Water Management	Material issue?	Corporation	Yes	Water is critical global resource. It must be monitored and conserved.
Coal Operations	Worker Health & Safety	Material issue?	Market Participant	No	It's rarely a material factor in company performance.
Coal Operations	Worker Health & Safety	Material issue?	Market Participant	Yes	Mining involves people working with large sophisticated equipment in a restricted environment.
Coal Operations	Worker Health & Safety	Material issue?	Market Participant	Yes	Worker Health & Safety is absolutely material as disclosures regarding lost man-hours/fatalities/black lung provide measures to gauge the quality of the employee training and safety controls in the mining operation. Compliance with OSHA standards for protective requirements for anyone who works around coal is key to assessing the likelihood that current employees could become afflicted with lung related ailments. This is material from both an ethical perspective as well as the potential contingent liabilities the coal miner would have to pay out.
Coal Operations	Worker Health & Safety	Material issue?	Corporation	Yes	- We are seeing trends that indicate that whilst health & safety incidents are decreasing, the number of occurrences of potential high-risk / high-impact incidents are increasing. I.e. less people are getting injured, but the severity of those that do get injured (or near-misses) are greater.
Coal Operations	Worker Health & Safety	Material issue?	Corporation	Yes	If you don't run a safe operation, you almost certainly don't run an efficient operation in other ways.
Construction Materials	Air Quality	Material issue?	Market Participant	Yes	cost of emissions will become monetary going fwd
Construction Materials	Air Quality	Material issue?	Public Interest	Yes	Air Quality is a material issue in quarries.
Construction Materials	Air Quality	Material issue?	Corporation	Yes	There are both local/community and a global environmental concerns associated with toxic air emissions. Operations can be impacted by future regulation beyond current permitting. Also, a companies ability to operate or expand production may be dependent on reducing emissions over time.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Construction Materials	Air Quality	Material issue?	Corporation	Yes	Air quality, energy management and GHG emissions are inter-related.
Construction Materials	Air Quality	Material issue?	Corporation	Yes	Indoor air quality is also important to consider in the context of the construction and occupancy phases of the building lifecycle. Product manufacturer's currently sell materials that are both harmful and helpful to maintaining healthy indoor and outdoor air quality. Examples, include high efficiency filtration systems for building mechanical systems, or construction equipment that is designed to reduce or eliminate the distribution of particulate emissions into the interior or exterior environments.
Construction Materials	Air Quality	Material issue?	Public Interest	Yes	Humans spend 90% of our time inside, so indoor air quality is particularly important when it comes to construction materials in order to create healthy structures.
Construction Materials	Air Quality	Material issue?	Corporation	Yes	Air Quality is related to public exposure to harmful emissions from products, potentially.
Construction Materials	Air Quality	Material issue?	Public Interest	Yes	AQ whilst material due to legislation is on the decline (materially speaking) as the focus is on GHG. AQ as a global issue does not get the attention it once did (when was the last time that Acid Rain had much coverage) It is important to separate AQ into macro and micro. AQ is much more of an issue in a local context (particulates etc and also NOx / SOx in terms that it is noticeable in stack emissions and can be a driver of local community complaints
Construction Materials	Community Relations	Material issue?	Public Interest	Maybe	reservations relate to KPI for community complaints - this can be very misleading. It only takes one or two vociferous individuals around a site to skew these numbers. Also from direct experience, when undertaking activities to improve sustainability / reduce impacts such as using alternative fuels this leads to an upturn in complaints as local communities do not fully understand and fear for their own health
Construction Materials	Community Relations	Material issue?	Public Interest	No	Nonrenewable CM, such as aggregates, come from mining. Any new or old mining activity near cities or towns may affect the life of the inhabitants.
Construction Materials	Community Relations	Material issue?	Market Participant	No	It's rare for community relations to affect company performance.
Construction Materials	Community Relations	Material issue?	Market Participant	Yes	exploitation will generate liabilities
Construction Materials	Community Relations	Material issue?	Corporation	Yes	Operating in a community that wants "more of you"...not less, allows a company to expand as needed without critical delays.
Construction Materials	Community Relations	Material issue?	Public Interest	Yes	Consumers are demanding greater product/corporate transparency than ever, and companies must respond accordingly.
Construction Materials	Community Relations	Material issue?	Corporation	Yes	without consistent, trusted engagement, communities will continue to distrust industry



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Construction Materials	Ecological Impacts	Material issue?	Corporation	Maybe	I am concerned that the science is too uncertain, and reporting protocols not established, for reporting this. If companies report emissions and resource use, then others can interpret this into Ecological Impacts. Perhaps, an intermediate option could be the use of LCA-based Environmental Product Declarations.
Construction Materials	Ecological Impacts	Material issue?	Market Participant	No	It's rare that ecological impacts affect company performance.
Construction Materials	Ecological Impacts	Material issue?	Public Interest	Yes	Quarry development and rehabilitation have an ecological footprint.
Construction Materials	Ecological Impacts	Material issue?	Corporation	Yes	I have some concern about this one. I certainly believe that ecological impacts can be material - EIS paperwork can delay projects and, if development is done improperly, it can result in fines. However, many ecological impacts are not currently material, and those that are will likely be captured in existing reporting about lawsuits or fines related to regulations. I would want to be careful with the amount of reporting required for this particular issue, as it may not actually help investors determine risk or impact to the company.
Construction Materials	Ecological Impacts	Material issue?	Corporation	Yes	The construction industry has a substantial impact on local ecosystems. Examples impacts include land use, natural resource use, habitat destruction, air quality, water quality, climate change, and other impacts.
Construction Materials	Ecological Impacts	Material issue?	Public Interest	Yes	If we don't have healthy habitats, clean water and air, and arable land, there will be no future for our society.
Construction Materials	Ecological Impacts	Material issue?	Corporation	Yes	understanding the ecological impacts and bio-diversity increases potential properly managing impacts from industrialization.
Construction Materials	Employee health, safety & well-being	Other Comment	Corporation	D.N.A. - Other Comment	Overall, the brief is excellent and the accounting metrics are highly applicable and useful. The level of research that has gone into preparation of the brief is apparent and is useful in helping to complete the survey. Specific Notes: I think the Health and Safety section of the industry brief should include other health and safety risks that are applicable to other aspects of the construction materials industry. The current version only focuses on the quarrying and processing industry. Might consider health and safety risks in other types of construction material manufacturing including steel, aluminum, glass, vinyl, plastics, insulation, etc. The business model and innovation section could be expanded to include specific examples of how innovation has led to reduced costs and environmental footprint. An example might include the use of flyash or slag as a cement replacement in concrete. This reduces CO2 emissions from manufacturing Portland cement, and utilizes a waste product from other manufacturing processes (e.g. power generation).
Construction Materials	Employee health, safety & well-being	Material issue?	Market Participant	No	It's rare for EHS to affect company performance.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/Response	Comment
Construction Materials	Employee health, safety & well-being	Material issue?	Market Participant	Yes	liabilities coming from OHS issues
Construction Materials	Employee health, safety & well-being	Material issue?	Public Interest	Yes	CM extraction is accomplished via large equipment, there HS is vital.
Construction Materials	Employee health, safety & well-being	Material issue?	Corporation	Yes	Enhancing the lives of employees, and their families is both important and a good measure of a companies ability to attract and retain critical talent.
Construction Materials	Employee health, safety & well-being	Material issue?	Corporation	Yes	Good health, safety and wellness indicate a deeper values management and reduction in costs, increased productivity and reputation.
Construction Materials	Employee health, safety & well-being	Material issue?	Public Interest	Yes	People take lessons/training in the office back home with them.
Construction Materials	Employee health, safety & well-being	Material issue?	Corporation	Yes	demonstrating a committment to compliance and the health of the workforce is the minimum expectation
Construction Materials	Energy Management	Material issue?	Market Participant	Yes	energy prices will rise, especially fossil fuel based energy
Construction Materials	Energy Management	Material issue?	Public Interest	Yes	Energy management is critical in quarry operations as well as during use of Construction Materials
Construction Materials	Energy Management	Material issue?	Corporation	Yes	Future energy usage/costs, and the related greenhouse gas costs (assuming the inevitable pricing on carbon), place this among the most material sustainability areas for future valuation of a company (particularly, energy intense companies like many materials producers).
Construction Materials	Energy Management	Material issue?	Corporation	Yes	Cost of doing business and opportunity for productivity, increased interest in reduction of fossil fuel use to combat climate change.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/Response	Comment
Construction Materials	Energy Management	Material issue?	Corporation	Yes	Energy management, air quality, and GHG emissions are inter-related.
Construction Materials	Energy Management	Material issue?	Corporation	Yes	Energy and the fossil fuels from which it is derived, will continue to become more scarce as worldwide demand increases. The construction material industry has a direct impact on the way energy is used particularly in the built environment.
Construction Materials	Energy Management	Material issue?	Public Interest	Yes	Renewable energy and energy efficiency/management is the key to a sustainable future.
Construction Materials	Energy Management	Material issue?	Corporation	Yes	If a company is not proactively managing energy efficiency, they are not recognizing the value of their process inputs.
Construction Materials	Energy Management	Material issue?	Public Interest	Yes	rising costs, energy demand increasing globally
Construction Materials	Greenhouse Gas Emissions	Add Issue	Public Interest	Carbon pricing	In order to incorporate environmental impact onto corporations' balance sheets, we must put a price on carbon.
Construction Materials	Greenhouse Gas Emissions	Material issue?	Market Participant	Yes	emission abatement schemes
Construction Materials	Greenhouse Gas Emissions	Material issue?	Public Interest	Yes	It is related to the energy consumption
Construction Materials	Greenhouse Gas Emissions	Material issue?	Corporation	Yes	I believe this is a material issue, but considering this particular industry, it is very related to energy, and so may not be considered material separately from Energy Management.
Construction Materials	Greenhouse Gas Emissions	Material issue?	Corporation	Yes	Future energy usage/costs, and the related greenhouse gas costs (assuming the inevitable pricing on carbon), place this among the most material sustainability areas for future valuation of a company (particularly, energy intense companies like many materials producers).
Construction Materials	Greenhouse Gas Emissions	Material issue?	Corporation	Yes	Increased interest in climate change mitigation as well as regulation.
Construction Materials	Greenhouse Gas Emissions	Material issue?	Corporation	Yes	GHG emissions, energy management and air quality are inter-related.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Construction Materials	Greenhouse Gas Emissions	Material issue?	Corporation	Yes	I agree that the greenhouse gas emissions that result from cement production are substantial, and cement is currently, and will likely continue to be, a construction material that is highly demanded on a global scale.
Construction Materials	Greenhouse Gas Emissions	Material issue?	Public Interest	Yes	Every area where we can create a reduction in GHGs is significant.
Construction Materials	Greenhouse Gas Emissions	Material issue?	Corporation	Yes	GHG emissions are material as anything released to the environment has the possibility of positive or negative impacts.
Construction Materials	Industry definition	Other Comment	Corporation	D.N.A. - Other Comment	<p>Several comments:</p> <p>1) I believe that your definition of the construction materials industry (or description and most of the references in the brief) was too narrow. There are many types of construction materials (acrylic roof coatings, spray polyurethane foam, sealants, etc.) that seemed entirely left out. The metrics still apply, in most cases, but the industry is much broader than just cementitious materials.</p> <p>2) It is uncertain how a company that produces construction materials and other materials will report. Will reporting be done by industry? Or are the metrics across manufacturing industries similar enough that the company could report as one entity? As I mentioned, I think the metrics are in most cases applicable to an entity that has construction material and other manufacturing businesses, but there should be consideration given to how this should be handled.</p> <p>3) Some clarity around "auditable" needs to be established. Currently many environmental reporting requirements are "assured" rather than "audited," and determining which level of oversight is necessary and how it will be done will be important</p> <p>4) I mentioned this specifically in regard to air quality, but in general, the SEC timeline is much more accelerated than the environmental reporting timeline. Accelerating the environmental reporting timeline to match the financial timeline could be very costly to companies.</p> <p>5) Alignment with other standards that companies are currently using will be beneficial - a simple reference to GRI paragraph X would help companies know what it is that is required.</p>
Construction Materials	Does Not Apply	Add Issue	Market Participant	codes of conduct	expansion of price integrity and transparency
Construction Materials	Does Not Apply	Other Comment	Corporation	D.N.A. - Other Comment	Appreciate the opportunity to contribute.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/Response	Comment
Construction Materials	Does Not Apply	Add Issue	Public Interest	Land use	We need to more thoughtfully consider how to use land for city planning/dwelling (to avoid endless sprawl like in LA and Houston), agriculture, renewable energy farms, open space, etc.
Construction Materials	Does Not Apply	Add Issue	Public Interest	Materials/chemical management in products used	having an inventory of the materials/chemicals used can lead to better tracking and hopefully more sustainable products being used during construction.
Construction Materials	New Issue	Add Issue	Corporation	Representation of women and minorities in levels in the company	Diversity, in a time where the labor pool will increasingly be made up of non-white, non-male persons, is an important indicator of the management, values and long term outlook for excellent talent.
Construction Materials	New Issue	Add Issue	Corporation	Security & safety of production & distribution	In today's world with increasing global temperatures, information about measures taken to minimize impact of the natural disasters is crucial for investors especially if the company operates in areas impacted by hurricanes, droughts, wildfires etc. Any disruptions on operations and distributions have an immense effect on the company's bottom-line. Many companies in their SEC filings already indicate that Security and Operational Events (i.e., transportation of products, cyber attacks, or severe weather conditions and other natural phenomena such as drought, hurricanes, earthquakes, tsunamis, floods, etc.) are significant risk factors for them that could have a negative impact on operations, neighbors or the public at large. I think a reasonable investor would want to know about any preventive measures company is undertaking.
Construction Materials	Pricing Integrity and Transparency	Material issue?	Public Interest	Maybe	It is only material when they get caught! There is no leading indicator that can be used as a measure of this. As history shows regardless of code of conduct at one time or another most major players have been involved. So whilst important, I am not sure how one company can be compared to another for the purposes of valuation
Construction Materials	Pricing Integrity and Transparency	Material issue?	Market Participant	No	It's rare that this materially affects company performance.
Construction Materials	Pricing Integrity and Transparency	Material issue?	Market Participant	Yes	antitrust issues have clearly affected the industry so far



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Construction Materials	Pricing Integrity and Transparency	Material issue?	Market Participant	Yes	few players dominate market
Construction Materials	Pricing Integrity and Transparency	Material issue?	Public Interest	Yes	Construction Industry is not the most honest, globally. Pricing integrity and transparency is critical in a fair market environment.
Construction Materials	Pricing Integrity and Transparency	Material issue?	Corporation	Yes	the construction industry has large players, some with limited number of competitors in the marketplace requiring rigor in ethics, integrity and transparency.
Construction Materials	Pricing Integrity and Transparency	Material issue?	Public Interest	Yes	It's no longer okay that corporations can do whatever they want and destroy the environment. Consumers must be able to make informed decisions about the products they purchase and the companies they purchase from.
Construction Materials	Pricing Integrity and Transparency	Material issue?	Corporation	Yes	pricing integrity and transparency minimize business risk and increase brand engagement
Construction Materials	Product Innovation	Material issue?	Market Participant	No	Product innovation is completely lacking from the construction materials industry.
Construction Materials	Product Innovation	Add Issue	Corporation	Toxicity	Many construction materials are toxic to human and environmental health. Examples include volatile organic compounds (VOC) paints, primers, adhesives and sealants, as well as urea formaldehyde in engineered wood products. Other examples include mercury in fluorescent lighting or the harmful chemicals that go into manufacturing products. Better disclosure should be provided by manufacturers about the presence of harmful chemicals and toxic substances to humans or the environment.
Construction Materials	Product Innovation	Material issue?	Market Participant	Yes	sustainable construction will become an industry driver
Construction Materials	Product Innovation	Material issue?	Public Interest	Yes	CM production is not an innovative procedure but slags and quarry byproducts that are used as CM require new thinking.
Construction Materials	Product Innovation	Material issue?	Corporation	Yes	The integration of sustainability into the core business activities (including product innovation) is among the most important aspects of developing a positive economic exposure to sustainability trends.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Construction Materials	Product Innovation	Material issue?	Corporation	Yes	Product innovation is material to the construction material industry because advancements in product performance can greatly impact the way energy and water are used, as well as waste and greenhouse gas generation.
Construction Materials	Product Innovation	Material issue?	Public Interest	Yes	We must constantly aspire to create more innovative, cleaner, sustainable products to have an enhanced future.
Construction Materials	Product Innovation	Material issue?	Corporation	Yes	Innovation is the key to our future success.
Construction Materials	SASB Approach	Other Comment	Corporation	D.N.A. - Other Comment	<ul style="list-style-type: none"> - I suggest it needs to be clearly specified what a company should do when certain KPIs are not applicable for its operations. - It is still not clear how companies with integrated several industries should handle their metrics. Should the metrics be handled per industry if industry specific, should they be reported on the corporate level if the same metric is used in several industries etc.? 10-K is aimed at the company results as a whole and our focus should be on what is important to the company. I dont think detailed granularity of data would add any benefit, other than perhaps comparability. - Should the number of required comparison periods for the metrics be clarified? In general any, one comparison period or longer trends? - Is SASB considering harmonizing/aligning with the existing frameworks such as GRI or CDP? If this is the case, could SASB put a reference to each material aspect? Aligning with existing standards will increase transparency and reduce compliance cost to the companies. - Most of the non-financial numbers discussed are typically not available in the same timeline we use for SEC filings (i.e., within 60 days from the calendar year-end). Anything to be included in a SEC filings needs to meet the SEC filing timeline. The cost to upgrade systems/reporting in order to meeting external reporting guidelines will need to be considered with respect to any benefits derived from the reporting. - You need to clearly clarify how these data are expected to be audited. While nowadays most of these non-financial data are provided with 3rd party assurance, they are not audited in the financial reporting sense.
Construction Materials	SASB Approach	Other Comment	Public Interest	D.N.A. - Other Comment	The only suggestion I have is to not focus too much on points for products (for example, from programs and rating systems like LEED, Green Globes, etc.) Codes and regulations are catching up to baseline levels of these rating systems so they may, at some point, become obsolete.
Construction Materials	SASB Approach	Other Comment	Public Interest	D.N.A. - Other Comment	a valid and worthwhile contribution to the sustainability reporting and mainstreaming debate
Construction Materials	Survey comment	Comment on Brief	Public Interest	D.N.A. - Comment on Brief	I was not able to download it because it was at capacity for use from the website.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Construction Materials	Waste Management	Material issue?	Market Participant	No	It's rare that waste management issues affect company performance.
Construction Materials	Waste Management	Material issue?	Public Interest	Yes	Not all CM find use, thus there is waste that needs to be either recycled or thrown away.
Construction Materials	Waste Management	Material issue?	Corporation	Yes	Elimination of waste reduced future risks/liability that might arise from unintentional issues associated with landfill operations. Additionally, a company with a track record of waste reduction is also operating more and more efficiently.
Construction Materials	Waste Management	Material issue?	Corporation	Yes	for the construction industry, solid waste is one of the largest contributions to landfills. As landfill tipping fees go up, or are restricted altogether, there will be a financial burden on construction operations.
Construction Materials	Waste Management	Material issue?	Corporation	Yes	Waste is a considerable byproduct of the use of construction materials. Recycling efforts are becoming more prevalent worldwide as resources become more constrained and regulations become more stringent. Construction waste is becoming increasingly important as developed and non-developed nations continue to build infrastructure and buildings to keep up with demand.
Construction Materials	Waste Management	Material issue?	Public Interest	Yes	We must create closed loop waste management systems.
Construction Materials	Waste Management	Material issue?	Corporation	Yes	managing or minimizing waste is critical to demonstrating longer term commitment to resource management
Construction Materials	Water Management	Inaccuracy	Public Interest	D.N.A. - Inaccuracy	Not really an inaccuracy, rather more a misleading statement. The statement "techniques such as using dry kilns instead of wet kilns in cement production can significantly reduce water consumption" is true, however the determination of wet / dry process is often a case of geology and the silica / carbonate source - not quite as simple as swapping from wet to dry process
Construction Materials	Water Management	Material issue?	Corporation	Yes	We have been engaged in the WRI Aqueduct project and believe that a good understanding of local water issues (too much and too little) is a good thing for a company to have on it's risk register.
Construction Materials	Water Management	Material issue?	Corporation	Yes	The construction material industry can greatly impact the way water is consumed by buildings. Water is a scarce resource, and will only continue to become scarcer if it is not used with more discretion.
Construction Materials	Water Management	Material issue?	Public Interest	Yes	Water is our most precious and fastest diminishing resource.
Construction Materials	Water Management	Material issue?	Corporation	Yes	water will become a critical resource for a growing number of regions.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Iron and Steel Producers	Air Quality	Material issue?	Market Participant	Yes	Aside from purely regulatory risks, most of air pollutants have a significant health impact on the surrounding communities, which is a material impact to stakeholders, particularly community residents including children. It is important to acknowledge the real impact on human health, which is the foundational bases of air quality regulation. These health impacts not only affect future regulations, but also increase litigation risks as well as reputational risks, including both short to long-term health risks. All of material issues surrounding air quality are inter-related, thus can affect each other.
Iron and Steel Producers	Air Quality	Material issue?	Public Interest	Yes	Just visit the area around Tangshan outside of Beijing.
Iron and Steel Producers	Air Quality	Material issue?	Corporation	Yes	The industry has learned that the iron and steel manufacturing generates carbon dioxide (CO ₂), methane (CH ₄), and nitrous oxide (N ₂ O) emissions at various production stages. CO ₂ is the dominant emission but ancillary to CO ₂ are the N ₂ O and CH ₄ emissions along with additional localized plant particulate matter - The overall impact on air make air quality material. According to the Protocol - Stationary combustion sources belong to four main types: 1. Electricity generation; e.g., captive power plant boilers 2. Re-heating furnaces (other coal and oil use); e.g., mill sections 3. Coke production 4. Flaring In addition - there are Scope 3 consideration with the off-site coke production facilities and their impacts. In relation to Scope I flaring is of particular note that there is some offsetting benefits since, "Flaring is generally uncommon in Iron and Steel operations as most integrated plants recycle the coke-oven and blast furnace gases they produce."
Iron and Steel Producers	Employee health, safety & well-being	Material issue?	Corporation	Yes	Safety is critical from a moral perspective and from a cost / PR perspective. The public will continue to become less tolerant of unsafe operations. Health and well-being more generally is materially important because of recruiting and retaining employees. Steel companies struggle with this issue for a variety of reasons but health and well being is significant among them.
Iron and Steel Producers	Employee health, safety & well-being	Material issue?	Market Participant	Yes	Aside from the inherently dangerous steel making operations, the use of large-scale equipment could often lead disasters, which could halt operations of furnaces with substantial costs. Also, recent trends in acquiring coal mining operations in geologically high risk areas have increased potential large-scale disasters. In addition, increased number of contractors should also be a need of close monitoring. Further, expanding operations in various countries requires aggregated global since there could be gaps in safety performance including countries with weak regulatory frameworks.
Iron and Steel Producers	Employee health, safety & well-being	Material issue?	Public Interest	Yes	Its basic decency. But also its strategic. The industry has a bad reputation and this scares away smart college graduate engineers who go to other industries



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Iron and Steel Producers	Energy Management	Material issue?	Corporation	Yes	Energy use is approximately 25% of conversion cost for an EAF steelmaking operation. Energy consumption and prices vary significantly across plants and regions. Poor energy management would significantly threaten the sustainability of an operation.
Iron and Steel Producers	Energy Management	Material issue?	Market Participant	Yes	Aside from cheap or expensive energy price, fossil fuel-based energy's substantial social and environmental implications (as we can see in other KPIs) would also mean there are benefits in reducing the use, which could result in secondary benefits/gains by avoiding associated risks other than energy price/costs.
Iron and Steel Producers	Energy Management	Material issue?	Public Interest	Yes	Costs of energy is substantial and determines the competitiveness. Substantial gaps exist on what can be achieved.
Iron and Steel Producers	Energy Management	Material issue?	Corporation	Yes	The industry has learned that the iron and steel manufacturing is an energy intensive activity. According to the Energy Efficiency Improvement and Cost Saving Opportunities for the U.S. Iron and Steel Industry report http://www.energystar.gov/ia/business/industry/Iron_Steel_Guide.pdf "The iron and steel industry is the fourth largest energy-consuming industry in the U.S. after the petroleum and coal industry, the chemical industry, and the paper industry. In 2006 the iron and steel industry consumed a total of 1,390 TBtu primary energy (1470 PJ) or an estimated 5.2% of the total energy consumed in the whole U.S. manufacturing sector. Since energy represents about 20% of the total manufacturing cost of steel, an increase in energy costs would significantly affect the iron and steel industry." This supports materiality.
Iron and Steel Producers	Greenhouse Gas Emissions	Material issue?	Corporation	Yes	GHG emissions are very high for steel overall. It is reasonable to think that there could be nation wide GHG laws in place in the next decade. GHG emissions differ greatly between steel making technologies putting some companies at a material advantage over others (EAFs versus Integrated). GHG laws without appropriate EITE allocations can encourage imports. EITE allocations to prevent leakage are difficult to properly apply due to various market designs. See CA EITE documents as an example.
Iron and Steel Producers	Greenhouse Gas Emissions	Material issue?	Market Participant	Yes	I would also argue for physical risks of climate change and potential operational disruption throughout the operations including logistics (coal or iron ore shipments could be delayed, which could halt operations).
Iron and Steel Producers	Greenhouse Gas Emissions	Material issue?	Public Interest	Yes	It's basically coupled to energy, as long as C reduction is carried out so the two can be looked on as a single issue as long as there's no CCS.
Iron and Steel Producers	Greenhouse Gas Emissions	Material issue?	Corporation	Yes	You need to look no further than the Greenhouse Gas Protocol tools for iron and steel. Corporate Standard's issued in 2002 guidance for the Iron and Steel sector followed by estimated GHG calculations guidance issued in 2008. This industry has been active in developing appropriate standardized guidance so the materiality of GHG is established and relevant.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Iron and Steel Producers	New Issue	Add Issue	Market Participant	Disclosure regarding mining operations in reations to sustainability with locations and total amount of proved reserves as well as the multi-year production volume data	The company's direct ownership/stake in mines, which would further increase risks as well as requires additional risk assessments but very difficult, and thus need aggregated as well as specific information regarding mine ownership/stake.
Iron and Steel Producers	New Issue	Add Issue	Market Participant	Ownership/Stake in power plants, with specific number of plants, locations and energy generation mix, MW together with power plants-related sustainability indicators	Growing number of steel & iron manufacturers have full/partial stakes of power plants, which is becoming a significant part of its operations. A we know, power plant operations have significant social and environmental impact, thus could increase risks for iron & steel producers.
Iron and Steel Producers	Process Innovation	Other Comment	Market Participant	D.N.A. - Other Comment	As noted previously, the industry brief should note that ongoing trends in process innovation (continuous casting, thin strip casting, etc.) in the steelmaking process that are dramatically lower energy consumption and emissions.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Iron and Steel Producers	Process Innovation	Material issue?	Corporation	Maybe	Process Innovation is clearly material. The issue is whether you can accurately reflect this metric. Many innovations are proprietary so the details cannot be reflected which creates a situation where true innovation and hot air cannot be differentiated.
Iron and Steel Producers	Process Innovation	Material issue?	Public Interest	Maybe	Process Innovation is important, just not sure how you set levels of materiality or test this from an audit perspective. Also, not sure how you make apples-to-apples comparisons across companies
Iron and Steel Producers	Process Innovation	Material issue?	Corporation	No	This information will be discussed in Item 7., MD&A of every company's form 10-k. This drives value for every company, and will be disclosed in due course.
Iron and Steel Producers	Process Innovation	Material issue?	Market Participant	Yes	Although not mentioned in the brief, process innovations over the past 2 decades to continuous and thin-slab casting have, and will continue to, lower energy consumption and costs. Among other benefits, continuous casting, for example, eliminates the need to re-heat a steel slab in order to roll it, which requires tremendous heat.
Iron and Steel Producers	Process Innovation	Material issue?	Market Participant	Yes	Carbon intensive nature of the operations always have significant challenges both in short and long term, thus impact by innovation, not only in terms of GHG emissions as described in the Briefing but also cost reduction by reducing overall use of raw materials as well as preparing the long-term risks of limited fossil fuel access (both for physical limitation as well as economically viable access to coal and natural gas). Even for shorter term, the reduction of coal use is crucial to reduce current enormous emissions of toxic substances, which will always contribute to undermine public health as well as the environment in addition to GHG issues discussed in the briefing.
Iron and Steel Producers	Process Innovation	Material issue?	Public Interest	Yes	Its key to ALL the above points
Iron and Steel Producers	Process Innovation	Material issue?	Corporation	Yes	Each of my prior comments related to energy use, waste management, air quality, GHGe, all contribute to the overall manufacturing process lean effort. I see both supply chain management and process innovation as categorical KPI factors to measure how each of the component contributors are improving or detracting from the iron and steel sustainability trajectory. Much of the component materiality should be visible through categorical KPIs such as SCM and PI.
Iron and Steel Producers	SASB Approach	Other Comment	Market Participant	D.N.A. - Other Comment	The issues in the brief needs to be extended further. There are some omissions, which might be crucial for the industry in terms of business. Also, thematic issues such as climate change or emissions cannot be assessed from a single issue perspective including the fact that climate needs to account for physical risks and not only emissions-related risks. Emissions including air, waste, and water issues needs to be considered from the community health or community relations perspectives as well.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/Response	Comment
Iron and Steel Producers	Supply Chain Management	Material issue?	Market Participant	Maybe	should be captured in mining industry
Iron and Steel Producers	Supply Chain Management	Material issue?	Corporation	No	Compliance with Dodd-Frank is already in place, supply chain's are already changing to reflect this. Every company's supply chain drives value, and saves costs. Watch dog groups and Dodd Frank have created disclosure requirements under the current set up.
Iron and Steel Producers	Supply Chain Management	Add Issue	Public Interest	raw material, reductant and ore	cokeing cole and high grade ore is today a severe limitation.
Iron and Steel Producers	Supply Chain Management	Material issue?	Corporation	Yes	Raw material supply chain management is clearly material. The issue is whether any company is potentially at risk of structurally disrupting their supply. The risk would be difficult to quantify but this issue is so important that it would be worth reporting on. Metallics are locally sourced and pretty safe but increased exports could strand some operations. Most iron ore, coal and lime is sourced domestically from captive resources but an innovation in transportation, a strong increase in exports, etc could potentially disrupt this situation. High priced natural gas or limited transportation capacity when competing with electricity generation could strand a company that was reliant on DRI / HBI. Supply Chain security for most steel companies outside of the US is much more precarious.
Iron and Steel Producers	Supply Chain Management	Material issue?	Market Participant	Yes	As opposed to the clear indication of historic record of high social and environmental impacts of supplier industries from coal, iron ore to pig iron, these supply chain continued to have challenges on respecting human rights, employee safety and the environment. Similar to the environmental example provided in the Briefing, pig iron supply chain in Brazil has pervasive use of slave labors. Also, increase operations in poorly regulated iron ore and coal mining as well as inherent dangerous nature of these mines further require close monitoring of workers safety performance as we have witnessed disasters such as coal mining operations in China, Kazakhstan as well as in the US, which killed number of workers as well as suspension of operations.
Iron and Steel Producers	Supply Chain Management	Material issue?	Public Interest	Yes	Its not a "great unknown" challenge. On the other hand its badly managed. Steel companies are still "arrogant" in that they see their industry as a top "of a food chain" as may have been the case 30 years or more ago. In reality they are servants to the mining industry, energy suppliers AND customers such as automakers. This thought need to be addressed.
Iron and Steel Producers	Waste Management	Material issue?	Corporation	Maybe	It is an issue specific to an industry, not across all public registrants.
Iron and Steel Producers	Waste Management	Material issue?	Market Participant	Maybe	seawater is the preferred water source



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Iron and Steel Producers	Waste Management	Material issue?	Corporation	No	Waste types produced by Steel is not changing and rules are changing slowly. Waste is comparatively innocuous and does not require high tech solutions. Improvements can definitely be made, for example further separation and reuse of shredder 'fluff' or isolating zinc and zinc-free bag house dust for increase rates of reuse. I do not see any company's sustainability being threatened by this issue.
Iron and Steel Producers	Waste Management	Material issue?	Market Participant	Yes	Due to the potential risk of mismanaging with highly toxic materials, and the relatively improved practices of recent years in the US sector does not mean the same level of compliance has been maintained in their foreign operations including subsidiaries. Even within the US, a single incident such as described in the Briefing could have substantial financial as well as environmental impact, thus also to the local communities. It is also important that the the industry often owns coal based thermal power plants, which adds substantial amount of coal ash issues.
Iron and Steel Producers	Waste Management	Material issue?	Public Interest	Yes	Its linked to green house and energy. Eliminating waste is essential.
Iron and Steel Producers	Waste Management	Material issue?	Corporation	Yes	According to the American INstitute od Steel Constrcution (AISC) the current recycled content of structural steel is about 95%. In addition, AISC, recognizes that 20-30 years ago one ton of steel took upwards of 50,000 plus gallons of water - now down to 60 gallons for structural steel. Waste piles and processing waste are another area that has significantly decreased during the last 30 - 40 years. Waste Management therefore is material.
Iron and Steel Producers	Water Management	Material issue?	Corporation	No	Landfill management companies will play a larger role in the disposal of waste in an efficient manner compared to individual companies. The proper disposal of waste management is a critica success factor for landfill management and waste collection companies.
Iron and Steel Producers	Water Management	Material issue?	Corporation	Yes	Steel companies currently treat all water already. Further restrictions would increase costs but not be material. Increased restrictions on water discharge temperature is likely to be more significant by requiring large capital investments in cooling towers. This issue would be regional and depend on each specific operation rather than a universal issue.
Iron and Steel Producers	Water Management	Material issue?	Market Participant	Yes	While it is true that modernized steel mill have improved water management practices, a series of acquisitions of steel manufacturers in emerging markets by larger peers inevitably creates technological and management practice gaps among different operating companies/divisions in different countries. Also, as similar to the waste management, it is also important that the the industry often owns coal based thermal power plants, which adds substantial amount of coal ash issues, which poses potential significant water contamination risks, and water management and waste management has clear intersection, which could results in dispute with local communities, especially when the local water resources are limited.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Iron and Steel Producers	Water Management	Material issue?	Public Interest	Yes	Water, next to energy and raw material is becoming an important sustainability issue.
Metals and Mining	Air Quality	Inaccuracy	Corporation	D.N.A. - Inaccuracy	On page 6 it refers to Anglo American copper mines in Zambia. These mines were nationalised many decades ago and are now run by other entaties.
Metals and Mining	Air Quality	Material issue?	Corporation	Maybe	Impact to air is greatly dependent to the type of mineral being extracted and process used. For example, I would consider it to be material for a Lead Oxide operation, but would not consider it material for Copper.
Metals and Mining	Air Quality	Material issue?	Corporation	Maybe	While air quality is clearly important to communities, the process of gold mining does not release noxious gases. Dust is, however, an issue. Given other relatively more presseing issues, I do not believe this rates as a the most material issue.
Metals and Mining	Air Quality	Material issue?	Public Interest	Maybe	Not for average investor. But, probably for an informed institutional investor.
Metals and Mining	Air Quality	Material issue?	Market Participant	Maybe	Air quality alone would not be material but I would see it being rolled up into license to operate as any significant issues that are not acceptable to the community need to be addressed. I found that the evidence and value impact was weakest for this particular issue in the Industry Brief.
Metals and Mining	Air Quality	Material issue?	Corporation	Maybe	Air quality is not broadly considered material as these concerns are effectively managed through government licensing requirements, as well as internal governance. Air quality may be material for a given facility or region depending on site conditions or a local requirement.
Metals and Mining	Air Quality	Material issue?	Market Participant	Maybe	Typically, air quality issues can be resolved to the satisfaction of regulators/other stakeholders by application of either technological or operational abatement techniques. Normally unlikely that an air quality issue will force a shutdown, these issues are typically resolved over time in dialogue with regulator or other stakeholder. Whilst technological solutions can be significant (tens of millions USD) in context of a single asset, they are typically not material across a portfolio of mining assets. In extremis, an air quality challenge may require re-location of affected communities, this may also create social conflicts, but again impacts are typically limited to a single asset. Fines in respect of air pollution events typically not material.
Metals and Mining	Air Quality	Material issue?	Corporation	Maybe	Associated with process and energy use and I speculated the Energy Use would be a more important decision-making issue
Metals and Mining	Air Quality	Material issue?	Public Interest	Maybe	GHG has a broader understanding or recognition factor. Air quality does not appear to me to have the same recognition factor as GHG and therefore does not get scrutinized on the same basis. Air quality risks are not as broad-based as GHG.
Metals and Mining	Air Quality	Material issue?	Market Participant	No	I don't believe the monetization of air contaminant externalities, like VOCs, CAPs, etc. is sufficient to make air quality a material issue.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/Response	Comment
Metals and Mining	Air Quality	Material issue?	Corporation	Yes	As evidence, it is one of the most frequent grievances we receive through our grievance mechanisms.
Metals and Mining	Air Quality	Material issue?	Corporation	Yes	In addition to health and legal impacts, there are significant penalties being imposed on companies who don't meet the minimum standards for Air Quality. Companies risk being shut-down by local/federal governments if they don't meet these minimum requirements.
Metals and Mining	Air Quality	Material issue?	Public Interest	Yes	Except for public pressure, the dispersion of air pollutants mean the true environmental cost not otherwise incurred.
Metals and Mining	Air Quality	Material issue?	Corporation	Yes	Increasing regulatory and community pressure to manage air quality impacts (owing to ever increasing encroachment of industry towards communities and vice versa.)
Metals and Mining	Air Quality	Material issue?	Corporation	Yes	same as above, although air quality is also directly related to permits. If a company is not complying with air quality standards it will not get or will lose its permits, which means the project stops, which impacts share valuation. If investors don't care, they should
Metals and Mining	Air Quality	Material issue?	Corporation	Yes	From an investor standpoint, the business could be fined or shut down due to issues here.
Metals and Mining	Air Quality	Material issue?	Corporation	Yes	Air quality in many countries (eg USA) is a somewhat mature topic but other regions are likely to face significant change in the near future.
Metals and Mining	Air Quality	Material issue?	Public Interest	Yes	Excessive air emissions, whether its VOCs, NOx or others are a signs of sloppy operations and possible non-compliance with regulations. Both of these are important for investors to know.
Metals and Mining	Air Quality	Material issue?	Corporation	Yes	Emissions to air can be a problem in smelting and refining. Permit exceedences could lead to regulatory penalties. Upgrading to the current best available technology to reduce emissions could result in higher capital expenditures.
Metals and Mining	Air Quality	Material issue?	Corporation	Yes	In the platinum sector air quality issues are material at both the mining and processing phase. Particulate, sulfur dioxide, furan and dioxines, and chlorine
Metals and Mining	Air Quality	Material issue?	Corporation	Yes	Impact on the health & ecology on the community in which we operate. This is directly linked to the social license to operate.
Metals and Mining	Air Quality	Material issue?	Corporation	Yes	particularly relevant in cases where smelting and other production activities are applied, less relevant to exploration activities
Metals and Mining	Business Ethics and Payments Transparency	Material issue?	Public Interest	Maybe	Well it can be a material issue, but only if revealed.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Metals and Mining	Business Ethics and Payments Transparency	Material issue?	Market Participant	Maybe	Legislation in this area typically not well-developed and enforced sporadically. Any revealed non-compliances often get dealt with in prolonged legal process, or result in relatively minor or temporary embarrassment/reputational damage for company. Fines usually not material. Companies often able to shield or isolate themselves effectively from alleged wrongdoing. Difficult in ascertaining facts/deliberate obfuscation by parties involved tends to reduce likelihood of 'smoking gun' appearing which clearly places blame on a particular corporation. Again, issue tends to relate to a specific territory or operation and can be ringfenced from wider company. Difficult to translate any reputational damage into material financial impact on company.
Metals and Mining	Business Ethics and Payments Transparency	Material issue?	Corporation	No	I am looking from the view of mini mills wherein the value chain is shorter than the integrated iron and steel producer that extends in to extractive processes. For mini mills the value chain is more embedded in Corporates - huge supplier power and high customer power. Hence the evidence of defaulting of business ethics and payment transparency is low.
Metals and Mining	Business Ethics and Payments Transparency	Material issue?	Corporation	Yes	impact on profitability
Metals and Mining	Business Ethics and Payments Transparency	Material issue?	Corporation	Yes	Both elements affect licensing, reputation and investment.Underpin standards such as Responsible Gold Standard. also, compliance with legislation, regulation and listing requirements.
Metals and Mining	Business Ethics and Payments Transparency	Material issue?	Corporation	Yes	I believe industry is beginning to focus more on payments transparency as a positive tool. For example, Rio Tinto recently published a report on their global government payments (taxes) as a way of highlighting just how much money they provide to the governments and countries in which they operate. In conversations with another mining company I work with, they loved this approach and they too are now developing their reporting to include a government payments section to highlight to their readers just how much money they provide to government. Highlighting both government contributions and investments in community relations and development is a key way mining & metals companies can highlight the benefits in what they do in bringing money back into those regions in which they operate (in addition to employment, services, etc).
Metals and Mining	Business Ethics and Payments	Material issue?	Public Interest	Yes	no comment. But it is. Is indicative of material risks.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/Response	Comment
	Transparency				
Metals and Mining	Business Ethics and Payments Transparency	Material issue?	Corporation	Yes	None.
Metals and Mining	Business Ethics and Payments Transparency	Material issue?	Corporation	Yes	this is a little more nebulous. investors SHOULD be concerned about this, but I would bet that most of them don't really care. as long as the project moves ahead and the company is making money, most investors probably don't care what goes on behind the scenes to make that happen. from the corporate perspective, there are so many guidelines telling us how we need to operate overseas, that we really need to stay on top of this to ensure that we are not penalized by the government, by the regulators, and also by the media. having said that, this is a difficult issue to stay on top of even internally. many of the regions that we operate in are very challenging, and the guys who are working there have a tendency to "go native" and start to see things from a local perspective rather than a US / Canadian regulatory perspective. it's tough to get things done without crossing some lines. the question is how many lines can you cross before you've crossed THE line. this will become more and more material over time, but trying to get people to report on it and be transparent is an uphill battle
Metals and Mining	Business Ethics and Payments Transparency	Material issue?	Corporation	Yes	For a global company, if there are doubts about the status of ethics or potentially illegal payment activities, uncertainties can have an adverse effect on the stock price and potential investors should be apprised of any issues
Metals and Mining	Business Ethics and Payments Transparency	Material issue?	Corporation	Yes	From an investor standpoint, the business could be fined or shut down due to issues here.
Metals and Mining	Business Ethics and Payments Transparency	Material issue?	Public Interest	Yes	Payment Transparency is important for investors to know, as illegal payments to governments or officials can lead to fines and possibly a loss of operating permits if access to mining sites was found to have occurred because of bribery. The loss of a mining operation is a very material issue.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Metals and Mining	Business Ethics and Payments Transparency	Material issue?	Corporation	Yes	Primarily because of the implications and fines that un ethical or anti competitive behaviour can attract.
Metals and Mining	Business Ethics and Payments Transparency	Material issue?	Corporation	Yes	corruption continues to be a concern in many regions, and programs such as EITI have been developed to partly address this issue
Metals and Mining	Community Relations	Add Issue	Corporation	Artisinal and small scale mining, and illegal mining	In many countries of operation, companies face competition for resources (be they legal or not) from artisinal and small scale miners (ASM). For many people ASM is an established source of livelihood. Not addressing this issue could result in conflict, losses, stoppages, safety incidents, reputational damage.
Metals and Mining	Community Relations	Other Comment	Corporation	D.N.A. - Other Comment	I have found many mining companies struggling to maintain there social license to operate because of lack or poor stakeholder engagement/management. Ore reserves should also be adjusted by social filter: can you access the reserve, will it use technology which might trigger stakeholder crisis. This would add perspective to the real cost to mine and LOM of an operation.
Metals and Mining	Community Relations	Other Comment	Corporation	D.N.A. - Other Comment	The yes/no format at the outset of the survey is limiting. There will be some issues which are material in some operations some of the time. The ranking exercise was also not particularly useful for this reason- all topics listed are material for the industry. It would have been useful to be able to qualify answers to some questions, for example around FPIC. While disclosures are important, the exact definition (ie does FPIC constitute a veto?)and implementation of FPIC (for example through legislation such as ILO 169) is still not universally agreed. The description of written agreements provided in the industry brief would fall short of what many consider to constitute FPIC.
Metals and Mining	Community Relations	Other Comment	Public Interest	D.N.A. - Other Comment	You did a good job narrowing it down to these issues. I would like Social Capital to have two parts: Human Rights and Community Development. You have many human rights aspects covered under Community Relations, but the title does not align with global human rights frameworks. The promise of sustainable community development is what earns many projects their social license to operate. Miners of choice (those who are more likely to enjoy shorter permitting times, community support, etc.) are not just those who do less harm, but also those who can share the benefits of mining fairly and contribute to lasting socio-economic benefit, through employment, skills development, local purchasing, mentorship. You could consider GRI MM indicators EC 6&7. In terms of process, I didn't like having to choose yes or no, when I really didn't feel confident in my answer.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Metals and Mining	Community Relations	Add Issue	Market Participant	Indigenous Peoples	It is not specifically mentioned in the community relations section but if a company is operating on indigenous lands, it does seem to raise the risk profile of a project and may require extra due diligence. ICMM has specific guidance on this issue.
Metals and Mining	Community Relations	Material issue?	Public Interest	Maybe	This issue is complicated. Hard to measure. Lots of biases. Better to focus on Labor Relations that is the Community Relations issue with the least background noise.
Metals and Mining	Community Relations	Material issue?	Corporation	No	Community relations are important but quantifying materiality is a challenge.
Metals and Mining	Community Relations	Add Issue	Corporation	Working with Indigenous Peoples, separate from community	Working with IPs is different than working with communities, as they have unique interests and concerns related to development. They may also not see themselves as a separate COI but as a government.
Metals and Mining	Community Relations	Material issue?	Corporation	Yes	impact on profitability and NPV of assets
Metals and Mining	Community Relations	Material issue?	Public Interest	Yes	license to operate is essential--speed to market in an industry where quality/grades of deposit are decreasing and access to minerals is becoming more difficult means that time to market via positive community relations can make meaningful difference
Metals and Mining	Community Relations	Material issue?	Corporation	Yes	Relationships with communities provide our license to operate. They are able to help or hinder operations, overtly or covertly. Poor community relations can result in protest action and costly stoppages, reputational damage and affect mining tenure.
Metals and Mining	Community Relations	Material issue?	Corporation	Yes	Establishing a company's Social Licence to Operate is the single most important thing when developing and operating a mine. I feel it is the key most important aspect about the community relations function in maintaining and renewing that licence. We are also seeing more regulation around human rights and establishing governance systems and controls to support human rights and negating conflict in the communities around the mine. For example, the World Gold Council's Conflict-Free Gold Standard emphasizes the importance of managing human rights and adopting the Voluntary Principles at mining operations.
Metals and Mining	Community Relations	Material issue?	Market Participant	Yes	The last 10 years have shown that failure to properly accommodate and manage local communities, and to integrate their concerns into project planning in a genuine and meaningful way, can be terminal. Failure to act on these fronts often leads to production delays, that much is certain. But going forward, I think it will lead to companies going out of business.
Metals and Mining	Community Relations	Material issue?	Public Interest	Yes	Mines have been closed that don't have community support.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/Response	Comment
Metals and Mining	Community Relations	Material issue?	Market Participant	Yes	There are many examples that illustrate the financial impact of not securing a social license to operate.
Metals and Mining	Community Relations	Material issue?	Public Interest	Yes	I believe that community relations is probably the most UNDER-valued materiality issue for the metals/mining industry.
Metals and Mining	Community Relations	Material issue?	Market Participant	Yes	Social license can have significant impact on a company's ability to operate and/or to expand. For example, in 2004 Newmont Mining was forced to write down proven and probable reserves due to community protests over its Cerro Quilish mine in Peru. Currently, the company's proposed \$5bn Minas Conga mine is on hold due to community protests predominantly over water that resulted in 5 fatalities at the hands of the Peruvian police. Not only is there reputational and financial risk concerning social license to operate but there is also legislative risk. In 2011, the Peruvian government passed a law mandating that corporations consult with Indigenous Peoples before developing projects on their territories in hopes of reducing social conflict.
Metals and Mining	Community Relations	Material issue?	Corporation	Yes	Poor community relations is an indicator of poor social/environmental performance = loss in social licence to operate = loss in business.
Metals and Mining	Community Relations	Material issue?	Market Participant	Yes	Social conflicts have potential to significantly disrupt operations, and conflicts may prove intractable. Social conflicts may not be resolved by case by case negotiation, as such conflicts are often rooted in historical mistrust, and conflicting political ideologies. (cf post-colonial Latin American left-wing/indigenous people vs right-wing/Government/military/industry dynamic being played out in many Latin American countries. Whilst such conflicts may be manageable or not material at a single asset, an operator with several assets in a region or country where social conflicts are commonplace, may face material issues in terms of operational disruption (cf Newmont in Peru).
Metals and Mining	Community Relations	Material issue?	Corporation	Yes	if you don't have community support, you won't build your project. it's really as simple as that. particularly when we're talking about aboriginal/indigenous groups, if you can get the aboriginal community on side you're 99% more likely to get the government on side and the NGOs will likely leave you alone. and the media loves disgruntled communities. keep the communities happy and many many permitting and reputational problems go away. managing expectations is also an enormous part of community relations. regular and honest communication is key to success
Metals and Mining	Community Relations	Material issue?	Corporation	Yes	From an investor standpoint, the business could be fined or shut down due to issues here.
Metals and Mining	Community Relations	Material issue?	Public Interest	Yes	Growing sense of activism in communities demanding accountability and responsibility from their corporate citizens. Employees who live in the community want to work for a company they are proud to be a part of. Being a good corporate citizen will provide the license to operate and will be better able to attract the employees it needs.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/Response	Comment
Metals and Mining	Community Relations	Material issue?	Public Interest	Yes	Maintaining good Community Relations is key to having a "social license to operate." Without that, companies cannot get access to permits or sites to mine.
Metals and Mining	Community Relations	Material issue?	Corporation	Yes	Good community relations provides a company's social licence to operate. This provides easier access to new locations for exploration and development.
Metals and Mining	Community Relations	Material issue?	Corporation	Yes	Mining requires access to land often occupied or used by local communities. Without access to this land and a good relationship mining can be hampered.
Metals and Mining	Community Relations	Material issue?	Public Interest	Yes	The briefing document sometimes uses the term "community engagement" instead. Community Relations is better, but splitting it into Human Rights and Community Development based on your existing evidence would better reflect the dual nature of community relations: avoiding harm, and enhancing community benefit.
Metals and Mining	Community Relations	Material issue?	Corporation	Yes	Increase in social license to operate and also create shared value both for the community as well as the business.
Metals and Mining	Community Relations	Material issue?	Corporation	Yes	license to operate is key, so not getting it can be a game changer
Metals and Mining	Ecological Impacts	Add Issue	Market Participant	1. Competing demands for land use; 2. benefit sharing	land management and competing demands for land use could be a sustainability issue of concern. Restricted access to land is becoming the new normal. Rio Tinto notes on its website: "Competition for land-based resources is growing, fuelled by environmental concerns and an exploding world population (forecast to reach nine billion by 2050). This directly affects Rio Tinto, by increasing the tension between mining and other land uses such as food and fibre production and natural habitats. We have an internal land use stewardship standard across all our operations. This aims to ensure sustainable stewardship of our land, and by the end of 2012, 24 per cent of our disturbed land had been rehabilitated. In addition, there is also the issue of benefit sharing whereby companies must take a long-term view of sharing the benefits of mining with communities. This is somewhat different than simply "community relations" but perhaps the issue is incorporated
Metals and Mining	Ecological Impacts	Inaccuracy	Market Participant	D.N.A. - Inaccuracy	not inaccuracies but i'd suggest: - referencing threatened and endangered species under Ecological Impacts , - adding "address and resolve" to the sentence in Social Capital about how it is important for companies to manage concerns of stakeholders - Why does Leadership and Governance mention only transparency in payments? Certainly governance issues in the mining industry are not just driven by lack of transparency in payments ?! - i didn't note any reference to the importance of the issue of disclosure and transparency to share- and other stakeholders. Companies that can communicate their perspectives and report performance on social and environmental issues demonstrate they have in place effective internal controls for managing risk.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/Response	Comment
Metals and Mining	Ecological Impacts	Material issue?	Market Participant	Maybe	I just don't see ecological impacts by themselves as being a standalone material issue. I think many ecological impacts are already captured by some of the other issues (e.g. water management, GHGs, etc.)
Metals and Mining	Ecological Impacts	Material issue?	Corporation	Maybe	Mining industry has deep relations with Ecological impacts, but in the steel industry, other environmental issues are more important than ecological impacts.
Metals and Mining	Ecological Impacts	Material issue?	Public Interest	Maybe	Too esoteric, unless impacts are affecting community acceptance.
Metals and Mining	Ecological Impacts	Material issue?	Corporation	Maybe	Might be material. Certain projects, such as hydroelectric power projects involving large acreage of damed property, may be material, but in general rehabilitation of mining sites are highly regulated, controlled, and not a material issue.
Metals and Mining	Ecological Impacts	Material issue?	Market Participant	Maybe	Personal experience is that regulations in many countries are either non-existent or very weakly enforced such that there is limited pressure on operators to incur any significant costs in addressing ecological impacts. Normally ecological impacts are dealt with on a case by case, site by site basis, typically can be somewhat challenging at local operational level, but again unlikely to be material in the context of an operator running a portfolio of mining assets. New env economics frameworks (e.g. TEEB and PES) are nascent/experimental only, and unlikely to affect industry in the short to medium term.
Metals and Mining	Ecological Impacts	Material issue?	Corporation	No	it is greatly dependent the type of mineral and geography/local so would not generalize for the sector.
Metals and Mining	Ecological Impacts	Material issue?	Market Participant	No	This issue seems to overlap with other such as water management and waste management. The evidence provided often relates back to management of waste and reclamation efforts so presumably, if those issues are managed, then the ecological impacts will be less.
Metals and Mining	Ecological Impacts	Material issue?	Corporation	No	I am looking at this issue from Iron and Steel segment that operates on Electric Arc Furnace route with substantial lower impact on eco externalities. However, as an overall Iron & Steel producer industry, this will be material.
Metals and Mining	Ecological Impacts	Material issue?	Public Interest	Yes	Placing a capital value on ecological impacts is coming and mining/metals industry should view it as a risk
Metals and Mining	Ecological Impacts	Material issue?	Corporation	Yes	The competition for land and land resources is rising. By its nature, mining affects both the aesthetics and integrity of the land on which it mines. This is more so the case in respect of massive open pit mining, and less so in respect of underground mining. Nonetheless, mining can change the landscape and land use forever.
Metals and Mining	Ecological Impacts	Material issue?	Corporation	Yes	No comment - Through my assurance experience I have not been heavily involved in assessing the ecological impacts of the mining & metals industry.
Metals and Mining	Ecological Impacts	Material issue?	Public Interest	Yes	This is a key issue that many don't focus to much on. It needs improvement.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Metals and Mining	Ecological Impacts	Material issue?	Corporation	Yes	Ecological impacts are environmental externalities associated with mining activities, and with increasing regulatory and community driven scrutiny, are likely to be significant sources of risk impacting commercial performance of projects and operations.
Metals and Mining	Ecological Impacts	Material issue?	Corporation	Yes	permitting. if companies can't comply with environmental regulations, they won't get or won't keep their permits. no permits, no project. this particular issue is also more likely to influence the company's reputation. things like waste management and air quality aren't sexy, and most investors don't pay much attention unless there is an economic impact. but if the company is ruining rainforests or pristine streams or killing cute animals, people are going to be offended and they'll take notice. these are also issues that NGOs know gain huge public support, so you're more likely to attract negative NGO attention if you're not doing a good job from an ecological perspective.
Metals and Mining	Ecological Impacts	Material issue?	Corporation	Yes	Mine reclamation, and a corporations track record and experience, can influence obtaining leases and access to ore.
Metals and Mining	Ecological Impacts	Material issue?	Corporation	Yes	From an investor standpoint, the business could be fined or shut down due to issues here.
Metals and Mining	Ecological Impacts	Material issue?	Public Interest	Yes	Increasing attention being paid to the actions of companies as governments around the globe are less inclined to be left with responsibilities for clean up. With added stakeholder pressures companies must be prepared to stand by their commitments and the magnitude of the \$ involved are always increasing.
Metals and Mining	Ecological Impacts	Material issue?	Public Interest	Yes	To the extent that Ecological Impacts may accrue fines, they are material as its increses costs. Also, longer-term ecological impacts may change water supplies which, per my explanation above, can greatly impact mining operations.
Metals and Mining	Ecological Impacts	Material issue?	Corporation	Yes	In sensitive environments the right to mine is ofetn refused for ecological reasons.
Metals and Mining	Employee health, safety & well-being	Inaccuracy	Corporation	D.N.A. - Inaccuracy	Not inaccuracies as such, but a few points to note: P.1- Gold price- while reaching record highs in 2012, it also reached a three year low in 2013. P.4- Social license to operate extends beyond displaced communities and environmental implications. There can be many social implications/impacts that companies have- this is picked up later in the brief, but worth flagging here P.12- reference to the Voluntary Principles- you may wish to clarify that they are specific to interactions between companies and public/private security. Should also reference the UN Guiding Principles here. P.13- the numbers of BHP fatalities listed are significantly higher than those listed in their sustainability reports- suggest you check with the primary source before making anything public.
Metals and Mining	Employee health, safety & well-being	Other Comment	Public Interest	D.N.A. - Other Comment	The inclusion of the near-miss criteria in the safety section is based on good intentions, but will have unintended consequences that negatively outweigh any benefit. I understand this issue intimately. Please don't do this; it will be hurtful to people. If you want to do something pro-active, put in a measure of occupational disease. You have nothing in safety and health about the health. Percentage of persons exposed less than the TLV for substances would be nice.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Metals and Mining	Energy Management	Material issue?	Corporation	Maybe	From an investor standpoint, I do not believe it puts their investment at risk and most investors are more interested in the financial overall results and projections (i.e., can they later make a profit) than on this area.
Metals and Mining	Energy Management	Material issue?	Public Interest	Maybe	While energy management is critical with the recent developments in shale gas the value impact does not seem as substantial to me as it was 5 years ago.
Metals and Mining	Energy Management	Material issue?	Public Interest	No	We don't need a sustainability metric to cause unintended consequences in the way of this progress. Costs of energy causes continuous improvement in this arena.
Metals and Mining	Energy Management	Material issue?	Corporation	Yes	Energy is an important component of cost and, in some countries of operation, a scarce resource.
Metals and Mining	Energy Management	Material issue?	Corporation	Yes	Increasing costs of non-renewable fuels. Direct link to between energy use and associated GHG emissions. Potential lag between energy supply and demand, resulting in companies not getting all of their energy needs (e.g. electricity constraints) resulting in production delays or fuel switching to higher cost / GHG intensive fuels. More opportunities today for companies to identify and implement renewable energy projects to meet energy demands.
Metals and Mining	Energy Management	Material issue?	Market Participant	Yes	Energy costs already represent up to 40% of total production cost for some mining companies, depending on their location and they type of ore they're extracting. This has potential to increase even further, if we consider rising wholesale energy costs AND the trend towards setting up production assets in increasingly difficult-to-reach locations.
Metals and Mining	Energy Management	Material issue?	Public Interest	Yes	Key to production costs and profitability.
Metals and Mining	Energy Management	Material issue?	Market Participant	Yes	Since one of the most costly inputs into the mining process is energy, any changes to how a company manages its energy will be material.
Metals and Mining	Energy Management	Material issue?	Corporation	Yes	Electric power accounted for approximately 26% of Alcoa's primary aluminum costs in 2012 per its 10-k disclosure.
Metals and Mining	Energy Management	Material issue?	Corporation	Yes	Long-term escalation in the cost of energy, in particular fossil fuel based energy that is accompanied by significant environmental externalities likely to be penalized in the future, is a material business risk.
Metals and Mining	Energy Management	Material issue?	Market Participant	Yes	Energy economics critical to profitability of energy-intensive extractive industry. Mining and metals industries typically very heavily focussed on energy efficiency as part of strategic and day to day operational management of assets. Uptick in energy supply costs, or inadequate energy performance at asset level can have significant impact on business economics.
Metals and Mining	Energy Management	Material issue?	Corporation	Yes	again, it comes down to economics. being more efficient with energy usage saves money for the company, and is positive for investors
Metals and Mining	Energy Management	Material issue?	Corporation	Yes	Smelting activities for aluminium use a great deal of energy and require discounted rates (from non-commercial users) to be economically viable in many regions.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/Response	Comment
Metals and Mining	Energy Management	Material issue?	Corporation	Yes	Energy Costs in the 20%-30% range of total operating costs are clearly material.
Metals and Mining	Energy Management	Material issue?	Public Interest	Yes	Mining companies consume massive amounts of fuel, particularly diesel. Investors must know quantities of energy consumption in order to effectively understand inputs costs and how they fluctuate with the price of energy, whether its electricity, diesel, nat gas, etc
Metals and Mining	Energy Management	Material issue?	Corporation	Yes	Energy use needs to be tightly controlled to maintain controls on costs.
Metals and Mining	Energy Management	Material issue?	Corporation	Yes	Scarcity of supply and cost.
Metals and Mining	Energy Management	Material issue?	Corporation	Yes	This impacts the cost competitiveness and influences the business model and strategy
Metals and Mining	Energy Management	Material issue?	Corporation	Yes	particularly relevant in cases where smelting and other production activities are applied, less relevant to exploration activities
Metals and Mining	Greenhouse Gas Emissions	Inaccuracy	Corporation	D.N.A. - Inaccuracy	<p>1) Page 5, right-hand column, second full paragraph, third sentence: We find the "... 10.7 percent of all reported emissions excluding power plants" to be misleading since this figure was derived from the EPA program for large industrial emitters, which represent less than 50 percent of total U.S. emissions. A more representative estimate is contained in the full EPA U.S. GHG Inventory report. Total U.S. GHG emissions in 2011 were 6.702 billion tons of CO₂e, resulting in the Metals & Mining Industry contributing 1.7 percent of all reported emissions excluding power plants.</p> <p>2) Page 6, right-hand column, first full paragraph, second sentence: Metallurgy is a very broad science related to metal processing and properties. We suggest revising this sentence to state "Hydro and pyro metallurgical processes further concentrate the metals by separating them from the other minerals."</p> <p>3) Page 7, right-hand column, third full paragraph, first and second sentences: In the first sentence, change "... own smelting and other industrial processes." to "... U.S. smelting processes." Additionally, in the second sentence, add the word "primary" before the word "aluminum."</p> <p>4) Page 14, right-hand column, second paragraph under Process Innovation, first sentence: While the recycling of metals is indeed beneficial and "material" to the ecological profile of metals, we do not believe that this statement is true in most cases.</p> <p>5) Page 15, left-hand column, first full paragraph, fourth sentence: the sentence should be changed to one of the following alternatives (the difference between the two being U.S. centric or global), "Alcoa, a U.S.-based aluminum company, aims to increase the U.S. aluminum industry's recycling rate from 65 percent in 2011 to 75 percent by 2015." or "Alcoa, a U.S.-based aluminum company, aims to increase the global aluminum industry's recycling rate from 73 percent in 2011 to 90 percent by 2030."</p>



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Metals and Mining	Greenhouse Gas Emissions	Material issue?	Public Interest	Maybe	Not for average investor. But, probably for an informed institutional investor.
Metals and Mining	Greenhouse Gas Emissions	Material issue?	Market Participant	Maybe	My reservation is from a strict materiality definition as GHG emissions become material only when significant limits are placed on their generation. Obviously, the regulatory environment on GHGs has been in flux for many years and there are already reporting requirements for certain companies in the US. From a strict reading of materiality, I would see energy management as more material.
Metals and Mining	Greenhouse Gas Emissions	Material issue?	Public Interest	Maybe	Politics and taxes and "consensus" aside, the true environmental aspects of this issue, relative to other well known environmental issues, is yet to be proved up, and regardless, the issue is 100% addressed by focusing on Energy Management (outside of stockyards).
Metals and Mining	Greenhouse Gas Emissions	Material issue?	Corporation	Maybe	From an investor standpoint, the business could be fined or shut down due to issues here.
Metals and Mining	Greenhouse Gas Emissions	Material issue?	Corporation	Maybe	In the platinum sector it's not the emissions themselves that are a material issues. The carbon taxes they may attract would be material.
Metals and Mining	Greenhouse Gas Emissions	Material issue?	Corporation	Yes	If you consider the full value chain, and intensity and the regulatory landscape (cap and tax) the amount and its financial impact is in my view material. Additionally, under a cap regimes reduction in emission will require considerable investment.
Metals and Mining	Greenhouse Gas Emissions	Material issue?	Corporation	Yes	Carbon taxes, credits and trading will impact on profitability
Metals and Mining	Greenhouse Gas Emissions	Material issue?	Corporation	Yes	Current carbon taxation (in Australia) and planned taxation (in South Africa). Potential impacts of climate change on company (floods, drought, disease) could have significant social and environmental consequences. Also, relates to reputation.
Metals and Mining	Greenhouse Gas Emissions	Material issue?	Corporation	Yes	Global pressure for companies to lower GHG emissions. Lowering GHG emissions usually has direct correlation with lowering energy use (therefore saving \$). Global shift towards greater rigor around GHG management and reporting, with more regulatory bodies moving towards emission trading schemes, carbon tax, and penalties on companies with high emissions or high emission intensities. More companies are voluntarily reporting GHG emissions and setting emission reduction / intensity targets. Every year we are seeing more evidence on the impacts of GHG emissions on climate change. Physical impacts of climate change can significantly affect mining & metal companies and is being seen more frequently within company risk registers.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/Response	Comment
Metals and Mining	Greenhouse Gas Emissions	Material issue?	Market Participant	Yes	The prospect of a global GHG regulatory regime is all but dead, but I still believe this externality will eventually be priced into the cost of doing business, on a country by country basis, or perhaps on a regional basis. The mining industry's substantial GHG footprint, relative to other sectors, makes this a material issue, although the devil is in the details (type of regulations, free allowances in a cap and trade regime, etc.).
Metals and Mining	Greenhouse Gas Emissions	Material issue?	Corporation	Yes	None.
Metals and Mining	Greenhouse Gas Emissions	Material issue?	Corporation	Yes	GHG emissions are environmental externalities currently unpriced in many jurisdictions, but likely to be so in the medium-term based on domestic and international analogues (e.g. British Columbia, California, Australia).
Metals and Mining	Greenhouse Gas Emissions	Material issue?	Market Participant	Yes	Because of possibility of structural regulation following ongoing international negotiations(e.g. trading schemes, carbon taxes). Commodity/extractives business economics typically quite sensitive to additional base costs, and any such country/regional costs may impact on global competitiveness versus territories not impacted by carbon regulation. Policy developments continue to (slowly) push economies toward lower carbon intensity products and services, such measures may reduce market demand for carbon intensive products or energy sources (particularly coal).
Metals and Mining	Greenhouse Gas Emissions	Material issue?	Corporation	Yes	because it is more and more likely that regulations will be implemented resulting in an economic impact to companies. most investors don't care about touchy feely stuff yet like environmental protection, but they do care about economic impact
Metals and Mining	Greenhouse Gas Emissions	Material issue?	Corporation	Yes	High energy use and related GHG emissions as well as some of the emissions from processing
Metals and Mining	Greenhouse Gas Emissions	Material issue?	Public Interest	Yes	Due to widespread focus on the issue I believe it has raised the profile of this issue to one that must be addressed whether or not the impact on value is significant.
Metals and Mining	Greenhouse Gas Emissions	Material issue?	Corporation	Yes	GHG emissions in this sub-sector are very large and the presence is global. GHG policies are likely to deviate substantially from region to region in both timing of implementation and cost impact. This combination makes the issue material overall and also can create significant differences in risk from company to company.
Metals and Mining	Greenhouse Gas Emissions	Material issue?	Public Interest	Yes	As the world better understands the science of climate change, momentum is building towards stricter regulations of GHG which leaves companies open to higher costs for mitigation technologies or compliance/carbon taxes.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Metals and Mining	Greenhouse Gas Emissions	Material issue?	Corporation	Yes	GHG emissions need to be managed to to prepare for regulations which may require significant capital and operational costs.
Metals and Mining	Greenhouse Gas Emissions	Material issue?	Corporation	Yes	Emerging Regulatory risk. Climate risk mitigation is a globally connected issue today as GHG emission has broader impact on value chain.
Metals and Mining	Greenhouse Gas Emissions	Material issue?	Corporation	Yes	particularly in cases where smelting operations are considered, and where significant parcels of forest and other sensitive habitats are affected
Metals and Mining	Industry definition	Other Comment	Corporation	D.N.A. - Other Comment	Some questions are for mining industry rather than steel industry. Depending on the industry, the priorities of the issues are different. So it might be better that the weight and priority of material issues separate between mining and metal industry.
Metals and Mining	Industry definition	Other Comment	Corporation	D.N.A. - Other Comment	The only issue that I had with the brief was in potential confusion between various activities surrounding this sub-sector. The mining industry and the metals processing industry often overlap but the risks are very different so any difference in focus between companies should be noted. For example, ArcelorMittal has a strong mining presence but they remain primarily a steel making operation with associated risks. This applies to companies that focus on raw earth mining compared to recycled material collection and processing as well. Again, I am coming at this from the Iron perspective. In that arena the recycling and raw material factions have diverged with very different business models and associated risks even though the material is chemically very similar.
Metals and Mining	Does Not Apply	Inaccuracy	Corporation	D.N.A. - Inaccuracy	Not inaccuracy but overlapping metrics. Employee Health & Safety and Worker Health & Safety : I did ask for an explanation but it did not came through from SASB
Metals and Mining	Does Not Apply	Other Comment	Corporation	D.N.A. - Other Comment	Ability to compare metrics is key. Often times, variations in internal accounting practices / procedures (even audited) make true comparisons difficult. This should all be taken with a grain of salt.
Metals and Mining	Does Not Apply	Other Comment	Market Participant	D.N.A. - Other Comment	I think several of the KPI's need to be further developed. Thanks very much for your work!
Metals and Mining	Does Not Apply	Add Issue	Corporation	Economic performance	Sustainable development 'can' be defined as achieving the sweet spot between environmental, social and economic performance. The above list doesn't adequately address/capture the economic portion of the sustainability triad.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Metals and Mining	Does Not Apply	Add Issue	Corporation	Legal compliance with applicable legislation and regulation related to sustainability.	Failure to comply with sustainability legislation can attract fines or permits to mine being withdrawn.
Metals and Mining	Labor Relations	Material issue?	Corporation	Maybe	I see the issue being directly related to community relations, so I consider it material but as one aspect of community relations, together with capacitation, long term sustainability of local communities.
Metals and Mining	Labor Relations	Material issue?	Corporation	Maybe	Labor relations have deep relations with employee's health and safety.
Metals and Mining	Labor Relations	Material issue?	Corporation	No	Risks are well managed.
Metals and Mining	Labor Relations	Material issue?	Corporation	Yes	Labour disputes impact on profitability
Metals and Mining	Labor Relations	Material issue?	Corporation	Yes	Lqbour is a significant driver of performance and also a major cost. In labour intensive operations, labour may constitute as much as 50% of operating costs. Labour disruptions may result in production and revenue losses, reputational damage and affect licensing/security of tenure.
Metals and Mining	Labor Relations	Material issue?	Corporation	Yes	Key impacts on mining from poor labor relations and management include production delays from employee strikes and protests, and production cost increases due to increasing labor wages - both of these usually the result of a unionized workforce. Labor relations also has a direct link with community relations for companies, as typically in the mining & metals industry the communities that surround the operations are largely composed of the company's workforce. Having strong labor relations can also help build positive rapport with the community around the mine. Finally, we are seeing more regulations and guidance around managing and upholding human rights (e.g. ICMM Sustainable Development Framework, World Gold Council's Conflict-Free Gold Standard, Voluntary Principles on Security and Human Rights)
Metals and Mining	Labor Relations	Material issue?	Public Interest	Yes	Labor relations can affect uptime and hence profitability.
Metals and Mining	Labor Relations	Material issue?	Market Participant	Yes	Could be combined with health & safety as they are very much related.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Metals and Mining	Labor Relations	Material issue?	Public Interest	Yes	The primary community stakeholder issues in the mining sector relates to jobs as they tend to be a major employer geographically. This addresses both issues, and when labor relations is poor, the community relations issues tend to be poor also.
Metals and Mining	Labor Relations	Material issue?	Market Participant	Yes	Strikes leading to operational downtime can have substantial impacts on company (cf Marikana mine, current labour relations unrest across South African mining industry, spreading to other African countries).
Metals and Mining	Labor Relations	Material issue?	Corporation	Yes	unhappy unions mean time and money are lost on negotiations. no investor likes a mine strike. treat people fairly and they will almost always treat you fairly in return
Metals and Mining	Labor Relations	Material issue?	Corporation	Yes	For locations with union contracts, that status of contact negotiations impact future costs and even the livelihood of a specific plant
Metals and Mining	Labor Relations	Material issue?	Corporation	Yes	From an investor standpoint, the business could be fined or shut down due to issues here.
Metals and Mining	Labor Relations	Material issue?	Corporation	Yes	Significant differences in labor union power exist from region to region which could shift dramatically making the issue material for some companies.
Metals and Mining	Labor Relations	Material issue?	Public Interest	Yes	Labor disruptions at companies can greatly affect costs, not only direct costs that may come from higher wagers following a strike, but from lost production. Furthermore, lost production spreads huge fixed costs over a smaller amount of production so costs increases because of that as well.
Metals and Mining	Labor Relations	Material issue?	Corporation	Yes	In a developing economy like South Africa there is often a wide gap in remuneration practices and other benefits. Poor labor relations have resulted in significant stoppages and acts of violence in the South African context.
Metals and Mining	Labor Relations	Material issue?	Corporation	Yes	Good labour relations bring in high lever of opportunity in terms of productivity & knowledge management. I see it from the opportunity lens but the risk of business disruption is evident in plethora of cases in India.
Metals and Mining	Labor Relations	Material issue?	Corporation	Yes	union vs. non-union, and ensuring integrity between owner/operator and suppliers/contractors
Metals and Mining	New Issue	Comment on Brief	Market Participant	D.N.A. - Comment on Brief	Yes, it did provide the necessary information overall. However, it could have interesting to add a few more points on governance and in particular on joint ventures. As the ownership of several mining projects is being divided between international companies, it is often difficult to assign responsibilities and to hold one accountable in particular. I think that pressing for disclosure on how these joint ventures work in practice (particularly with regards to the implementation of social and environmental standards, adn the extend to which group-wide standards are in fact implemented at the JV level) is essential.
Metals and Mining	New Issue	Other Comment	Corporation	D.N.A. - Other Comment	It may be useful to have different metrics for surface and underground mining and also different metals. The use of cyanide is not relevent in platinum mining for example, but critical in gold mining.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Metals and Mining	New Issue	Add Issue	Public Interest	Diversity	Diversity at the board/executive level, within operations and in the supply chain as the industry becomes more and more international
Metals and Mining	New Issue	Add Issue	Corporation	Human rights compliance	Human rights abuse (actual and alleged) can have a serious impact on the company's operations, licence to operate and reputation.
Metals and Mining	New Issue	Add Issue	Corporation	Resource nationalism	The growing resource nationalism around the world will fundamentally change the way companies operate.
Metals and Mining	New Issue	Add Issue	Corporation	Skill development of workforce	Depletion of skilled workforce is a definitive material issue in the iron and steel domain. Lack of skilled labour may be a major cause for business disruption if not managed as a material issue. Besides, in India, skill development of youth for increased employability is a material social issue. If not managed the expected demographic dividend may turn into demographic disaster.
Metals and Mining	New Issue	Add Issue	Public Interest	Sustainability Risk Management	I think that it would be incredibly valuable for companies to have to disclose their approach to assessing sustainability-related risk in their business planning (operations, strategy, continuity, etc.). Where does responsibility for sustainability risk assessment reside within the organization (Board, execs, green team, etc.)? What issues are considered (climate, water, social, etc.)? What criteria are used to determine, rank, and respond to risk issues?
Metals and Mining	Process Innovation	Material issue?	Corporation	Maybe	impact on profitability
Metals and Mining	Process Innovation	Material issue?	Market Participant	Maybe	Process innovation is an important point to cover, however, I don't think that the current metric really addresses the issue. It is very likely that companies will talk about process innovation with reference to specific areas (HR, environment, energy, social etc...). I think that the best place to hear about a new innovating process regarding, for example GHG, should fit more naturally under the GHG section rather than a separate innovation section. Therefore probably more a discussion point rather than one requiring measuring metrics.
Metals and Mining	Process Innovation	Material issue?	Corporation	Maybe	I am not as familiar with this issue. Further, none of my current clients readily report or focus on process innovation as part of their assurance process. I personally feel that most companies (and shareholders) are focused on production and maximizing growth and revenues, whilst process innovation perhaps occurs on the side as a "nice to have" that, hopefully, may also later develop company efficiency and productivity. Given that I haven't seen this as a material issue with my clients, I've highlighted my reservations here.
Metals and Mining	Process Innovation	Material issue?	Market Participant	Maybe	I think in some mining segments, there is not a lot of room for process innovation.
Metals and Mining	Process Innovation	Material issue?	Public Interest	Maybe	It seems to me process innovation will be covered in all of the other material issues that are identified.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Metals and Mining	Process Innovation	Material issue?	Corporation	Maybe	I don't think issues here would shut down an operation and I believe the investors are primarily interested in how they can make a profit (many in the short term) on their investments and innovation takes a long term look at things for one to realize a sizable benefit from an investor standpoint.
Metals and Mining	Process Innovation	Material issue?	Public Interest	Maybe	I have not seen innovation be a significant driver of value in this industry or perhaps it has not been characterized as such. I believe that the trends are moving in this direction but we are not there yet.
Metals and Mining	Process Innovation	Material issue?	Public Interest	Maybe	I think process innovation is important for profitability and for maintaining competitiveness, just not sure how you would test this for materiality.
Metals and Mining	Process Innovation	Material issue?	Corporation	Maybe	This issue would not apply to all companies in this sector.
Metals and Mining	Process Innovation	Material issue?	Corporation	No	Process innovation and technology are important to any sector, but would not consider it a material issue for reporting on.
Metals and Mining	Process Innovation	Material issue?	Market Participant	No	I think this issue will appear in a company's efficiency numbers overall. The recycling element does not seem applicable to all companies, for example gold and silver production.
Metals and Mining	Process Innovation	Material issue?	Public Interest	No	This may be a sustainability metric, but if so it is one that investors already have. Every profile of every industrial company by any major money manager tells you when a company is investing in the future or not. Not an addition that is needed, but if you want to co-op it as a sustainability metric that is fine.
Metals and Mining	Process Innovation	Material issue?	Corporation	No	We acknowledge that there is risk but do not see it as a material issue.
Metals and Mining	Process Innovation	Material issue?	Corporation	No	The outcomes of process innovation (e.g. reduced energy use, water use, emissions, waste etc) are material. Process innovation in and of itself, in my opinion, is not material.
Metals and Mining	Process Innovation	Material issue?	Corporation	No	In the platinum industry the process technology is advanced and this is certainly not that material
Metals and Mining	Process Innovation	Material issue?	Corporation	Yes	Process innovation underpins competitive advantage.
Metals and Mining	Process Innovation	Material issue?	Public Interest	Yes	Can affect the extraction efficiency and hence profitability.
Metals and Mining	Process Innovation	Material issue?	Public Interest	Yes	Not sure if this will come up later, but I did want to mention that I think the specific metric (% input material from a recycled source) is a pretty limited metric to judge Process Innovation. How would mining companies get any credit for this?
Metals and Mining	Process Innovation	Material issue?	Market Participant	Yes	Modern metals and mining industry is globalised and highly competitive. Process innovation to e.g. improve operational efficiency, reduce costs, improve product quality, identify and prove up more recoverable reserves in shorter time at better economics is critical to sustained success.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Metals and Mining	Process Innovation	Material issue?	Corporation	Yes	companies that can be innovative and find more efficient ways of doing things will be more profitable. it's also best to stay ahead of regulations, rather than having to catch up and spend \$ on retrofitting. investors generally like companies that are leaders
Metals and Mining	Process Innovation	Material issue?	Corporation	Yes	Nes technologies or improved processes, whether they are major changes in efficiencies and resource uses or associated with improved efficiencies of existing processes all serve to reduce cost.
Metals and Mining	Process Innovation	Material issue?	Corporation	Yes	Process Innovation will clearly be material. The issue is whether you can measure innovation without reveal proprietary information or making the KPI look like a PR piece.
Metals and Mining	Process Innovation	Material issue?	Public Interest	Yes	Should be broader in scope than recycling. The briefing document refers to the drive to fully automate mines. Sometimes the only reason a mine has social license to operate is because it generates local employment. Once all the work is done by robots, there may be little reason for the communities, who bear the brunt of externalities, to support mining projects. So downside of innovation needs to be considered too.
Metals and Mining	Process Innovation	Material issue?	Corporation	Yes	A Business wherein multiple low to medium impact process innovations are driven by the corporate culture is evidenced with string competitive edge.
Metals and Mining	Process Innovation	Material issue?	Corporation	Yes	innovation will provide to be a game changer (e.g. recycling materials)
Metals and Mining	Product Innovation	Add Issue	Corporation	Materials stewardship	Minimizing the environmental, health and safety risks of our products including explaraiotn, production, cuustomer use, recycling and disposal. Improving our understanding of our supply chains, including risks and opportunities. Life cycle of our products, responding to customer questionnaires and concerns. See page 11 and 12 of our 2012 sustainability Report
Metals and Mining	SASB Approach	Inaccuracy	Corporation	D.N.A. - Inaccuracy	reference to media reports and quotes from media reports can be quite misleading and taken out of context.
Metals and Mining	SASB Approach	Inaccuracy	Public Interest	D.N.A. - Inaccuracy	A bit self-selective and did not specify against info in survey on what metrics, etc are required in various jurisdictions versus voluntary already.
Metals and Mining	SASB Approach	Inaccuracy	Corporation	D.N.A. - Inaccuracy	it was full of typos, to the point that they were distracting
Metals and Mining	SASB Approach	Other Comment	Corporation	D.N.A. - Other Comment	If not already done, suggest a review of existing company reporting of many of these KPIs (via GRI, etc) to determine if meaningful, comparable, etc. If not, what needs to be tweaked in the protocol for SASB
Metals and Mining	SASB Approach	Other Comment	Corporation	D.N.A. - Other Comment	Whilst I appreciate these may be specified more closely later by SASB, I think providing very clear guidelines on reporting scope and boundary for each of the indicators / performance assertions will be extremely important in helping establish the accuracy, completeness and comparability of reported information. Thank you for letting me be a part of this process. I look forward to seeing the Standards during the public comment period, if not sooner.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Metals and Mining	SASB Approach	Other Comment	Market Participant	D.N.A. - Other Comment	It would be neat to see some exploration of the relationship between a company's share price performance and its sustainability performance. This might be outside SASB's scope, but our research has shown that even among the issues/factors that are 'material' for the mining industry, many of them have no bearing on share price. Overall, I think SASB's work in this industry and others is very important and I am proud to be a part of it.
Metals and Mining	SASB Approach	Other Comment	Market Participant	D.N.A. - Other Comment	I think this is very helpful guidance for the industry. I'd propose that if the WG decides that some of the criteria you propose does not meet the SEC requirements (e.g. not cost effective, or not auditable) you just rebrand those metrics as "best practice suggestions" for those willing to go beyond the minimum.
Metals and Mining	SASB Approach	Other Comment	Market Participant	D.N.A. - Other Comment	What I didn't see was an assessment of the magnitude of materiality. To clarify, some of the evidence presented is put in financial terms but probably still wouldn't reach the level of materiality as currently viewed by the traditional financial community. For example, a fine of a few million dollars is a financial outcome but still not material to companies with \$100+ billion in revenues. This is something to keep in mind as we attempt to connect with traditional analysts on these subjects.
Metals and Mining	SASB Approach	Other Comment	Public Interest	D.N.A. - Other Comment	So appreciate the opportunity to offer my comments. I am a huge supporter of the SASB process and look forward to seeing the final results!
Metals and Mining	SASB Approach	Other Comment	Market Participant	D.N.A. - Other Comment	For my own purposes, a small number (2-4) metrics, which (i) reflect performance issues actively being managed by the company as part of the core business, (ii) are quantitative, robust in terms of data quality, and independently audited, (iii) are normalised to take account of enterprise scale, and (iv) allow direct comparison of operator performance would suffice. Due to wide variation of operational contexts, a lot of the other ESG metrics proposed are not particularly meaningful as signals on quality of company management.
Metals and Mining	SASB Approach	Other Comment	Corporation	D.N.A. - Other Comment	I support the effort for standardization and inclusion of many of these metrics. For many, determining relevance, cost effectiveness or comparability is uncertain. If a corporation decides an individual metric is not relevant to them, their should be no penalty for opting to not use that metric.
Metals and Mining	SASB Approach	Other Comment	Public Interest	D.N.A. - Other Comment	If these standards are meant to be the minimum set of issues to be addressed this seems to imply relevance for all companies yet I don't see universal relevance of all these issues. Will this force companies into adding more "clutter" in their 10-k explaining why certain sustainability matters are not relevant?
Metals and Mining	SASB Approach	Other Comment	Corporation	D.N.A. - Other Comment	While I have ticked 'auditable' for a number of these questions, there is a caveat. It may be possible to follow an audit trail for a number of these metrics; however, doing so would result in a substantial financial burden for a company. New accounting systems would have to be put in place and a separate audit undertaken by an external auditing firm. In practical terms, most of these metrics are not auditable. Development of Metrics should be guided by those metrics and KPIs already developed and in use. Companies do not have resources to track, calculate and report in a different manner for a number of competing Standards. Consider following the guidelines and metrics of the GRI and the CDP. These metrics are in common use globally.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Metals and Mining	SASB Approach	Other Comment	Corporation	D.N.A. - Other Comment	The briefing was thorough and focused on many key issues. I hope that the result is a combination of environmental and social issues and related metrics that can help to streamline sustainability in corporate reporting. Please keep me abreast of future webinars, meetings and other opportunities to share feedback.
Metals and Mining	Supply Chain Management	Add Issue	Corporation	Sustainable Supply Chain Management	OEMs particularly multinationals would like to mitigate risks out of environmental as well as social hotspots in their supply chain. It has become material to manage the supply chain in a sustainable way to mitigate risk as well as leverage opportunity (cost reduction as an example).
Metals and Mining	Supply Chain Management	Add Issue	Public Interest	Sustainable Supply Chain-Responsible Procurement	An important shift involves a deeper level of collaboration with internal and external supply chain partners to reexamine delivery methods, products, packaging and measurement systems.
Metals and Mining	Survey comment	Other Comment	Public Interest	D.N.A. - Other Comment	Not enough time to complete. Also, no opportunity to say that "I don't know" - forced into Yes and No answers. Many issues are worth dialogue and so these are just initial opinions in my survey completion.
Metals and Mining	Waste Management	Add Issue	Market Participant	Environmental Management Systems	This sort of over-arches many of the issues (energy, water and waste mgmt, etc), but in assessing companies ESG risk I always want to understand what management systems they have in place to bring it all together and make sure everything that needs to be measured / managed / monitored / audited /reported internally or externally / etc is.
Metals and Mining	Waste Management	Add Issue	Market Participant	Hazardous chemicals storage & Management	This is very briefly addressed under Waste Management on handling spent uranium fuel - but it is not just a waste issue. For example if a gold mine uses cyanide - how are they storing, transporting, handling it prior to the waste stage? Intl Cyanide Management Code offers good guidance in this particular case but there are other mining chemicals that may be used and need to be properly transported/ stored/managed - and personnel trained on the aforementioned activities. Perhaps the waste management section could be expanded a bit to address this topic. IFC EHS General guidelines have a section on hazardous materials management.
Metals and Mining	Waste Management	Add Issue	Corporation	Management of cyanide (in the gold industry)	Management of cyanide (transport, storage, usage and disposal) is another critical element in the gold mining sector. Incidents can result in loss of life, ecological and financial damages and have a negative impact on reputation.
Metals and Mining	Waste Management	Material issue?	Public Interest	Maybe	Too esoteric, unless it is gross pollution that is affecting community acceptance.
Metals and Mining	Waste Management	Material issue?	Public Interest	Maybe	In mining, Waste is mostly rock. Better to focus on Water and Air, and if you include Eco Impacts, that incorporates the Waste.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Metals and Mining	Waste Management	Material issue?	Market Participant	Maybe	Waste management industry has developed sophisticated solutions to respond to metals and mining industry needs. A wide range of management solutions (technological/operational) are typically available to operators, it is normally just a question of cost. Such costs again can be significant at asset level, but these constraints are generally dealt with in the mix of asset specific challenges.
Metals and Mining	Waste Management	Material issue?	Corporation	Yes	The management of waste - particularly rock dumps and tailings dam is critical as these represent potential safety and environmental risks. Given the use of cyanide in the gold industry, the management of waste becomes even more critical.
Metals and Mining	Waste Management	Material issue?	Corporation	Yes	No comment - Through my assurance experience I have not been heavily involved in assessing waste management in the context of the mining & metals industry.
Metals and Mining	Waste Management	Material issue?	Market Participant	Yes	Waste management, particularly in the form of tailings dams are a significant cost and if not done properly can lead to major liabilities and controversies with local communities.
Metals and Mining	Waste Management	Material issue?	Corporation	Yes	None.
Metals and Mining	Waste Management	Material issue?	Corporation	Yes	Management and disposal of waste is a material source of ever increasing cost and business risk.
Metals and Mining	Waste Management	Material issue?	Corporation	Yes	mostly permitting. companies need to comply with the waste management regulations to get and keep permits. this could also have an economic impact, though. companies that are more efficient in reducing waste will have less waste to store / transport / dispose of, which means there is less economic burden. likewise, companies that are innovative with how they manage their waste products will be more efficient economically
Metals and Mining	Waste Management	Material issue?	Corporation	Yes	From an investor standpoint, the business could be fined or shut down due to issues here.
Metals and Mining	Waste Management	Material issue?	Public Interest	Yes	Increasing community awareness and sensitivity to any waste materials has increased the risk around the social license to operate. Companies must be able to deal with such matters in a responsible manner in order to maintain that license or expand it.
Metals and Mining	Waste Management	Material issue?	Public Interest	Yes	mining operations generate tons of waste and disposing of that is a large cost for companies which makes it materials. From an environmental perspective, proper disposal is important to prevent destruction of nearby rivers, forests, and streams.
Metals and Mining	Waste Management	Material issue?	Corporation	Yes	Mining generates large volumes of waste that has the potential to contaminate soil and water resources.
Metals and Mining	Waste Management	Material issue?	Corporation	Yes	Even with electric arc furnace route there is evidence today in India of business interruption. License to operate diminishes over time if overall water management is not considered in business plan from lift, quality, reuse etc.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Metals and Mining	Waste Management	Material issue?	Corporation	Yes	applicable particularly for tailings management, and for human waste at the site
Metals and Mining	Water Management	Material issue?	Public Interest	Maybe	I don't have reservations. It is material.
Metals and Mining	Water Management	Material issue?	Corporation	Maybe	In certain water scarce regions that we operate, water management may be material but in most we have effective programs to manage our water use without material impacts.
Metals and Mining	Water Management	Material issue?	Market Participant	Maybe	I believe water management wil become material, but it will take time. There are mining operators exposed to water availabilty issues, but these are typically restricted to certain countries, or depend on specific location of assets. Additionally, there are often a range of options available to operators to secure water (e.g. pipeline transport, deep aquifer extraction, desalination plant), although these can shift cost base at asset level significantly.
Metals and Mining	Water Management	Material issue?	Corporation	Yes	Water is a critical resource for the industry, which is - in many countries and regions - scarce, and increasingly costly. Water pollution by companies represents a significant potential liability. Further, water is a resource we share/or compete for, wiktth communities and other industry.
Metals and Mining	Water Management	Material issue?	Corporation	Yes	There are typically increasing demands on water in regions where companies operate - both due to the growth of companies, and the growth of other water users (population growth, other companies, flora & fauna, etc). Many mining & metals companies operate in desert regions with water scarcity (e.g. Nevada, Mexico, etc) and on top of the increased demands on water, there is not consistent supply of water. This directly impacts production. Today we're seeing more companies lose access to water due to competing demands as realistically companies are not the priority for water supply; particular when there are other local populations and residents in the region. Measuring water reserves is also not an exact science - groundwater sources and water tables are not simple things to measure and quantify for future water supply, which may represent future challenges to companies who inaccurately estimate their water supply and availability.
Metals and Mining	Water Management	Material issue?	Market Participant	Yes	The key here is that water is not universally material across all countries. For mining companies setting up production in water rich countries, like Canada, water management may not be material. But the longer term trend of water scarcity, due to rising demand, generally constant supply and lack of substitutes, means this is likely to be material at a growing proportion of mine sites.
Metals and Mining	Water Management	Material issue?	Market Participant	Yes	water risk / shortages can severely impact products leading to financial risk - another good example is the Escondida mine in Chile where BHPB and Rio Tinto just announced spending \$3bn on a water desal plant to ensure sufficient supply
Metals and Mining	Water Management	Material issue?	Market Participant	Yes	Mining processes rely greatly on water availabilty and often has a direct correlation with community grievances. Without water, a mining operation cannot proceed.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Metals and Mining	Water Management	Material issue?	Market Participant	Yes	The issue of water is growing in importance to communities around the globe with concerns related to water pollution, scarcity, availability and quality. Protests have held up projects around the globe and risk exists that regulators will be increasingly seeking to address the gap between community expectations and existing laws with increased regulation. See prior examples related to Newmont Mining -- both Cerro Quilish and Minas Conga
Metals and Mining	Water Management	Material issue?	Public Interest	Yes	Obvious in mining. Uses a lot, much potential for pollution.
Metals and Mining	Water Management	Material issue?	Corporation	Yes	Water scarcity is a local scale and / or regional scale issue in most of the world (e.g. Texas). The true value of water is often not considered. Increasing scarcity coincident with increasing demand for water is a significant business risk.
Metals and Mining	Water Management	Material issue?	Corporation	Yes	permitting. companies must comply with water management and water protection regulations to get and keep permits. no permits, no project
Metals and Mining	Water Management	Material issue?	Corporation	Yes	Refining bauxite into alumina uses a great deal of water
Metals and Mining	Water Management	Material issue?	Corporation	Yes	From an investor standpoint, the business could be fined or shut down due to issues here.
Metals and Mining	Water Management	Material issue?	Corporation	Yes	Water is critical to the operation. If water is scarce in the region, this issue is material. It may make sense to include a water scarcity index to whatever consumption KPI is used.
Metals and Mining	Water Management	Material issue?	Public Interest	Yes	Lack of water, or a massive increase in water prices, will greatly affect mining operations particularly for gold and copper which use huge amounts for processing ore. Also, many of these operations happen in water-stressed areas such as northern Chile, Arizona and Nevada.
Metals and Mining	Water Management	Material issue?	Corporation	Yes	Companies will face increasing risks from water shortages even to the point of delay or cancellation of projects.
Metals and Mining	Water Management	Material issue?	Corporation	Yes	Platinum extraction is dependant on large volumes of water and therefore in water scarce areas the industry can be in competition with other water users e.g. agriculture.
Metals and Mining	Water Management	Material issue?	Corporation	Yes	Evidence of water scarcity is material and the true value (pricing) is yet to be determined region/ geography / footprint wise.
Metals and Mining	Water Management	Material issue?	Corporation	Yes	applicable for most types of mining at the production, refining and post-production stages
Metals and Mining	Worker Health & Safety	Material issue?	Market Participant	Maybe	I believe that in some countries, worker health and safety is very much a material issue but in countries that lack good institutions and rule of law, advanced policies covering working health are not always properly enforced, and this pulls away at the materiality of the issue.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/Response	Comment
Metals and Mining	Worker Health & Safety	Material issue?	Corporation	No	Highly regulated and well managed.
Metals and Mining	Worker Health & Safety	Material issue?	Corporation	Yes	impact on profitability
Metals and Mining	Worker Health & Safety	Material issue?	Corporation	Yes	Safety is the primary area of concern in gold mining, particularly in deep level underground mining. Not only is this the case from a values/moral perspective, but safety and health stoppages, costs and liabilities are significant potential threats. Significant occupational health risks include occupational lung disease (OLD) (including silicosis) and noise induced hearing loss. In Africa, HIV/AIDS and malaria are important health considerations that have an impact on employees and communities although they are not strictly speaking occupational health illnesses. Also in South Africa, TB is considered a compensable occupational health illness when associated with OLD.
Metals and Mining	Worker Health & Safety	Material issue?	Corporation	Yes	Health and safety is consistently regarded as the most material aspect among all of my mining and metal clients. The impacts of a fatality on a mine and company are substantial and the legal and financial ramifications are also very significant. We are also seeing new scientific ways in which companies monitor their health & safety performance to identify preventative measures to reduce these instances and/or the associated outcome of the incident (i.e. reducing fatalities to injuries, or Lost Time Injuries to a First Aid injury). Regulators are also increasing their fines and conducting spot-checks on operations to make sure that companies are continually and effectively managing this aspect. Health & safety performance often has a link to compensation for companies (i.e. poor health & safety performance results in no bonus).
Metals and Mining	Worker Health & Safety	Material issue?	Public Interest	Yes	Can affect regulatory scrutiny, community acceptance, and hence uptime.
Metals and Mining	Worker Health & Safety	Material issue?	Public Interest	Yes	This is the number one Labor Relations issue if its not working. If safety is OK, then its about money. If Safety is off, a lot of things are off, including the quality of the management organization.
Metals and Mining	Worker Health & Safety	Material issue?	Corporation	Yes	H&S performance is a primary criteria for employer attractiveness in the mining sector. Poor H&S performance represents a significant social impact (e.g. cost of healthcare, lost productivity etc) and an associated significant business risk.
Metals and Mining	Worker Health & Safety	Material issue?	Market Participant	Yes	Typically, H&S regulation is more stringent and better enforced compared to environmental. Industrial accidents and fatalities can result in asset shutdown which can impact on performance (cf Freeport Grasberg mine accident - the company was forced to suspend operations for about a month, leading to production declines of 125 million pounds of copper and 125,000 ounces of gold.)



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Metals and Mining	Worker Health & Safety	Material issue?	Corporation	Yes	this impacts the company on a number of fronts. economically, of course, if you are losing workers from accidents that reduces your efficiency. if your workers are getting killed, lawsuits and insurance payments get awfully expensive. fines from MSHA can get expensive. from a reputation perspective, companies with a good track record for health and safety get better employees. strong health and safety programs also result in better employee morale and loyalty, which generally translates into a more effective and efficient team, which means more productivity and more \$. getting offside with the unions is expensive - healthy employees are happy employees. this is also something that can hugely influence corporate reputation - if you're in the news for accidents, people are going to recognize that as a risk to your productivity and also to your longevity as a company. mines that get shut down for health and safety violations don't make any \$. in mining, this is probably one of the most material issues, because it's so high profile.
Metals and Mining	Worker Health & Safety	Material issue?	Corporation	Yes	From an investor standpoint, the business could be fined or shut down due to issues here.
Metals and Mining	Worker Health & Safety	Material issue?	Public Interest	Yes	The financial impact of such a matter is not always readily apparent. Indeed I have heard many discussions that question the \$ spent on safety initiatives. However, when most companies have zero tolerance for fatalities or life- altering injuries then it is difficult to understate the importance of this issue to the sector.
Metals and Mining	Worker Health & Safety	Material issue?	Public Interest	Yes	WH&S is directly related to labor relations. Poor safety and health will increase the likelihood of strikes and production disruptions. Its also a mantra within the industry that a "safe shop is an efficient shop" so signs that a company is safe probably are also an indicator that they are good operators as well.
Metals and Mining	Worker Health & Safety	Material issue?	Corporation	Yes	In deep level mining in South Africa this is a key issue both from an ethical and moral perspective but also to mitigate against class action law suits.
Metals and Mining	Worker Health & Safety	Material issue?	Corporation	Yes	Talent & skill retention for business process sustainability is keyed to perception of the industry as a whole. Regulatory / Brand risk - even residual risk in this area should be lowest with highest control mechanism. Many business disruption and cost evidenced in the business paradigm.
Metals and Mining	Worker Health & Safety	Material issue?	Corporation	Yes	always a critical element to this sector, no surprise
Oil & Gas - Exploration and Production	Air Quality	Material issue?	Corporation	Maybe	investors could be interested in environmental performances in general (in particular GHG emissions, water management, ..). probably some information are too detailed for the interest of investors.
Oil & Gas - Exploration	Air Quality	Material issue?	Corporation	Maybe	Materiality is highly dependent on the site of operation (e.g. onshore vs. offshore).



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
and Production					
Oil & Gas - Exploration and Production	Air Quality	Material issue?	Market Participant	Maybe	I am not sure whether this is a primary driver in terms of impacting the markets for these products.
Oil & Gas - Exploration and Production	Air Quality	Material issue?	Market Participant	Maybe	It is fairly well regulated, at least in the U.S., so I think of it as slightly less of an issue. It may also overlap GHG emissions.
Oil & Gas - Exploration and Production	Air Quality	Material issue?	Market Participant	Maybe	The potential financial liability to non-compliance is quite small in strict jurisdictions - even smaller in developing countries. This is unlikely to change in the mid-term. The exception is in areas of severe hazardous conditions (Think China).
Oil & Gas - Exploration and Production	Air Quality	Material issue?	Market Participant	Maybe	Data should be provided in sustainability reporting, not sure about 10-K. Felt less strongly about this item.
Oil & Gas - Exploration and Production	Air Quality	Material issue?	Market Participant	No	When I consider the environmental risks faced by oil & gas E&P companies, the risk to air quality isn't as high as other issues such as water contamination, land contamination, GHG emissions (operational and fugitive.) As an investor, I am most concerned
Oil & Gas - Exploration and Production	Air Quality	Material issue?	Market Participant	No	It matters but not disproportionately material to this sector relative to other ESG factors
Oil & Gas - Exploration and Production	Air Quality	Material issue?	Corporation	No	Not realistic for a company to be responsible for such a vague or broad term unless you are going to define a specific impact and where it occurs in the supply chain (e.g. particulates from operations - say for example sand, or GHG). Trying to look at these issues through the lens of an investor and it's too easy to be hysterical about every sustainability element.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Oil & Gas - Exploration and Production	Air Quality	Material issue?	Public Interest	No	Emissions are significant and very heavily regulated, with stringency of these regulations increasing in the US (e.g., OOOO rule and RICE MACT) and elsewhere, and significant requirements in place to report these emissions through several means. Perhaps this area needs to focus on flaring and venting specifically, which is a major issue in virtually every part of the world where oil/gas production is occurring and where significant improvement is still needed. Additionally, disclosures around environmental compliance are already addressed through SEC Reg S-K provisions.
Oil & Gas - Exploration and Production	Air Quality	Material issue?	Corporation	No	The industry is well regulated with regard to air emissions and reflects the advances in technology which continue to reduce emissions.
Oil & Gas - Exploration and Production	Air Quality	Material issue?	Market Participant	No	Same as GHG response
Oil & Gas - Exploration and Production	Air Quality	Material issue?	Corporation	No	I have done an analysis of all risk factors reported by the top 24 companies in terms of market cap. The term "air quality" comes up once. O&G companies are pretty confident air quality is something they have dominated technologically, and governments usually consult industry when altering legislation.
Oil & Gas - Exploration and Production	Air Quality	Material issue?	Market Participant	Yes	Particulate matter emitted through the E&P process includes carcinogens, and other matter that impacts human health. Liability lawsuits related to these emissions could result in substantial judgments.
Oil & Gas - Exploration and Production	Air Quality	Material issue?	Public Interest	Yes	costs of mitigating air quality issues can be material for oil companies as can potential costs of litigation - see Richmond, CA & asthma + similar global litigation risks at present
Oil & Gas - Exploration and Production	Air Quality	Material issue?	Market Participant	Yes	Adding these at this time is too early. Maybe in a future set of SASB recommendations
Oil & Gas - Exploration and Production	Air Quality	Material issue?	Market Participant	Yes	Companies are subject to compliance with regulation on air quality such as the CAA.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Oil & Gas - Exploration and Production	Air Quality	Material issue?	Corporation	Yes	Due to strict government reporting requirements on air contaminants, in particular Nox and SOx in many jurisdictions. Also this issue relates closely to odours and odour complaints at operating facilities and can become legal nuisance complaints or threaten our social license to operate.
Oil & Gas - Exploration and Production	Air Quality	Material issue?	Public Interest	Yes	Air quality is a major issue in this industry as well. Significant air pollution could open them up to community law suits and potential regulatory action.
Oil & Gas - Exploration and Production	Air Quality	Material issue?	Corporation	Yes	Local emissions are a key concern to local communities and neighbourhoods. Deteriorating air quality locally could affect the social licence to operate.
Oil & Gas - Exploration and Production	Air Quality	Material issue?	Corporation	Yes	Natural Gas has shifted the output to a lower value, but air quality is still important to monitor. Several communities might "smell" due to flaring or "natural venting".
Oil & Gas - Exploration and Production	Air Quality	Material issue?	Market Participant	Yes	Governments have clearly acted on this issue and limits need to be adhered to.
Oil & Gas - Exploration and Production	Air Quality	Material issue?	Corporation	Yes	I live in a non-attainment area and companies that are operating here must invest significant capital \$ in achieving air quality standards. If they are unable to do so this may lead to future fines and penalties, increased regulation, or increased capital expenditures.
Oil & Gas - Exploration and Production	Air Quality	Material issue?	Corporation	Yes	Numerous winter ozone and non-attainment studies are underway in the Rocky Mountain region; new regulations could present significant costs of compliance to E&P operators
Oil & Gas - Exploration and Production	Air Quality	Material issue?	Market Participant	Yes	Air quality is an issue both in terms of local acceptability of an oil&gas E&P project, and of potential additional costs that can be included if all the impacts on air quality of the E&P operations were included. Therefore, air quality issues can impact the long-term economic resilience and performance of these projects.
Oil & Gas - Exploration	Air Quality	Material issue?	Corporation	Yes	Increasing regulatory and community pressure to manage air quality impacts (owing to ever increasing encroachment of industry towards communities and vice versa.)



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and Production					
Oil & Gas - Exploration and Production	Air Quality	Material issue?	Corporation	Yes	Air Quality is general is a material issue to industry based on the impact generally to air quality from operations. In addiiton to greenhouse gases, general air quality is a concern for the health & well being of the general public and communities in which industry operates.
Oil & Gas - Exploration and Production	Air Quality	Material issue?	Corporation	Yes	First it is measureable, second the potential for future cost implications due to permit costs and requirements or mitigation equipment.
Oil & Gas - Exploration and Production	Air Quality	Material issue?	Public Interest	Yes	Already reported upon and regulated as a material issue although increasingly important due to growth in unconventional as well as concerns over air quality at refinery locations.
Oil & Gas - Exploration and Production	Air Quality	Material issue?	Corporation	Yes	Air emissions, such as criteria pollutants (U.S.), are increasingly being regulated for E&P assets, which can result in project delays and increased capital and operating costs.
Oil & Gas - Exploration and Production	Air Quality	Material issue?	Market Participant	Yes	In the relevant sector, air quality issues may play a significant role in investment decision-making and can be material. Like water management, air quality issues may have a significant influence on investment considerations including project economics and efficient capital allocation.
Oil & Gas - Exploration and Production	Air Quality	Material issue?	Corporation	Yes	mostly through burning of natural gas. local communities are increasingly opposed to the light from gas flares, and regulators are increasingly cracking down on natural gas flares, mostly due to the emissions but also due to public pressure. if you can't get the gas out, you can't get the oil out. but even incinerating the gas is not long-term solution, since it still affects air quality



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/Response	Comment
Oil & Gas - Exploration and Production	Air Quality	Material issue?	Market Participant	Yes	Air pollution by energy E&P companies have been raised for years, but not necessary properly tracked and addressed by E&P operators such as the cases in Nigeria due to flaring and venting, which resulted in serious health deterioration in surrounding communities, particularly for children. Separately, increased number of studies as well as complaints have raised air quality concerns for E&P operations due to substantial increase in operations in various shale plays. In addition, monitoring the air quality in off-shore rigs is critical for safety by monitoring methane levels to avoid or prevent any potential blowout risks. Thus, air quality monitoring have numerous implication from community health, environmental impact, community relations as well as employee & operational safety. At least, there should be a mention of flaring in air quality section, separately from GHG section. Recurring violations of key regulations by companies and potential impact on public health makes it critical factor, including the potential fines, local oppositions, lawsuits-followed by the cost of settlement as well as trials.
Oil & Gas - Exploration and Production	Air Quality	Material issue?	Corporation	Yes	It impacts on the health of neighbouring communities (and employees)
Oil & Gas - Exploration and Production	Air Quality	Material issue?	Public Interest	Yes	Air quality is material from both regulatory and social license to operate perspectives. In many basins/operating regions, companies air permits (required for operations) will be difficult because ambient air quality is close to regulatory limits making permitting of new operations more difficult. On the SLO front, significant air quality disruption from operations as well as trucking can lead to community back-lash.
Oil & Gas - Exploration and Production	Air Quality	Material issue?	Corporation	Yes	Issues mainly relating to flaring and venting, along with refinery operations
Oil & Gas - Exploration and Production	Business Ethics and Payments Transparency	Material issue?	Market Participant	Maybe	I think there are other, larger issues facing the industry.
Oil & Gas - Exploration and Production	Business Ethics and Payments Transparency	Material issue?	Corporation	Maybe	I think this category needs to be better defined. Payments larger than \$100,000, as included in Dodd-Frank is not a good scope. The issue is definitely material, but not as currently defined by Dodd Frank.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Oil & Gas - Exploration and Production	Business Ethics and Payments Transparency	Material issue?	Market Participant	Maybe	Revenue Transparency is important, but I am not sure it is material for investors whether it happens or not.
Oil & Gas - Exploration and Production	Business Ethics and Payments Transparency	Material issue?	Public Interest	Maybe	I believe this already falls into several financial regulatory areas and has a direct nexus with the financial accounting and disclosure arena. That being said, what of a material non-financial nature can really be covered. The issue that I see as more important is the predilection for US based companies to have the same person occupy the CEO and Board Chair positions. As a knowledgeable practitioner in governance, risk and compliance, this continues to haunt me, as non-US based global enterprises seem to already have gotten the message.
Oil & Gas - Exploration and Production	Business Ethics and Payments Transparency	Material issue?	Market Participant	Maybe	I'm not sure it is a material issue. It's close; facilitation payments and bribes do prop up governments that threaten sustainability in dozens of ways--but there are so many other contributors to corrupt and unstable or evil governments that it's difficult to see these payments as making a material difference.
Oil & Gas - Exploration and Production	Business Ethics and Payments Transparency	Material issue?	Public Interest	Maybe	The issue is enormously important from a sustainability (and financial/reputation) perspective but this is one where the devil is in the details; e.g. the Dodd-Frank controversy versus EITI voluntary approach, etc. needs to be considered carefully to promote the right behavior, consider competitive considerations. Needs to be thought through. The accounting metrics described in the brief, however, do for the most part alleviate some of my concern.
Oil & Gas - Exploration and Production	Business Ethics and Payments Transparency	Material issue?	Market Participant	Maybe	Although a potential reputational risk, albeit fleeting, the risk that foreign jurisdictions will levy material fines against outside investment is extremely low – especially for a problem that may systemic to their own governance. Likewise, local jurisdictions would, to some extent, need to prove damages. Even if the judgments are meant to be punitive, the total financial impact is likely immaterial.
Oil & Gas - Exploration and Production	Business Ethics and Payments Transparency	Material issue?	Corporation	Maybe	The oil exploration and production industry is very particular. As the O&G exploration scenario changes rapidly, for example, 10 years ago shale gas, arctic and tar sands were marginal to the E&P scenario. A change in scenario is accompanied by an alteration in the materiality of the sustainability risks the companies are exposed to. The majority of ESG-related information is generally backward looking. This contrasts with other investment-relevant parameters (eg oil prices or share prices) and with financial information that tends to be much more forward-looking. In my opinion, exploration and production indicators must be forward looking, that is, what is the potential of this to be material given the reserves of a company. Another particularity of the O&G E&P industry is the amounts they are accustomed to, in terms of investment, profitability, etc. For an issue to be material, the business must be impacted in quite a significant matter.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Oil & Gas - Exploration and Production	Business Ethics and Payments Transparency	Material issue?	Market Participant	No	When I consider the scope of issues facing E&P companies, I just don't see this issue as being material enough to warrant disclosure. I don't think the financial impact is very high and I don't think there is much potential for this to become a systemic issue.
Oil & Gas - Exploration and Production	Business Ethics and Payments Transparency	Material issue?	Corporation	No	Oil and gas companies tend to be most aware of this issue and this is backed up by your own evidence ('most likely to disclose risks related to payments to governments for exploration and development in their Form 10-K, highlighting the magnitude of the risks.' The remainder of the evidence fails to support this issue as 'material'.
Oil & Gas - Exploration and Production	Business Ethics and Payments Transparency	Material issue?	Corporation	No	I represent an industry association and we focus on national, not international perspectives. Our members have indicated that within Canada there are very strong business ethic and transparency rules. While it is deemed important in the developing world it is not deemed material in a Canadian context.
Oil & Gas - Exploration and Production	Business Ethics and Payments Transparency	Material issue?	Market Participant	No	E&Ps generally work within the United States and thus do not have bribery issues by and large. Ethical issues are more around executive compensation, not actual operations.
Oil & Gas - Exploration and Production	Business Ethics and Payments Transparency	Material issue?	Corporation	Yes	multiple emerging frameworks regarding transparency reporting (eg Dodd Frank, EU regulations, EITI, etc) have the potential to create a significant burden on corporations without providing any additional useful comparable information for stakeholders. A common or single established approach to reporting in this area at a country level would be welcomed.
Oil & Gas - Exploration and Production	Business Ethics and Payments Transparency	Material issue?	Corporation	Yes	Survey after survey appears to indicate that public trust in corporations has largely evaporated and there is considerable suspicion regarding our industry and our relationship with governments and others. At the same the US feds are going after companies with relish, and nobody wants to be on the receiving end of a FCPA or SEC lawsuit.
Oil & Gas - Exploration and Production	Business Ethics and Payments	Material issue?	Public Interest	Yes	Interaction with foreign governments raises the potential for malfeasance that would cause companies to incur significant penalties both domestically and internationally.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
	Transparenc y				
Oil & Gas - Exploration and Production	Business Ethics and Payments Transparenc y	Material issue?	Corporation	Yes	Clear financial impact in terms of non-compliance (due to strict international legislation).
Oil & Gas - Exploration and Production	Business Ethics and Payments Transparenc y	Material issue?	Corporation	Yes	I'm hesitant about this one. Good behavior should be a given in this day and age, but I fear it isn't. I do worry about the payment transparency issue putting US companies at a competitive disadvantage.
Oil & Gas - Exploration and Production	Business Ethics and Payments Transparenc y	Material issue?	Market Participant	Yes	1) Payments themselves may be material. 2) The practices are often associated with doing business in particularly risky and unstable environments, and doing business with countries that create reputational risk, e.g., Sudan.
Oil & Gas - Exploration and Production	Business Ethics and Payments Transparenc y	Material issue?	Market Participant	Yes	The increasing global standards in terms of business ethics that are being taken into account by more and more relevant players in the market (banks, lobbying groups, investor funds etc) imply that these issues are not anymore optional for companies. In the oil&gas upstream, where operations generate substantial revenues from natural resource extraction, ensuring high-level ethical standards is important to preserve the company's reputation over the long term, and its good relations with stakeholders.
Oil & Gas - Exploration and Production	Business Ethics and Payments Transparenc y	Material issue?	Market Participant	Yes	The problem of corruption and illegal payments to governments is very common in countries where international norms are not obeyed. Operating in such countries poses a real threat for companies therefore communication and reporting on such issues is very important
Oil & Gas - Exploration and Production	Business Ethics and Payments Transparenc y	Material issue?	Corporation	Yes	Poor business ethics = suboptimal business practices = business and community risk.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/Response	Comment
Oil & Gas - Exploration and Production	Business Ethics and Payments Transparency	Material issue?	Corporation	Yes	Since this is a global industry and has significant business conducted in areas of the globe that are prone to poor or unfair business ethical practices, it is important to understand that the company has a strong governance system established to ensure good business practices globally.
Oil & Gas - Exploration and Production	Business Ethics and Payments Transparency	Material issue?	Corporation	Yes	There can be significant civil and criminal repercussions, for a company, its individual employees, and business partners, associated with non-conformance with FCPA, the UK Bribery Act, and corporate codes of conduct.
Oil & Gas - Exploration and Production	Business Ethics and Payments Transparency	Material issue?	Market Participant	Yes	E&Ps are subject to pressure to give bribes of one sort or another to politicians or other leaders, and their reputation for how they deal with these issues will impact future negotiations.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/Response	Comment
Oil & Gas - Exploration and Production	Business Ethics and Payments Transparency	Material issue?	Market Participant	Yes	<p>In the relevant sector, both business ethics and payment transparency may play a significant role in investment decision-making and can be material. However, I do not agree with grouping the two in the manner that this questionnaire has. While they have a certain amount of overlap, payment transparency has distinct materiality considerations. The governance issues related to Chesapeake Energy's recent business ethics challenges had a material impact on the company's performance and are a strong indication of a material consideration. Payment transparency has distinct value with relation to materiality, as among other things, it may assist investors in assessing the efficiency of a company's capital structure and project development costs as well as both operating cash flow and estimations of future cash flows, among many other considerations. In addition, investors may benefit from the increased economic and political stability and improved investment climate that payment transparency promotes. Payment transparency made mandatory by virtue of disclosure requirements for oil, gas and mining companies registered with the SEC through Section 1504 of the Dodd-Frank Act has very significant investors support, which has recently included the submission of a letter supporting Section 1504 due to "investors' substantial interest in oil, gas and mining industry payment transparency" signed by investors representing more than \$5.6 trillion in assets under management (http://www.calvert.com/Documents/InvestorStatementtoSECregardingAPIvsSEC082813PUBLICLEGAL.pdf). Further, during the rulemaking process for Section 1504 investors representing more than \$1.2 trillion in assets under management submitted detailed comments to the SEC that emphasize the investors' support for the law and effort made explicit reference to the materiality of the disclosures the law compels. In addition, investors do not have access to the sufficiently detailed, reliable, consistent, and comparable data regarding host government payments, such as taxes, royalties and bonuses to account for the distinct material social, political and regulatory risks confronted by oil and gas companies. SEC commissioners have also made public statements that indicate the great value of payment transparency to investors. During the open meeting on August 22, 2012 at which the final rules for Section 1504 were announced, SEC Commissioner Luis Aguilar stated plainly, "[t]he final rule we consider today is in the interest of investors." (http://www.sec.gov/News/Speech/Detail/Speech/1365171490958)</p>
Oil & Gas - Exploration and Production	Business Ethics and Payments Transparency	Material issue?	Corporation	Yes	<p>investors are less concerned about this than they should be. north American companies operating internationally will become more affected by north American regulations and disclosure obligations regarding how they operate and "get things done" in regions that have "questionable" ethics. investors are often willing to turn a blind eye. as long as the company is profitable, investors don't really care how it happens. but companies that do not operate ethically will eventually pay the price, either economically (increasing "required" payments), through penalties and fines from their home government, or reputationally.</p>



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Oil & Gas - Exploration and Production	Business Ethics and Payments Transparency	Material issue?	Market Participant	Yes	Lack of transparency as well as clear guidance would create a space for corruption. In turn, corrupted practices and organizational culture will create various inefficiencies in the business processes, which could increase unjustifiable costs, delays as well as potential legal and regulatory risks. Increased public attention to bribes resulted in substantial deterioration of reputations for involved companies such as the cases of Siemens, ABB, Statoil as well as examples of other sectors such as Walmart. As many known carbon rich countries are notorious repressive regimes, combined with the fact companies are often required to have close-government ties, often through partnerships/JVs, lack of revenue transparency could create ideal environment for corruption while leave no defense for companies. These corrupted practices also have potential safety implication for company employees on the ground including risks of arrests, deterioration of community relations, particularly in the case involving 'unpopular' regimes. The potential social cost of corruption could be enormous, which would also have implication for the companies, including social unrest, political and economic instability among others. Due to unethical nature of corruption, some corruption cases resulted in resignation of executive officers, which could also disrupt the company's business operations aside from the financial costs.
Oil & Gas - Exploration and Production	Business Ethics and Payments Transparency	Material issue?	Corporation	Yes	Examples of true American companies (Enron, etc) applies
Oil & Gas - Exploration and Production	Business Ethics and Payments Transparency	Material issue?	Corporation	Yes	issues relating to corruption and transparency of government payments
Oil & Gas - Exploration and Production	Community Relations	Add Issue	Corporation	Aboriginal/in digenous engagement	Additional rights to communities (FPIC), as well as unique requirements and approaches for engagement
Oil & Gas - Exploration and Production	Community Relations	Add Issue	Corporation	Community relations should be stakeholder relations	Community relations doesn't take into account other stakeholder groups that industry is required to engage with such as ENGO's and other groups that would not be classified as community groups.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Oil & Gas - Exploration and Production	Community Relations	Inaccuracy	Corporation	D.N.A. - Inaccuracy	The narrative focused greatly on sustainability-related risks, not opportunities. E&Ps were correctly characterized as being capital intensive operations, but very few, if any, of the material issue descriptions highlighted a registrants ability to measure and disclose positive impacts resulting from E&P operations. For example, Community Relations could also include dollars (\$) per year invested in basic needs programs, local infrastructure or education. This would be a proxy for a registrant's commitment to the local community.
Oil & Gas - Exploration and Production	Community Relations	Inaccuracy	Corporation	D.N.A. - Inaccuracy	Consider separating Aboriginal/indigenous from community aspects, as they are unique and there are sensitivities when combining the two. Also there may be opportunities to combine aspects emergency preparedness and health and safety (aspects relating internally to workers and externally to community engagement).
Oil & Gas - Exploration and Production	Community Relations	Add Issue	Corporation	Human Rights	Human rights are frequently ignored, specifically in the USA. Look at UNGC and Rughie
Oil & Gas - Exploration and Production	Community Relations	Add Issue	Corporation	International operations	I'd add something about international operations to capture human rights issues, indigenous people's issues, corruption issues outside of the home country.
Oil & Gas - Exploration and Production	Community Relations	Material issue?	Corporation	Maybe	Clear definition of what this means would need to be provided. There is a large discrepancy between what companies consider systematic, disciplined and robust community relations.
Oil & Gas - Exploration and Production	Community Relations	Material issue?	Market Participant	Maybe	Community relations are important to manage in order to allow for a social license to operate, and while community relations could impact company operations and brand reputation, I'm not sure I'd consider this aspect of risks management to consistently rise to the level of material, although it could certainly be materials in some instances, particularly with respect to human rights issues and negative impacts on local communities if not managed properly.
Oil & Gas - Exploration and Production	Community Relations	Material issue?	Corporation	Maybe	This is without a doubt a material issue. But how to monetize it and discuss it in a way that is succinct and meaningful to the investor stumps me.
Oil & Gas - Exploration and Production	Community Relations	Material issue?	Corporation	Maybe	Yes, I believe it is material but would suggest the issue be re-titled or expanded.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/Response	Comment
Oil & Gas - Exploration and Production	Community Relations	Material issue?	Public Interest	Maybe	Community relations is a material issue insofar as license to operate is concerned - no doubt. My reservations have more to do with FPIC as a metric - most countries have not ratified ILO 169 and those who do have challenging implementing regulations. In general, SASB's definition of FPIC is much broader than the human rights and international legal understanding of the term.
Oil & Gas - Exploration and Production	Community Relations	Material issue?	Market Participant	Maybe	Poor community relations can affect a company's social license to grow but not necessarily operate. Once an operating license has been granted, it is very difficult to rescind or even curtail for any length of time – even after the use of deadly force or complete community or labor breakdowns. The material risk is having a community proactively step-in to stop an operating license before it is issued or stop an expansion of an existing operation. However, without access to growth, future cash flows and thus returns will suffer.
Oil & Gas - Exploration and Production	Community Relations	Material issue?	Corporation	Maybe	The oil exploration and production industry is very particular. As the O&G exploration scenario changes rapidly, for example, 10 years ago shale gas, arctic and tar sands were marginal to the E&P scenario. A change in scenario is accompanied by an alteration in the materiality of the sustainability risks the companies are exposed to. The majority of ESG-related information is generally backward looking. This contrasts with other investment-relevant parameters (eg oil prices or share prices) and with financial information that tends to be much more forward-looking. In my opinion, exploration and production indicators must be forward looking, that is, what is the potential of this to be material given the reserves of a company. Another particularity of the O&G E&P industry is the amounts they are accustomed to, in terms of investment, profitability, etc. For an issue to be material, the business must be impacted in quite a significant matter.
Oil & Gas - Exploration and Production	Community Relations	Material issue?	Corporation	No	As many operators have demonstrated, you can operate successfully without ever engaging stakeholders or giving away a dime, and even though I work in sustainability I have hard buying that lack of a "community relations" program is going to have a material impact on stock price or be a concern to shareholders. At the same time, do I think community relations are critical to social license? Absolutely! What is really the "material issue" here is "access to resources" or "community ordinances/moratoria" - being prevented from drilling is the material issue and that is likely to impact stock price and be a concern to investors.
Oil & Gas - Exploration and Production	Community Relations	Material issue?	Corporation	No	Community Relations are an extremely important issue, but are generally well-handled and may only have relatively minor impact at the local level.
Oil & Gas - Exploration and Production	Community Relations	Material issue?	Corporation	No	I don't see how this could be measured in a way that would provide investor insight to company valuation.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Oil & Gas - Exploration and Production	Community Relations	Material issue?	Market Participant	No	Land men need to have a good rapport with the towns where they want to purchase acreage. E&Ps need to be respectful of local regulations and not too heavy handed with regards to operations, particularly in smaller towns. However, I'm not sure why investors need incremental details around these types of efforts. It seems low of the list of items that investors would consider.
Oil & Gas - Exploration and Production	Community Relations	Add Issue	Market Participant	Relations with Indigenous Peoples	While the Community Relations section does include Indigenous Peoples and FPIC, Relations with Indigenous Peoples should have its own SASB section for materiality due to issues of sovereignty, self determination and cultural integrity.
Oil & Gas - Exploration and Production	Community Relations	Material issue?	Public Interest	Yes	Social license to operate is increasingly threatened in the O&G industry, particularly around unconventional resource developments (e.g. oil sands, shale), and community opposition is a key part of this.
Oil & Gas - Exploration and Production	Community Relations	Material issue?	Market Participant	Yes	The cost of obtaining community consent can be a small percentage of the project costs, but can avert large costs related to project delays, work stoppages, lawsuits and even sabotage.
Oil & Gas - Exploration and Production	Community Relations	Material issue?	Market Participant	Yes	I have always believed that attention to the needs of the communities in which you operate ensure your continued license to operate, and therefore your ability to be profitable. The evidence in the briefing would seem to support that engaging in community realtions can lead to significant financial benefits. \$6 million in community relations costs saved \$50 - \$72 million in avoided costs. That's a pretty good ROI.
Oil & Gas - Exploration and Production	Community Relations	Material issue?	Market Participant	Yes	Clear regulatory risk and business risk for future projects
Oil & Gas - Exploration and Production	Community Relations	Material issue?	Corporation	Yes	We operate in very stable and organized political jurisdictions. If we lose the favour of the communities where we operate we could lose our ability to access the resources and areas required for our business. Further the governments could impose larger costs to doing through policy and regulation.
Oil & Gas - Exploration and Production	Community Relations	Material issue?	Public Interest	Yes	I strongly feel that community relations should be a material issue as, domestically, the impact of exploration and production is extremely intensive towards local communities. Internationally, without strong community relations, production could be at risk due to local uprisings or conflicts with the broader country the company is working in.
Oil & Gas - Exploration	Community Relations	Material issue?	Corporation	Yes	Poor community relations could impact on the ability to gain and maintain a social licence to operate and could affect operational stability through strikes, sabotage, security challenges and lack of skilled personnel.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/Response	Comment
and Production					
Oil & Gas - Exploration and Production	Community Relations	Material issue?	Market Participant	Yes	Key infrastructure projects require the approval of affected communities. In Canada the First Nations have strong rights which impact potential pipeline routes. Keystone and refineries have been the subject of protests in the US.
Oil & Gas - Exploration and Production	Community Relations	Material issue?	Public Interest	Yes	In simple terms, it's a company's license to operate. Those that do it well have the luxury of enhancing their reputation. Those that do not, quite the contrary. Because the US industry is comprised of majors as well as independents and a host of small oil and gas developers, the variance in how companies may approach this can be quite variable. This area does not necessarily have a significant regulatory hammer that exhibits control as in other areas.
Oil & Gas - Exploration and Production	Community Relations	Material issue?	Market Participant	Yes	I believe the issue is especially important with respect to indigenous peoples.
Oil & Gas - Exploration and Production	Community Relations	Material issue?	Market Participant	Yes	Local acceptability of industrial projects is a major issue for companies. In the oil&gas upstream, where substantial revenues are being generated by operators extracting energy sources from the local natural resources reserves, this issue is even more emblematic. Developing and maintaining good relations with the local community through local development programmes is a key factor of a project's stability and resilience over time.
Oil & Gas - Exploration and Production	Community Relations	Material issue?	Market Participant	Yes	Oil and gas companies very often faces disputes with local communities, issues such as pollution, biodiversity degradation, land acquisition are often reported by media and NGOs. The problem occurs not only during the exploration processes but also during the research phases.
Oil & Gas - Exploration and Production	Community Relations	Material issue?	Corporation	Yes	Poor community relations is an indicator of poor social/environmental performance = loss in social licence to operate = loss in business.
Oil & Gas - Exploration and Production	Community Relations	Material issue?	Corporation	Yes	Good community relations can enhance license to operate while poor relations can impair this, resulting in lost opportunities and project delays.
Oil & Gas - Exploration	Community Relations	Material issue?	Market Participant	Yes	From Pennsylvania to Nigeria, there are many, many cases in which the local community has disrupted E&P operations to some degree.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
and Production					
Oil & Gas - Exploration and Production	Community Relations	Material issue?	Corporation	Yes	Aboriginal and community engagement are fundamental to the success of our business and our social licence to operate. Without the consent and support of those living and working near our operations, we would not be able to sustain the development of our resource base
Oil & Gas - Exploration and Production	Community Relations	Material issue?	Market Participant	Yes	In the relevant sector, community relations may play a significant role in investment decision-making and can be material. In particular, social license to operate is a material consideration in the planning and execution of oil and gas exploration and development projects in markets around the world.
Oil & Gas - Exploration and Production	Community Relations	Material issue?	Corporation	Yes	O&G companies often work literally in people's back yards. the impact on communities from both a social and aesthetic perspective is immediate. O&G companies must deal not only with communities, but with individual landowners to get consent to explore and to produce. engaging with communities from day one to communicate the company's expectations and long-term plans is essential. offering employment and training opportunities, and ensuring that the company gives back to communities is also essential to success. without community support, governments are unwilling to issue permits. the media also loves community unrest
Oil & Gas - Exploration and Production	Community Relations	Material issue?	Market Participant	Yes	As addressed in the Research Briefing, the strong oppositions to the specific operations could delay or cancel the projects, which also could lead to litigation when proceed without consent from the local communities. Further extent from the Research Briefing, one of the serious implication/impact of the poor community relations for decades (over a half century) as well as recurring spills and flaring, which further undermined the life of local communities, which resulted in emergence of various insurgencies, petroleum smuggling, which further increased the risks of spills/leaks, as well as sabotages in recent decade, which thus created decentralization of conflict, further resulted in operational suspensions and disruptions.
Oil & Gas - Exploration and Production	Community Relations	Material issue?	Market Participant	Yes	New reserves that can be accessed by public E&P companies (vs state owned oil companies) will increasingly be located in or near territories of Indigenous Peoples. In US local support is essential for new regions for expansion. Companies with effective community relations programs plus ones that respect human rights of Indigenous Peoples will gain, others will lose. SASB should also mention UN Declaration on the Rights of Indigenous Peoples - <<Discussion of due diligence practices with respect to human rights, indigenous rights, and operating in conflicts zones,>>
Oil & Gas - Exploration and Production	Community Relations	Material issue?	Corporation	Yes	Licence to operate



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Oil & Gas - Exploration and Production	Community Relations	Material issue?	Public Interest	Yes	Although there has been little evidence in North America of communities impacting economic performance, the indirect effects of community (and advocacy group) pressure can result in significant regulatory activity.
Oil & Gas - Exploration and Production	Community Relations	Material issue?	Corporation	Yes	Social license to operate, fair and equitable compensation and opportunities, beyond handouts, considering long term well-being
Oil & Gas - Exploration and Production	Does Not Apply	Add Issue	Corporation	Access to markets	Getting O& G products to markets is becoming an increasing issue particularly for Canadian producers. NA markets are becoming saturated and infrastructure is at capacity, with growing opposition to building new infrastructure.
Oil & Gas - Exploration and Production	Does Not Apply	Add Issue	Corporation	Access to resources	As noted earlier, local level ordinances or moratoria are a concern.
Oil & Gas - Exploration and Production	Does Not Apply	Add Issue	Corporation	Compliance	Regulations are sharpened worldwide and it is a challenge for existing businesses to meet new requirements. For references look at South African companies and how they approach this (carbon tax is an example)
Oil & Gas - Exploration and Production	Does Not Apply	Inaccuracy	Corporation	D.N.A. - Inaccuracy	materiality and comparability are key in determining useful reporting indicators
Oil & Gas - Exploration and Production	Does Not Apply	Inaccuracy	Public Interest	D.N.A. - Inaccuracy	Thank you
Oil & Gas - Exploration and Production	Does Not Apply	Inaccuracy	Public Interest	D.N.A. - Inaccuracy	All comments provided in earlier sections.
Oil & Gas - Exploration	Does Not Apply	Inaccuracy	Market Participant	D.N.A. - Inaccuracy	I had to read the brief very fast, so some of the comments I included (in the text fields) may have been addressed in the parts I skimmed.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
and Production					
Oil & Gas - Exploration and Production	Does Not Apply	Add Issue	Public Interest	Induced Seismicity	Potential impacts of Hydraulic fracturing activities on local seismic events
Oil & Gas - Exploration and Production	Does Not Apply	Add Issue	Public Interest	Potentially human rights	this is partially covered off in other categories
Oil & Gas - Exploration and Production	Does Not Apply	Add Issue	Corporation	Spills Management	Unless this falls under process safety, emergency preparedness and response already
Oil & Gas - Exploration and Production	Does Not Apply	Add Issue	Public Interest	Stranded assets	What if strict carbon policies are put in place, and a % of reserves are unburnable. How does that affect valuation?
Oil & Gas - Exploration and Production	Ecological Impacts	Inaccuracy	Corporation	D.N.A. - Inaccuracy	The brief focuses almost solely on the Arctic in the Ecological impact section. Negative ecological impacts can occur in all sensitive biodiversity areas, not only the Arctic. The brief reflects the current US situation (shale gas/tight oil issues), which is natural. However, the disclosure requirements will not only apply to onshore US operations. The difference between onshore and offshore operations and between conventional and unconventional resources could be highlighted more in terms of what the material issues for the sector is.
Oil & Gas - Exploration and Production	Ecological Impacts	Material issue?	Market Participant	Maybe	This issue does not seem material across the entire E&P industry and seems to overlap with other issues such as water impacts and waste management. There are more risks for companies drilling offshore but most companies are not. I think the connection between disposal of wastewater and seismic activity is still the focus of much research but is presented as somewhat definitive. Overall, the evidence on this issue seems weaker than in others.
Oil & Gas - Exploration and Production	Ecological Impacts	Material issue?	Corporation	Maybe	I believe this will be very difficult to measure with consistency.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Oil & Gas - Exploration and Production	Ecological Impacts	Material issue?	Market Participant	Maybe	Compared to climate change impacts on eco-systems, local project development is immaterial. Having assessed long-term eco-system impacts of O&G exploration and production projects, the O&G companies seem to have a far better grasp on potential risks and solutions than the environmental regulators. The one possible exception is large-scale oil sands development. Many point to habitat reduction and alteration, which is a concern. However, the biggest eco-system risk is the fundamental shifts in water balances and the weakening of key Boral forest locations – thus allowing potential pest and non-native species infestations. However, history shows there is little risk of assigning financial liabilities to these kinds of eco-system mishaps – difficult to prove in court, much less assign damages without legal provisions for strict liability.
Oil & Gas - Exploration and Production	Ecological Impacts	Material issue?	Market Participant	Maybe	same as community relations response
Oil & Gas - Exploration and Production	Ecological Impacts	Material issue?	Corporation	Maybe	Very difficult to assess, and not applicable to all operations.
Oil & Gas - Exploration and Production	Ecological Impacts	Material issue?	Corporation	Maybe	The oil exploration and production industry is very particular. As the O&G exploration scenario changes rapidly, for example, 10 years ago shale gas, arctic and tar sands were marginal to the E&P scenario. A change in scenario is accompanied by an alteration in the materiality of the sustainability risks the companies are exposed to. The majority of ESG-related information is generally backward looking. This contrasts with other investment-relevant parameters (eg oil prices or share prices) and with financial information that tends to be much more forward-looking. In my opinion, exploration and production indicators must be forward looking, that is, what is the potential of this to be material given the reserves of a company. Another particularity of the O&G E&P industry is the amounts they are accustomed to, in terms of investment, profitability, etc. For an issue to be material, the business must be impacted in quite a significant matter.
Oil & Gas - Exploration and Production	Ecological Impacts	Material issue?	Market Participant	Yes	Clear regulatory risk and business risk for future projects
Oil & Gas - Exploration and Production	Ecological Impacts	Material issue?	Market Participant	Yes	One need only look at the BP Deepwater Horizon Disaster, for an example of materiality.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/Response	Comment
Oil & Gas - Exploration and Production	Ecological Impacts	Material issue?	Corporation	Yes	This is one were I have the most reservations out of the proposed list. This currently less of a concern for us than air or water as we do not have any operations we a large land footprint. This is definately material for E&P companies engaged in open pit mining.
Oil & Gas - Exploration and Production	Ecological Impacts	Material issue?	Corporation	Yes	Ecological impacts could have significant effects on the livelihoods of local communities (f.ex. fisheries) or affect biodiversity rich areas. Ecological impacts of e.g. massive spills could lead to significant financial impacts.
Oil & Gas - Exploration and Production	Ecological Impacts	Material issue?	Market Participant	Yes	Oil companies are moving into frontier environments all the time, increasing potential overlap with sensitive environments. The Arctic is becoming a key issue for the sector, and this should be brought out perhaps.
Oil & Gas - Exploration and Production	Ecological Impacts	Material issue?	Corporation	Yes	Increasingly ecological systems are being values for many purposes. AS this trend continues I believe their will be increasing pressure on the extractive sector to either move operatoins out of certain areas, be restricted from entering certain areas, etc.
Oil & Gas - Exploration and Production	Ecological Impacts	Material issue?	Public Interest	Yes	I was conflicted whether to place this into material or material with reservations. The key point here is that NO oil and gas company can afford to not consider ecological impacts in their development/ operation of oil and gas resources. Doing so would cause a public outcry that could substantially damage their reputation.
Oil & Gas - Exploration and Production	Ecological Impacts	Material issue?	Market Participant	Yes	Would it be at all useful to think about ecological impacts in the context of Scope III emissions? That is, if we do burn all the fossil fuel reserves proven now, we blow through 2 degrees and make warming of 4 degrees much more likely; the ecological impacts of that are profound.
Oil & Gas - Exploration and Production	Ecological Impacts	Material issue?	Market Participant	Yes	While somewhat overlapping with GHG emissions, other ecological impacts from industry accidents, e.g., the Exxon Valdez, or ill-conceived development plans, e.g., in the Alaska National Wildlife Refuge, can create enormous financial obligations and reputational risk.
Oil & Gas - Exploration and Production	Ecological Impacts	Material issue?	Corporation	Yes	You quote our 2012 10-K statement on decommissioning. We recognize that one-off events such as the Deepwater Horizon Oil Spill can have a major impact on ecosystems.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Oil & Gas - Exploration and Production	Ecological Impacts	Material issue?	Market Participant	Yes	Oil&gas upstream operations have a high local environmental impact. Whether it's offshore E&P or land unconventional resources, those impacts represent important risks that have to be managed, but also opportunities that can represent additional value - for example, some best-in class companies in Europe utilize offshore platforms to develop comprehensive marine biodiversity studies and management plans. Such actions can ensure a better acceptability both by local communities and by the authorities, and therefore contribute to a better overall performance for the E&P company.
Oil & Gas - Exploration and Production	Ecological Impacts	Material issue?	Corporation	Yes	Ecological impacts are environmental externalities associated with mining activities, and with increasing regulatory and community driven scrutiny, are likely to be significant sources of risk impacting commercial performance of projects and operations.
Oil & Gas - Exploration and Production	Ecological Impacts	Material issue?	Corporation	Yes	Cumulative impacts and specifically wildlife (caribou) management have come under increased scrutiny in the oil sands industry - with the forecasted growth of the oil sands, the aggregate effect of industry will become a material issues for all companies to manage
Oil & Gas - Exploration and Production	Ecological Impacts	Material issue?	Market Participant	Yes	In the relevant sector, ecological issues may play a significant role in investment decision-making and can be material. For example, ecological issues related in biodiversity are often a material consideration in tailings treatment and disposal in oil sands mining.
Oil & Gas - Exploration and Production	Ecological Impacts	Material issue?	Corporation	Yes	this is less pertinent than in the mining industry because the physical footprint of an O&G company is generally smaller. but any negative impact on flora and fauna is visible and frequently the source of public outcry. ecological impacts also attract the attention of NGOs, and of media. negative ecological impacts lead to decreased public support and increased public scrutiny, can negatively a company's reputation and can result in not getting or losing permits. no permits, no project
Oil & Gas - Exploration and Production	Ecological Impacts	Material issue?	Market Participant	Yes	As explained in the research briefing, it's clear that the E&P operations impact Given the interconnected nature, any ecological impact would results in various reactions due to its impact on human society. Given the lengths of impact, there is a possibility of long-term risks as well such as the case of Gulf of Mexico, which recent study uncovered the initial assessment underestimated the real impact due to dispersant, and actual long-term impact is much worse than the initial conclusion by the government. We also need to acknowledge many natural resources birds, fishery and forest would in-tern impacts some communities' livelihoods, including indigenous communities. As in many other issues, there will be some degrees of duality.
Oil & Gas - Exploration	Ecological Impacts	Material issue?	Corporation	Yes	ties into water, waste and air/emissions...could combine if needed (excluding greenhouse gasses, due to additional climate change concerns)



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
and Production					
Oil & Gas - Exploration and Production	Employee health, safety & well-being	Add Issue	Market Participant	Labor relation	E&P companies are faced with an aging work force and a complicated transfer of knowledge from one generation to another. Furthermore the labor force usually works under fairly harsh and family unfriendly conditions where being three weeks on, three weeks off or some similar combination are fairly common. so in addition to safety issues, issues of training, benefits, working conditions, and retention during downturns are material to long term health and smooth functioning of the company. This industry will be functioning for at least another 15 to 20 years until renewables can really replace fossil fuel and it is important that working conditions be healthy and that proper planning be made. (if the industry really begins to experience decreased demand in the 2030 time frame as some analyst have projected and some of us are hoping, then all the more reasons to get proper labor force planning and transition)
Oil & Gas - Exploration and Production	Energy Management	Add Issue	Corporation	Embedded Energy per unit of output	Please consider reporting both the absolute energy consumed, as well as, energy consumed (Kwh) per unit (barrel of oil or btu of gas) produced. This will demonstrate efficiency gains and future energy cost projections.
Oil & Gas - Exploration and Production	Greenhouse Gas Emissions	Inaccuracy	Market Participant	D.N.A. - Inaccuracy	A minor comment - p. 8 last sentence, "the industry might face difficult borrowing conditions, as the trend to divest from fossil fuels gains more traction with major funds and insurance companies." First of all, and this is most likely because I work at a bank, when I see "borrowing" I think of banks lending (and banks are still lending!), and with funds and insurance I think of investing equity. I guess companies can also borrow through a debt offering on capital markets (bonds) which funds and insurance companies may buy. But might be more accurate to say "may face difficulty raising equity and debt in the capital markets." But really, when I read that I thought it was probably too optimistic (from an environmentalists pov that is!) - there is still plenty of cash for the fossil fuel industry. Maybe a way to tamp down that statement would be to more factual and less predictive, say "A small but growing number of major funds and insurance companies are starting to divest from fossil fuels due to the high GHG intensity of the industry." And a minor editing nit, but on p.1, 3rd paragraph, and p. 2, 3rd paragraph, there are some numbers written out and some in numerics, "... natural gas liquids another four percent. The US produced about 9 million barrels per day..." - unless there is some MLA style reason why single digit percents are written out it seems they should all be numbers (my inner copy editor gets distracted by it!)
Oil & Gas - Exploration and Production	Greenhouse Gas Emissions	Inaccuracy	Corporation	D.N.A. - Inaccuracy	I understand SASB has a MOU, or similar, with CDP...but would SASB consider including in its guidance a registrant's CDP Disclosure and/or Performance Score as an aggregate measure of a company's performance related to climate change impacts? Scope 1 by activity, as requested in this survey, is material and cost effective, however CDP has a robust scoring methodology that, should SASB include, investors could easily access for comparability vs. referencing external CDP reports.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Oil & Gas - Exploration and Production	Greenhouse Gas Emissions	Inaccuracy	Corporation	D.N.A. - Inaccuracy	page 7 reference to oil sands being 70 to 110 percent higher in life cycle emissions is incorrect. based on latest reports from CERl the numbers are from -2% to 15% higher than the average of US fuels in life cycle analysis. (comparison is heavy Monterey, Mexican and Venezuelan. Also, lighter Bakken is offset by the entirety of flaring associated gas that must be included in the comparison.) Pg 18 Evidence. It is erroneous to compare Safety Statistics for the E&P industry to all US workers. Need to compare it to other heavy industries not office workers on Wall Street. In fact, within Canada, the fatality rate for the e&p industry including offshore is extremely low relative to other industries. Also important to note that the majority of fatalities are due to air transportation over which the E&P has limited control. That is the purview of TSB.
Oil & Gas - Exploration and Production	Greenhouse Gas Emissions	Material issue?	Market Participant	Maybe	It matters but not disproportionately material to this sector relative to other ESG factors
Oil & Gas - Exploration and Production	Greenhouse Gas Emissions	Material issue?	Market Participant	No	Connecting lower GHG emissions and improved shareholder returns are a challenge, and I struggle to come up with a clean way for an oil and gas company to collect and report this type of data to investors in a timely and efficient manner.
Oil & Gas - Exploration and Production	Greenhouse Gas Emissions	Material issue?	Public Interest	Yes	Global action on climate change poses a direct threat to long-demand demand for oil and gas, and therefore threatens the industry's long-term business strategy.
Oil & Gas - Exploration and Production	Greenhouse Gas Emissions	Material issue?	Market Participant	Yes	GHG emissions are the largest threat to E&P sustainability.
Oil & Gas - Exploration and Production	Greenhouse Gas Emissions	Material issue?	Market Participant	Yes	I believe that at some point in the near to mid-term (5 to 10 years)the U.S. will establish some system for carbon pricing and companies will need to manage GHGs accordingly. I also think that companeis that don't demonstate they are attentive to managing the carbon footprints face real-time risk to their reputations and subsequently there ability to operate and be profitable.
Oil & Gas - Exploration and Production	Greenhouse Gas Emissions	Material issue?	Public Interest	Yes	the SEC has stated that a 5% threshold is acceptable for determining materiality of disclosure - a price on carbon for this sector would cause companies in this sector to vastly exceed this percentage - whether there ever is a real price on carbon established is a question, however investors need to know the potential future risk of this happening



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Oil & Gas - Exploration and Production	Greenhouse Gas Emissions	Material issue?	Market Participant	Yes	Too early
Oil & Gas - Exploration and Production	Greenhouse Gas Emissions	Material issue?	Corporation	Yes	GHG emissions are a material issue because our industry is being regulated on this (e.g. green completions) and because we're likely to face additional taxes or be required to develop and implement new technologies that will have very real capital costs or revenue implications.
Oil & Gas - Exploration and Production	Greenhouse Gas Emissions	Material issue?	Market Participant	Yes	They are subject to significant regulation risk. Large GHG emitters are also prone to "borrowing risk" as a result of the campaigns to divest from fossil fuels or to construct carbon free portfolios.
Oil & Gas - Exploration and Production	Greenhouse Gas Emissions	Material issue?	Corporation	Yes	Over 95% of our GHG emissions are subject to cap-an-trade legislation due to the jurisdictions where we have operations. There is a direct financial cost (or benefit) associated with GHG management.
Oil & Gas - Exploration and Production	Greenhouse Gas Emissions	Material issue?	Public Interest	Yes	EPA regulations and state regulations (as well as potential international regulations) would significantly affect the cost of doing business by increasing the cost of energy inputs, but also potentially decrease the demand for oil.
Oil & Gas - Exploration and Production	Greenhouse Gas Emissions	Material issue?	Corporation	Yes	Hihgly material due to climate change concerns, and potential price on carbon, as well as "unburnable hydrocarbons" in the future. High on the investor agenda.
Oil & Gas - Exploration and Production	Greenhouse Gas Emissions	Material issue?	Corporation	Yes	GGE doesn't help the natural climate change that is occuring, so it should be monitored. It is not a direct threat though.
Oil & Gas - Exploration and Production	Greenhouse Gas Emissions	Material issue?	Market Participant	Yes	Measures to improve vehicle efficiency in order to reduce GHG emissions will impact demand. The US has fallen behind on vehicle efficiency but measures are now coming in which will impact demand. There is currently only a passing mention of CAFE standards and the impact on the market for oil products for road transport. There should be a distinction between oil and gas as they are used for different purpose primarily (ie transport vs power). Also there is increasing competition between fuels, so gas may benefit as a lower carbon fuel in some markets at the expense of coal (as has been seen in the US)



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/Response	Comment
Oil & Gas - Exploration and Production	Greenhouse Gas Emissions	Material issue?	Market Participant	Yes	Oil and gas is likely to be the most impacted by new legislation placing limits on GHGs.
Oil & Gas - Exploration and Production	Greenhouse Gas Emissions	Material issue?	Public Interest	Yes	Oil & gas is a carbon intensive industry and thus this area is best suited as the air quality (and environmental, business and societal issue). The industry's efforts to mitigate emissions, improve the quality of their products and leverage innovation is critical and is a tenuous balance for them to achieve. In the long term, these companies will need to transition the makeup of their operations as resources are utilized and depleted over time. It is important that SASB address existing disclosure venues here, as well. Climate change disclosure is already addressed through SEC Reg S-K per the SEC's 2010 interpretive release. And I don't recall any significant mention of how extensively oil and gas companies are disclosing through CDP; albeit not mandatory, a venue requiring very complex disclosure and one where companies' performance is ranked.
Oil & Gas - Exploration and Production	Greenhouse Gas Emissions	Material issue?	Market Participant	Yes	The list of issues in the industry doesn't address the unburnable carbon issue thoroughly. Granted, there are no regulations anywhere that make fossil fuel reserves unburnable at the moment, but the argument has really taken hold, and our own experience at Pax tells us that the industry is listening, at least, if not responding. The more the climate changes, the greater the pressure to make reserves of carbon unburnable, which essentially turns reserves into stranded assets.
Oil & Gas - Exploration and Production	Greenhouse Gas Emissions	Material issue?	Market Participant	Yes	There are POSITIVE criteria that should also be considered as well. Jobs and other contributions to local economies come to mind.
Oil & Gas - Exploration and Production	Greenhouse Gas Emissions	Material issue?	Corporation	Yes	Hydrocarbons are a major source of anthropogenic greenhouse gas emissions and thus places the industry at risk from ghg pricing, regulation and substitutes.
Oil & Gas - Exploration and Production	Greenhouse Gas Emissions	Material issue?	Market Participant	Yes	The issues of unburnable carbon, of total life cycle of oil and gas, of including the total costs of energy in the economics of a project, and the rising risks for oil&gas companies of implementing the principle of the "polluter pays" have constituted a threat for the E&P sector for many years. Today, this threat is closer to becoming binding regulation in many countries, including the US. It is a top priority for any reasonable investor to take GHG emissions in account when valuing an E&P project.
Oil & Gas - Exploration	Greenhouse Gas Emissions	Material issue?	Corporation	Yes	GHG emissions are environmental externalities currently unpriced in many jurisdictions, but likely to be so in the medium-term based on domestic and international analogues (e.g. British Columbia, California, Australia).



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
and Production					
Oil & Gas - Exploration and Production	Greenhouse Gas Emissions	Material issue?	Corporation	Yes	First it is measureable, second there will be a day were corporations will have to pay for carbon emission (via cap and trade or other free market trade for emmission credit) and finally the potential for future cost implications due to permit costs and requirements or mitigation equipment.
Oil & Gas - Exploration and Production	Greenhouse Gas Emissions	Material issue?	Public Interest	Yes	Given climate change concerns and fossil fuel contributions to climate change, hard not to include as material to the business.
Oil & Gas - Exploration and Production	Greenhouse Gas Emissions	Material issue?	Corporation	Yes	GHG emissions/climate change is the most significant environmental issue for E&P.
Oil & Gas - Exploration and Production	Greenhouse Gas Emissions	Material issue?	Market Participant	Yes	They are major emitters, and there is significant risk of additional legislation and/or taxes.
Oil & Gas - Exploration and Production	Greenhouse Gas Emissions	Material issue?	Corporation	Yes	GHG emissions are currently regulated by the gvt of Alberta however the intentions to impose greater regulation by our provincial and/or federal gvt continue to be discussed. Loss of market, increased compliance costs, permitting delays, substantial costs to generate or purchase emission credits or allowances which may add costs to the products we produce, and reduced demand for our crude oil are possible adverse impacts to our business if GHG regulations are enacted.
Oil & Gas - Exploration and Production	Greenhouse Gas Emissions	Material issue?	Market Participant	Yes	In the relevant sector, air quality issues may play a significant role in investment decision-making and can be material. Like water management and air quality, GHG emissions issues may have a significant influence on investment considerations including project economics and efficient capital allocation.
Oil & Gas - Exploration and Production	Greenhouse Gas Emissions	Material issue?	Market Participant	Yes	Unlike local air or water pollution issues that are transient and can be managed with quick improve, detrimental Climate impacts will continue to increase as a constant reminder to the public and thus politicos, regulators as well as reasonable investors. Given the established "polluter pays" principle, the total O&G value chain will be at increased risk.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/Response	Comment
Oil & Gas - Exploration and Production	Greenhouse Gas Emissions	Material issue?	Corporation	Yes	GHG emissions and their impact on global warming (and whether global warming) are a topic of worldwide debate. regardless of whether people global warming is real or not, I think everyone would conceded that if it IS real, GHG emissions are a likely culprit. people would also likely agree that fossil fuels are the primary source of GHG emissions. O&G companies are the ones that extract fossil fuels and to many are individuals, O&G companies are equated with GHG emissions and therefore global warming. how the public and government react to GHG emissions will directly impact O&G companies, whether through additional regulation or reduced consumption
Oil & Gas - Exploration and Production	Greenhouse Gas Emissions	Material issue?	Market Participant	Yes	Given the current scientific consensus on GHGs and their impacts on climate change, and the fact that E&P involves various types of potent GHGs throughout its life cycle of operations,it is not a question of whether GHG is material, but rather how much and how can each companies mitigate such impact. As growing number of studies uncovering new types of GHG sources such as methane migration, fugitive methane, venting and flaring, it is crucial for stakeholders to obtain precise data to assess such risks. In addition, recent increase in off-shore/deep sea operations would further increase risks of impacting methane hydrate clusters regardless of intentions. As related issue, re-injection operation would also increase risks of releasing further GHGs, either as CO2 or methane. Regarding fugitive methane, I believe they are also relevant in terms of water quality/management issues, and I was curious how SASB connects/addresses these multi-section overlapping issues. Lastly, the growing physical impact of climate change will further intensify the scrutiny of E&P companies as well as potential risks of new regulations, lawsuits, which will add further material risks to their operations, including delays or cancellation of specific projects. As a separate but related issue for E&P would be physical risks of climate change, which has been impacting various operations due to increase of extreme events such as hurricane, wildfires, rising sea level among others, these risks would impact the company for both short-term as well as long-terms.
Oil & Gas - Exploration and Production	Greenhouse Gas Emissions	Material issue?	Market Participant	Yes	Global climate change will increasingly force reduced use of fossil fuels and companies with most carbon efficient operations should benefit most. However, would like GHG data for different regions and business lines vs. total GHG emissions for the company
Oil & Gas - Exploration and Production	Greenhouse Gas Emissions	Material issue?	Corporation	Yes	Climate change!!



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Oil & Gas - Exploration and Production	Greenhouse Gas Emissions	Material issue?	Corporation	Yes	GHG are material, but not the current operational emissions. The material emissions of GHG to O&G E&P are the potential reserves emissions. Investors must understand that companies with heavy oil reserves are more exposed to climate change risk than companies with natural gas reserves. The risk of future restriction on emissions can pose a significant threat to producers. In addition, most of the GHG emissions are in product use, not in the exploration process. http://pdf.wri.org/changingoil_full.pdf
Oil & Gas - Exploration and Production	Greenhouse Gas Emissions	Material issue?	Public Interest	Yes	The oil and gas sector is at the center of the climate change debate. Even though upstream E&P companies may have relatively lower emissions than other sectors, there is clear perception that action is needed. Moreover, for non-traditional fuels (oil sands, tight gas, etc) there is ongoing debate as to whether these fuel sources are more opr less efficient than high GHG emissions fuel sources (such as coal). To develop a responsible energy future, E&P companies must be able to demonstrate and deliver a lower carbon energy mix. In more concrete terms, as carbon tax/trading/regulations mature, E&P companies will need to build the cost of carbon into economic forecasting.
Oil & Gas - Exploration and Production	Greenhouse Gas Emissions	Material issue?	Corporation	Yes	Issues mainly relating to flaring and venting activities, along with refinery operations
Oil & Gas - Exploration and Production	Industry definition	Comment on Brief	Market Participant	D.N.A. - Comment on Brief	It would have been useful to clarify whether the focus here was on strict E&P companies or integrated companies with E&P operations. I found I had to continually remind myself what companies we were talking about.
Oil & Gas - Exploration and Production	Industry definition	Inaccuracy	Market Participant	D.N.A. - Inaccuracy	Some suggestions for clarification that may enhance the document: Would suggest you check the Capex figures cited on p2, reference v. It is not clear if this is per annum. They seem quite low given what just the majors spend per year. Maybe Bloomberg would be a better source. p7 Methane emissions do not necessarily cost revenues - this is only the case if it is economic to get the gas to a market - usually through Liquefaction to LNG. p8 I am not clear why divestment would have an impact on borrowing costs. p22 I think there needs to be some distinction between oil and gas as they are used for very different things, and have different carbon contents, markets and prices. Oil is primarily used for transport and therefore does not generally compete directly with renewables without the electrification of transport. This distinction may add value if applied at other points in the documents also as gas faces different challenges to oil.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Oil & Gas - Exploration and Production	Industry definition	Inaccuracy	Public Interest	D.N.A. - Inaccuracy	Page 1, paragraph 2, line 9. Please edit "tar sands" and change to "oil sands". the latter is the term used by industry and throughout your report, while the former (tar sands) is a politically motivated term used to tarnish the industry. the use of the phrase "tar Sands" indicates the author is against the industry. Thank you.
Oil & Gas - Exploration and Production	Industry definition	Inaccuracy	Market Participant	D.N.A. - Inaccuracy	Not so much inaccuracies but it could have been more precise in terms of focusing on evidence from E&P companies. Most of the examples in the paper are large, integrated companies such as BP, Shell, ExxonMobil. These are not your average E&P companies. There are also references to oil sands but in my mind there are very few E&P companies operating in the oil sands. Most are the larger, integrated companies with the exception of Devon maybe and they are in situ producers.
Oil & Gas - Exploration and Production	Industry definition	Inaccuracy	Market Participant	D.N.A. - Inaccuracy	In paragraph 2 of "industry summary" the "application of thermal, mechanical..." does not only apply to unconventional resources. It is also used during production of many conventional reservoirs. In some areas exploration and production costs were mixed, when the discussion only really referred to one or the other.
Oil & Gas - Exploration and Production	Industry definition	Inaccuracy	Corporation	D.N.A. - Inaccuracy	Please consider the peculiarities of this industry. Within the O&G sector, E&P has very different materiality issues. There is a need for more forward looking indicators and less backward looking. As the O&G exploration scenario changes rapidly, for example, 10 years ago shale gas, arctic and tar sands were marginal to the E&P scenario. A change in scenario is accompanied by an alteration in the materiality of the sustainability risks the companies are exposed to. The majority of ESG-related information is generally backward looking. This contrasts with other investment-relevant parameters (eg oil prices or share prices) and with financial information that tends to be much more forward-looking. In my opinion, exploration and production indicators must be forward looking, that is, what is the potential of this to be material given the reserves of a company. Another particularity of the O&G E&P industry is the amounts they are accustomed to, in terms of investment, profitability, etc. For an issue to be material, the business must be impacted in quite a significant matter. E&P is intricately related to energy independence of countries. Thus governments tend to ease laws in order for industry to bloom. This means that issues such as waste and air quality tend to not impact the bottom line of these companies. Overall, great job!
Oil & Gas - Exploration and Production	New Issue	Add Issue	Corporation	Board Oversight and Independence	Mechanisms and controls in place to ensure appropriate levels of oversight and independence
Oil & Gas - Exploration and Production	New Issue	Add Issue	Public Interest	Contractor HSE	health, safety and environmental performance of significant contractors and the tools and systems used by company to engage contractors on these areas



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Oil & Gas - Exploration and Production	New Issue	Add Issue	Corporation	Contractor management	Contractor management should be called out as its own issue as so much O&G work is contracted out and increasingly companies are trying to put more and more of the responsibility on their contractors. E.g., spills being reported as the responsibility of the company responsible for transportation as opposed to the company responsible for the product.
Oil & Gas - Exploration and Production	New Issue	Add Issue	Market Participant	Contractor Management and Supervision	Although Workforce Health, Safety & Well-being could function as an umbrella for covering contractor management, not addressing the disclosure of specific management systems that govern the interaction between the operators and contractors, could alter “total mix” of information made available to an investor. Research by OGP on safety shows that in 2011 around 78% of the work hours in the industry were worked by contractors. BP reports that in 2012, 55% of the 402 million hours worked by BP were carried out by contractors. In the last years, there were contracting companies involved in most major industry incidents with severe material impact. If you look at the graph at bottom page 1-1 of the document attached you will see that the increase of the use of contractor labor force by the industry is a significant trend since the 80’s. My argument is that incident prevention is increased when operators have a system in place that outlines the interaction between operators and contracting companies. In terms of metrics, investors may want to know whether capability assessment tools are used prior to tenders, whether contractors are audited on safety performance on a regular basis, and whether corrective measures are taken.
Oil & Gas - Exploration and Production	New Issue	Add Issue	Market Participant	Conventional vs. unconventional	some clear disclosure should be there regarding the % of production coming out of unconventional (oil sands, shale etc..)
Oil & Gas - Exploration and Production	New Issue	Add Issue	Public Interest	Corporate Governance	As mentioned in my response, for this and most other industries based in the US, corporate leadership (CEO and Board chair) is most often vested in one person. Since the CEO is technically accountable to the Board, a better governance model is to have different individuals in these positions, ensuring that the Board 'independently' exercises its fiduciary responsibility. Note I have not provided any documents below, as there is a veritable cornucopia of material published on this issue. One place to start would be the ICCR website.
Oil & Gas - Exploration and Production	New Issue	Add Issue	Market Participant	Corporate political activity (Disclosure of direct and indirect spending)	Political activity is noted in the brief, but rejected as material issue. Oil and gas industry is among the most active politically, potentially leading to perverse market incentives that focus on the industry's short-term interests, potentially at the expense of its long-term interests, and also exposes the industry firms to reputational risk. Shareholder interest is high given particularly high votes on political disclosure proposals at E&P companies (47% at Valero in 2009 and Anadarko in 2012, 46% at Hess in 2013, 45% at Chesapeake in 2012, among others). Finally, the sources cited in the brief, particularly the Manhattan Institute study, are partisan and unreliable.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Oil & Gas - Exploration and Production	New Issue	Inaccuracy	Market Participant	D.N.A. - Inaccuracy	I must say the brief is really complete and it will a useful consultation tool for me. I think the survey has a little bit of a bias towards weight to shale gas metric. While I understand that developents in the US are large, the rest of the world is moving in slower pace so companies will no be able to report on many of the issues you demand, as many of the shale assests they own are not developed yet. Finally, one more thought: if you would agree with me that the increse of unconventional production increases the social and environmental material risk of an opearion, you could argue that it would be useful if companies would break down their producing assets, and their reserves into conventional and unconventional, and do a further breakdown of the types of unconventional assets they have. The copany's E and S material risk profile of company would become cleared to investors.
Oil & Gas - Exploration and Production	New Issue	Inaccuracy	Public Interest	D.N.A. - Inaccuracy	The one aspect I didn't see covered is the issue of joint ventures & subsidiaries being hidden by the ultimate owner or owners of such companies in this sector. This has been a specific problem, which if not addressed, could allow for filings to avoid covering significant areas of business otherwise critical for capturing in the metrics you have described. Capturing this is critical.
Oil & Gas - Exploration and Production	New Issue	Inaccuracy	Corporation	D.N.A. - Inaccuracy	I would recommend that the brief provide more of a global perspective on the oil & gas industry with respect to issues and regulatory requirements. The brief tended to be mostly US focused despite the global nature of this industry. There also was little mention of Canada's industry including oilsands specifically which in my opinion should be included in greater detail because of the uniqueness of oilsands operations. Also, there should be more focus on the global nature of these material issues given the maturity of other markets including Europe with EUETS among other countries where regulatory requirements and sustainability reporting generally is more advanced and mature than in North America. In my opinion, the social capital section was too limited and should be expanded upon given the increasing importance of hte "social license to operate" which is a core issue across industry no matter where operations take place. Human Capital -This section is limited and doesnt' truly reflect what human capital is holistically. I suggest adding more context and content to this section. This section only focuses on employee health and safety but doesn't touch on well being etc of employee base which becomes crucial for organizations that depend on the local workforce in the communities where they operate. Suggest including a mention of COSIA in Canada as it relates to sharing of information among oilsands operators to improve and collectively develop tehcnology to help reduce the environmental impacts of oilsands operations.
Oil & Gas - Exploration and Production	New Issue	Inaccuracy	Market Participant	D.N.A. - Inaccuracy	The discussion regarding the materiality, or lack thereof, of political spending and lobbying relies on partisan, for-hire research and ignores more credible sources. I believe it is a material issue for this industry, but regardless the brief should be more thoughtful and detailed in its research, analysis and discussion.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Oil & Gas - Exploration and Production	New Issue	Add Issue	Public Interest	Environmental Innovation	Investments in new environmental technology help companies maintain a competitive advantage by unlocking value in new, more efficient ways of doing business. Environmental investments in the oil and gas industry are undertaken to create or use new technology to reduce impacts such as greenhouse gas emissions, energy use, and spills.
Oil & Gas - Exploration and Production	New Issue	Add Issue	Market Participant	Financing activities (including lobbying, political contribution, other (potential sources of conflict of interest) disclosure	Companies to have any financing activities including political contribution, lobbying or even academic research without having any proper oversight by stakeholders allows them to improperly influence/challenge key regulations or even scientific debate over company's operational impact on society and the environment as well as broader issues such as issues around climate science, as partially discussed in the 'Watch List' section of the Briefing. The key issue here is not whether SEC would rule on disclosure or not, but to have the lack of transparency, which could exacerbate the organizational culture of impunity and also might create space for corruption or allowing the company continuing critical activities without accountability (oversight). Shareholders (and other stakeholders) need to be able to make decision whether the company's financing activities are conducted, whether it is political contribution or even academic research financed by the company need to be disclosed. This is a key information need to be disclosed for investor to assess the company's overall sustainability risks. It's not only limited to regulatory issues, but also could corrupt the scientific debate on climate change, methane migration or any other ESG issues that potentially having direct material impact on the company or other stakeholders, which in turn to affect the company through regulatory, reputational or litigation risks by actions of stakeholders. Even having policy on these financing activities or descriptive strategies could help.
Oil & Gas - Exploration and Production	New Issue	Add Issue	Market Participant	Gender equality	Any successful company has to consider this issue as important while measuring their overall performance. This is especially true for oil&gas upstream, where traditional culture could pose potential risks for internal conflicts and damage the company's reputation.
Oil & Gas - Exploration and Production	New Issue	Add Issue	Market Participant	linking sustainability performance metrics to executive compensation	If executives are not incentivized to be mindful and responsible for a firm's performance an ESG considerations that could materially impact the firm, there is less of a likelihood that executives will place the emphasis necessary on ESG performance.
Oil & Gas - Exploration and Production	New Issue	Add Issue	Market Participant	Other governance considerations, such as ESG	Board and senior executive-level accountability for ESG issues management is a material consideration. Diversity is also a material consideration, because of the need of the industry to optimize its access to qualified and capable employees, among other considerations.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response oversight and diversity	Comment
Oil & Gas - Exploration and Production	New Issue	Add Issue	Corporation	Regulatory or Permit Violations	Disclosure about Regulatory or Permit Violations demonstrates a great deal about an organization's ability to manage itself within the bounds of the regulatory environments where it operates. Poor performers may see increased fines and sanctions and may also be more likely to be shutdown by regulators. They may also be more of a target for negative public attention as in many jurisdictions this information is available publically through government websites.
Oil & Gas - Exploration and Production	New Issue	Add Issue	Public Interest	Supply chain transparency and responsibility	The Oil & Gas E&P Industry is heavily dependend of contractors and a big supply chain. Topics like compliance of human rights, development of local suppliers are issues that have a big impact on reputation, brand value and in some cases operational cost. Oil and gas producers are heavily reliant on large contractor workforces to conduct the majority of their high risk and high value activities. As such, oil and gas producers have a critical need for strong supply chain practices, including contractor management programs. ExxonMobil, Hess Corporation and Occidental Petroleum have addressed such exposure through their supply chain standards and monitoring programs. In particular, Hess suppliers are contractually required to comply with the company's environmental, health, safety and labor policies as well as the Foreign Corrupt Practices Act (FCPA). The same requirements apply to subcontractors of suppliers.
Oil & Gas - Exploration and Production	New Issue	Add Issue	Corporation	Workforce Balance	This is a key category in a number of benchmarking surveys for E&P companies including the Green 50, Global 100, DJSI etc.. In the GRI it is captured under the category "Labour Practices and Decent Work." Metrics relate to average pay vs. executive pay, gender representation and balance etc..
Oil & Gas - Exploration and Production	Process Innovation	Add Issue	Market Participant	Process inovation	While you recognize this issue as material to the service industry and talk about its importance in the brief yet you have skipped it for the E&P industry and yet many of the companies competitive advantages lie in their reputation for process inovation. Also with all the fraking controversy we have found that process inovation that has reduced ecological and social impacts have been the realm of E&P companies rather than service companies.
Oil & Gas - Exploration and Production	Process Safety, Emergency Preparednes and Response	Add Issue	Market Participant	Environment al Management Systems (EMS)	need to know the company has an overarching EMS to tie the management and policy implementation of all those E&S material issues you list above. The "Process Safety" item gets at a piece of it and the theme of management system, but it's broader than just safety. how are they managing / monitoring / training / reporting internally / etc. on all number of environmental criteria



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Oil & Gas - Exploration and Production	Process Safety, Emergency Preparedness and Response	Add Issue	Corporation	Environmental Spills	The attention on spills associated with oil and gas transportation is also drawing attention to the issue for E&P companies. Further the number of spills you have while drilling and operating a site has impact on your Asset Retirement Obligation balance sheet values. Spills can also be associated with government fines and sanctions. These numbers are required for CAPP and OGP reporting as well as regulatory reporting in the US and UK.
Oil & Gas - Exploration and Production	Process Safety, Emergency Preparedness and Response	Material issue?	Market Participant	Maybe	It is somewhat redundant to Ecological Risk, Worker Health & Safety, Waste Management, and perhaps other issues.
Oil & Gas - Exploration and Production	Process Safety, Emergency Preparedness and Response	Material issue?	Corporation	Maybe	I don't see how this could be measured and/or communicated consistently.
Oil & Gas - Exploration and Production	Process Safety, Emergency Preparedness and Response	Material issue?	Public Interest	Maybe	Its unclear to me how you make this comparable and auditable.
Oil & Gas - Exploration and Production	Process Safety, Emergency Preparedness and Response	Material issue?	Market Participant	No	Macondo was a rare event, and forcing companies to disclose tons of safety data doesn't lower the incidence of another Macondo. At the end of the data, it comes down to a culture of safety, and it would be hard to figure that out from safety stats, which can be misleading at times.
Oil & Gas - Exploration and Production	Process Safety, Emergency Preparedness	Add Issue	Corporation	Social Risk management processes	A companies approach to risk management, which includes environmental, social, financial, reputational and health and safety risks, is closely related to its performance and success. Risk management is already included in financial reporting, but I believe that approach to social risk management should be explicitly added.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
	s and Response				
Oil & Gas - Exploration and Production	Process Safety, Emergency Preparedness and Response	Add Issue	Corporation	Well Integrity	Responsibility for well installation and operation, well operating processes, well service processes, tubing/annulus integrity, tree/wellhead integrity and testing of safety systems.
Oil & Gas - Exploration and Production	Process Safety, Emergency Preparedness and Response	Material issue?	Public Interest	Yes	As the Macondo explosion demonstrated, process safety done wrong has the ability to cause very significant financial damage to a company.
Oil & Gas - Exploration and Production	Process Safety, Emergency Preparedness and Response	Material issue?	Market Participant	Yes	The materiality of this issue was demonstrated quite effectively by BP.
Oil & Gas - Exploration and Production	Process Safety, Emergency Preparedness and Response	Material issue?	Market Participant	Yes	Indicator of cultural attitude toward safety
Oil & Gas - Exploration and Production	Process Safety, Emergency Preparedness and Response	Material issue?	Public Interest	Yes	I think the BP disaster speaks for itself.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/Response	Comment
Oil & Gas - Exploration and Production	Process Safety, Emergency Preparedness and Response	Material issue?	Corporation	Yes	Core to ensuring operational stability and production at high levels. Incidents could significantly affect production.
Oil & Gas - Exploration and Production	Process Safety, Emergency Preparedness and Response	Material issue?	Corporation	Yes	Safety equals lower costs (pay outs), which equal higher returns.
Oil & Gas - Exploration and Production	Process Safety, Emergency Preparedness and Response	Material issue?	Market Participant	Yes	Only the oil majors could have survived the financial costs of Macondo. BP had to suspend dividends impacting shareholders.
Oil & Gas - Exploration and Production	Process Safety, Emergency Preparedness and Response	Material issue?	Corporation	Yes	Explosions, spills, deaths, etc. all result in community uproar. This negative press can be significantly detrimental to a company's ability to enter new areas in the future. This should look at contractor performance too as much O&G work is conducted by contractors. Their performance should be as just as much at issue as the target company.
Oil & Gas - Exploration and Production	Process Safety, Emergency Preparedness and Response	Material issue?	Public Interest	Yes	See response above regarding worker health and safety. This adds the dimension of addressing safety in the communities (aka stakeholders) surrounding oil and gas operations.
Oil & Gas - Exploration and Production	Process Safety, Emergency Preparedness	Material issue?	Corporation	Yes	It is important that companies demonstrate their approach to process safety, emergency preparedness and response as lack of attention to these areas could lead to potential significant problems.



Industry	Mapping to SASB Topic s and Response	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Oil & Gas - Exploration and Production	Process Safety, Emergency Preparedness and Response	Material issue?	Market Participant	Yes	Oil&gas upstream are high-risk industrial operations, and can provoke fatal incidents. Because such incidents affect the intangible assets of a company (brand, reputation etc) but also represent insurance costs, they need to be disclosed to the potential investor.
Oil & Gas - Exploration and Production	Process Safety, Emergency Preparedness and Response	Material issue?	Corporation	Yes	Poor emergency response procedures = potential extended duration of risk to environment and society = potential increased business cost / risk of mitigation.
Oil & Gas - Exploration and Production	Process Safety, Emergency Preparedness and Response	Material issue?	Corporation	Yes	Loss of primary containment can lead to fatalities, injuries and ecological impacts that can have significant financial and reputational impacts.
Oil & Gas - Exploration and Production	Process Safety, Emergency Preparedness and Response	Material issue?	Corporation	Yes	Risk Management was a material issues as indicated by our internal and external stakeholder assessment (please see our 2012 CR report)
Oil & Gas - Exploration and Production	Process Safety, Emergency Preparedness and Response	Material issue?	Market Participant	Yes	In the relevant sector, process safety and emergency preparedness may play a significant role in investment decision-making and can be material. The events related to the Deepwater Horizon disaster are a very strong indicator of the material of this issue.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/Response	Comment
Oil & Gas - Exploration and Production	Process Safety, Emergency Preparedness and Response	Material issue?	Market Participant	Yes	The potential impact on business interruption can have a very material impact on insurance costs and more importantly insurance coverage. If adequate coverage is unavailable, O&G companies are forced to self-insure via their own captives. Are investors investing in O&G companies or are they investing in reinsurance companies? Is tying up an ever growing amount of capital in non-core operations a good business model? In addition, if O&G companies have to pay for even part of the cost of carbon lost during emergency responses or even minor upsets – game over! The numbers can be staggering.
Oil & Gas - Exploration and Production	Process Safety, Emergency Preparedness and Response	Material issue?	Corporation	Yes	spills are enormously costly, both economically and reputationally. companies must plan ahead and have training programs that prevent spills, and emergency response plans that immediately contain and then clean up spills. companies that have repeated infractions will lose their permits and their social license to operate
Oil & Gas - Exploration and Production	Process Safety, Emergency Preparedness and Response	Material issue?	Market Participant	Yes	Lack of sufficient resources or delays for emergency response, could multiply the cost for companies in major safety events. There will be further increase in unprecedented incidents considering the industry trends in challenging unconventional operations from oil sands, arctic/ice drilling, ultra-deepwater including pre-salt layers, various shale plays, which is technically much harder to produce as well as unpredictability during the operation. At the same time, as climate change has further causing challenging environment, adding further difficulties for companies to prepare for the incidents. For instance, hurricane could substantially worsen the off-shore rig disaster by physically destroying rigs, or wildfire could impact/delay the spill clean-up operations, among many other potential risks. Combination of operational/technical challenges together with fluctuating physical environment would mean that merely complying with the current regulatory frameworks would not necessarily guarantee the avoidance of such major incidents. As a part of due diligence, greater disclosure regarding the preparedness and response are key indicators for all stakeholders to have effective assessment of potential risks.
Oil & Gas - Exploration and Production	Process Safety, Emergency Preparedness and Response	Material issue?	Market Participant	Yes	Big accidents may lead to loss of life, destroy reputations and lead to major fines, e.g. Macondo. Major reserves that public E&P companies may be in ultra deepwater areas needing strong process safety, etc procedures. etc. In general greater disclosure that can help investors assess safety culture of company are crucial.
Oil & Gas - Exploration and Production	Process Safety, Emergency Preparedness	Material issue?	Corporation	Yes	Crucial for safe operations and safety of employees



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/Response	Comment
Oil & Gas - Exploration and Production	Process Safety, Emergency Preparedness and Response	Material issue?	Public Interest	Yes	Material for two reasons. First, process safety has become an enormous topic of discussion and reputation following BP incidents (Texas City and Macondo). Second, process safety is not yet standard practice in upstream independents making this a potentially high risk situation.
Oil & Gas - Exploration and Production	Process Safety, Emergency Preparedness and Response	Material issue?	Corporation	Yes	issues can tie into community engagement and workforce health and safety if needed (separately)
Oil & Gas - Exploration and Production	Regulations	Comment on Brief	Public Interest	D.N.A. - Comment on Brief	Quite honestly, the brief appears to be more of a stream of consciousness compilation of information than an informed analysis of the industry and its issues. The brief was quick to identify issues and (inherent) risks, but was short on acknowledging where and how companies address these risks (thus what are the management controls in place that make these risks less problematic) and do so well and to the industries credit. The brief is also very superficial in how it addresses regulations. The industry must comply with increasingly complex regulations in the US and abroad. While references to specific company 10ks are provided, there is no coherent explanation of the existing environmental and carbon disclosure requirements in Reg S-K, thus one basis for the additional disclosure areas that SASB is proposing. I clearly understand that there can be widely ranging performance amongst companies. However, selected examples of poor performance (the bad apple) does not spoil the entire bushel.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/Response	Comment
Oil & Gas - Exploration and Production	Regulations	Inaccuracy	Market Participant	D.N.A. - Inaccuracy	There are too many figures provide and assertions made without proper distribution for me to say with certainty that there aren't inaccuracies in the industry brief. The discussion of Section 1504 of the Dodd-Frank Act (now Section 13(q) of the Exchange Act) is a law pursuant to the passage of Dodd-Frank and that the SEC is reviewing its rules for implementation issued in August 2012 following the U.S. District Court for the District of Columbia's decision in API vs. SEC. Further, the brief fails to note that both public and private oil and gas companies under the regulation of the EU must make almost identical disclosures pursuant to the EU Account and Transparency Directives. Further, other companion regulations are under development in Canada and under consideration in other markets. The brief would have also been wise to not that the leadership of EITI has noted the complementary nature of the Initiative and mandatory disclosure laws, such as Section 1504 and the EU Accounting and Transparency Directives. The discription also fails to note that the voluntary nature of EITI greatly reduces the likelihood that it will be implement in countries with repressive regimes and the greatest evidence of the Resources Curse (i.e., the countries where this disclosure is most material). Your description also fails to note that the lead argument in API vs. SEC asserts that Section 1504 violates companies First Amendment rights, as it compels the speech of corporate entities that enjoy personhood. Should this argument prevail the result could be sweeping limitation of the SEC and other regulations to compel disclosure of many other kinds. Finally and overall, the discription of the Section 1504 and payment transparency in general emphasizes benefits related to mitigation of the Resource Curse and political stability, but does not note the value of the data disclosed in securities analysis, which I have noted in detail in my previous comments. I also don't agree with the assessment of the value of payment transparency as indicated in Appendix II in terms of its forward looking value and interest to stakeholders, among other considerations.
Oil & Gas - Exploration and Production	Reserves Valuation and Capital Expenditures	Add Issue	Corporation	Access to reserves	As E&P companies go further and deeper to obtain reserves, being able to access your reserves becomes a material issue. For example, Arctic Reserves and ultradeepwater.
Oil & Gas - Exploration and Production	Reserves Valuation and Capital Expenditures	Add Issue	Market Participant	Long-term strategy	This issue is less obvious to include as "material" - nevertheless it is worth mentioning as a future potential issue in relation to the one concerning reserves valuation. In the long term, oil&gas upstream will be much more affected by GHG control policies, and therefore these companies should be able to tell what their activities will be when they won't be able to rely solely on hydrocarbon extraction. Innovation in CCS, or in coupling with renewable energies can make sense to an investor willing to have a long-term outlook on the company's potential source of revenues.
Oil & Gas - Exploration and Production	Reserves Valuation and Capital Expenditures	Material issue?	Market Participant	Maybe	I believe that E&P companies analyze their reserves in accordance with SEC rules and that those reserve analysis are reviewed by independent third parties and disclosed to investors in 10Ks. I also don't see any near-term legislation or regulation that will significantly impact the levels, and therefor value, of reported reserves.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Oil & Gas - Exploration and Production	Reserves Valuation and Capital Expenditures	Material issue?	Market Participant	Maybe	Unclear to me that these two things are materially linked, or that the latter is a clear ESG issue
Oil & Gas - Exploration and Production	Reserves Valuation and Capital Expenditures	Material issue?	Corporation	Maybe	I guess I don't understand the context you're using relative to sustainability.
Oil & Gas - Exploration and Production	Reserves Valuation and Capital Expenditures	Material issue?	Market Participant	Maybe	I just question whether it should be included in a list of "minimum requirements" for ESG disclosure. It's a very interesting suggestion, which would be helpful for long term investors, I guess in the vein of the "unburnable carbon" report - but seems more like leading edge best practice than minimum ESG requirements. Also definitely not something that companies already know and/or can be easily calculated.
Oil & Gas - Exploration and Production	Reserves Valuation and Capital Expenditures	Material issue?	Corporation	Maybe	This issue is material, but more from a pure economic point of view than a social / environmental point of view. I would expect analysts to consider this in their economic analysis.
Oil & Gas - Exploration and Production	Reserves Valuation and Capital Expenditures	Material issue?	Market Participant	Maybe	This issue overlaps with GHGs as it is ultimately about limits being placed on GHGs in an absolute sense. In the absence of strict limits, it is difficult for me to understand how a company could address this given that it will negatively affect the whole industry. If companies are already transparent about the risks of finding and replacing reserves, I'm not sure what more could be provided without a clear indication of what the regulations will look like. I am on the fence with this one because it seems obvious that if limits are placed on the burning of fossil fuels, companies are going to lose value.
Oil & Gas - Exploration and Production	Reserves Valuation and Capital Expenditures	Material issue?	Public Interest	Maybe	Just because one can calculate the CO2e equivalent of oil and gas reserves, doesn't mean it is essential to report it. If companies' market capitalization is at risk, is this not a financial issue that already be addressed through existing SEC and FASB accounting, reporting and disclosure rules? Thus why is this a non-financial issue for SASB to address? The issue here may also be companies' transparency and accurately reporting their reserves, which again falls into the financial domain. There have been instances in the past decade where companies have been taken to task on the accuracy of their oil and gas reserves accounting.
Oil & Gas - Exploration and Production	Reserves Valuation and Capital Expenditures	Material issue?	Corporation	Maybe	I feel that this is more of a corporate strategy decision, not necessarily a sustainability lever that a company should have to disclose.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Oil & Gas - Exploration and Production	Reserves Valuation and Capital Expenditures	Material issue?	Public Interest	Maybe	My reservations on this one are more about framing. Reserves valuation and capital expenditures are already part of SEC disclosures and there are a broad range of standards for categorizing reserves. Carbon emissions is already a material issue so my reservations are more about how this disclosure would work differently beyond factoring carbon risk into reserves estimations protocols or whether this remains a qualitative footnote, etc. I don't think estimated carbon content offers a meaningful metric by itself because it is difficult for investors to know what to do with the number. The commerciality of reserves is much more nuanced than simply total amount of carbon. Potentially factoring a carbon price directly into reserves calculations might be a better approach.
Oil & Gas - Exploration and Production	Reserves Valuation and Capital Expenditures	Material issue?	Market Participant	Maybe	I suppose it's a timing issue. Until much stricter carbon regulations get adopted then less material now. Would like to see greater disclosure on types of reserves that are more difficult to access and develop that would likely be uneconomic with say high cost of carbon.
Oil & Gas - Exploration and Production	Reserves Valuation and Capital Expenditures	Material issue?	Corporation	Maybe	Very difficult to ringfence and be accurate
Oil & Gas - Exploration and Production	Reserves Valuation and Capital Expenditures	Material issue?	Corporation	No	It is not that this issue is NOT material but an energy companies reserves is of huge importance to the companies and investors - it is the main way in which energy companies are valued. The SEC already maintains and enforces detailed, stringent regulations that specify how companies calculate and disclose estimated values for their assets. Separate SEC regulations require companies to describe future risks - including political, environmental, and economic changes - that are less quantifiable but that may affect investors in the future, including by affecting the value of companies' assets.
Oil & Gas - Exploration and Production	Reserves Valuation and Capital Expenditures	Material issue?	Corporation	No	this is part of doing business. O&G companies that are not finding new reserves to replace existing reserves and maintain production will not survive, but it's nothing to do with sustainability. it's just the nature of the business
Oil & Gas - Exploration and Production	Reserves Valuation and Capital Expenditures	Material issue?	Public Interest	Yes	There is growing investor concern about whether reserves are potentially at risk due to climate change, and also interest in the degree to which capital allocation decisions incorporate climate risk, water risk and other material environmental and social concerns.
Oil & Gas - Exploration and Production	Reserves Valuation and Capital Expenditures	Material issue?	Market Participant	Yes	The conversation around this issue is closing a loophole that has always existed. Rising concerns about carbon, coupled with the decline in global production (peak oil has passed), means a prudent investor must be concerned with 1) the viability of proved reserves and 2) the increasing costs of extracting them.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Oil & Gas - Exploration and Production	Reserves Valuation and Capital Expenditures	Material issue?	Market Participant	Yes	This msut also encompass the concept of stranded assets.
Oil & Gas - Exploration and Production	Reserves Valuation and Capital Expenditures	Material issue?	Public Interest	Yes	capital expenditure is at risk if oil companies cannot mine, profitably or otherwise, remaining resources
Oil & Gas - Exploration and Production	Reserves Valuation and Capital Expenditures	Material issue?	Market Participant	Yes	Human Capital should become valued like SEC PV 10 Flat Pricing Rule annually
Oil & Gas - Exploration and Production	Reserves Valuation and Capital Expenditures	Material issue?	Public Interest	Yes	Investors need to have an understanding of how vulnerable companies are to the rapid devaluation of their assets in the face of strict environmental standards, especially any sort of climate agreement.
Oil & Gas - Exploration and Production	Reserves Valuation and Capital Expenditures	Material issue?	Corporation	Yes	The reserve "truth" is never the truth. This area needs further analysis...
Oil & Gas - Exploration and Production	Reserves Valuation and Capital Expenditures	Material issue?	Market Participant	Yes	Oil companies are spending more per barrel each year to replace reserves. This is not sustainable and investors need to scrutinise capex more closely.
Oil & Gas - Exploration and Production	Reserves Valuation and Capital Expenditures	Material issue?	Market Participant	Yes	IF (and its a big if, so I'm at least a bit dubious) carbon production is ultimately constrained by regulatory action, then companies with a relatively high proportion of their market cap associated with known reserves will be much more vulnerable to a drop in their stock price than other industry companies.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Oil & Gas - Exploration and Production	Reserves Valuation and Capital Expenditures	Material issue?	Corporation	Yes	These are issues which have the potential to be material in the future. At the moment they depend on two issues, the ability of governments to agree to a global cap on GHG emissions and the failure of technology to find a solution to the problem - neither of which are easy to predict. In a cap and trade scheme it will be the most economic reserves that get produced first and with privately-owned companies having a significant share of current production, it would suggest that these reserves are least at risk. In addition, reserves held in politically stable countries have an additional option value over those held in less stable countries. The IEA forecasts growth in oil and gas demand out to 2035 in all of its scenarios, including the 450ppm scenario, so whilst the 'evidence' in the brief talks of falling demand, perhaps this should be a falling increase in demand. The substitution of natural gas for coal in power generation can help to achieve a peaking of ghg emissions whilst still allowing increasing demand for oil and natural gas combined. We would therefore think that this issue if of materiality to coal producers in the medium to short term.
Oil & Gas - Exploration and Production	Reserves Valuation and Capital Expenditures	Material issue?	Market Participant	Yes	Today oil&gas upstream companies are valued by the market on the basis of their reserves renewal ratio. This implies a business as usual outlook assumed by investors, where the carbon content of those reserves is not important in a future world. This assumption is more and more irrelevant - and a new way to value those companies has to be found. Even in a moderate climate-policy enforcement scenario, an important part of the reserves currently used for these companies' valuation process constitutes an "unburnable" carbon asset, meaning it has no future value. Therefore this question is of crucial importance for investors who are willing to have an accurate picture of the potential value of an E&P company over the long term.
Oil & Gas - Exploration and Production	Reserves Valuation and Capital Expenditures	Material issue?	Corporation	Yes	Reserves valuation = future cash flows. Capital expenditures can equate to value generation in a region / community,.
Oil & Gas - Exploration and Production	Reserves Valuation and Capital Expenditures	Material issue?	Corporation	Yes	Significant indicator of an E&P company's medium and long term business success, but already adequately covered under current SEC 10-K reporting requirements.
Oil & Gas - Exploration and Production	Reserves Valuation and Capital Expenditures	Material issue?	Market Participant	Yes	These are already provided in 10-k's, but additional information could be very useful, for example what their reserves would look like if oil and gas prices went up or down by 20%
Oil & Gas - Exploration	Reserves Valuation	Material issue?	Market Participant	Yes	The assumptions that underly reserves calculations and the details regarding capital expenditures are among the material considerations related to each.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/Response	Comment
and Production	and Capital Expenditures				
Oil & Gas - Exploration and Production	Reserves Valuation and Capital Expenditures	Material issue?	Market Participant	Yes	If the feed material becomes inaccessible (“stranded”) and thus devalued – so does the related value chain.
Oil & Gas - Exploration and Production	Reserves Valuation and Capital Expenditures	Material issue?	Market Participant	Yes	Even under the current ambivalent transitional phase of how to account/value reserves to be assets (especially for short term) or liabilities (for mid to long-term), there is no question that reserve valuation and capital expenditure would be one of the most critical indicator for E&P companies. Further, aside from the climate-related risk questions, the growing challenges of maintaining the current R/P Ratio with increased unconventional higher-risk/highly uncertain assets and their gap between reported reserves (often criticized as overly optimistic) and actual production along with continued questions of the current reserve accounting systems makes the reserve valuation and capital expenditure even more critical, even for the short term, for investors to assess companies allowing them to compare actual production and reserve reporting data and how realistically the company accounting its reserves. (Though these current short-term risks of overstating or not being able to produce by technological challenges or by higher declining rate could be a good thing for mid to long-term given the assumption/likelihood that assets could turn into liabilities).
Oil & Gas - Exploration and Production	Reserves Valuation and Capital Expenditures	Material issue?	Public Interest	Yes	From a sustainability perspective, reserves valuation will increasingly need to account for non-traditional factors to arrive at an accurate market value (e.g. carbon price, willingness of society to 'burn' fossil fuels, etc). The impact of capital expenditures is a more traditional economic indicator - capital expenditures to address sustainability issues is an indirect indicator at best.
Oil & Gas - Exploration and Production	Reserves Valuation and Capital Expenditures	Material issue?	Corporation	Yes	issues relating to capital expenses and tie into commodity price, though aspects of this are already an expectation in mainstream/financial reporting
Oil & Gas - Exploration and Production	SASB Approach	Comment on Brief	Public Interest	D.N.A. - Comment on Brief	The brief is unclear on what is already being reported under various regulatory standards versus the accounting metrics included in the survey.
Oil & Gas - Exploration	SASB Approach	Comment on Brief	Market Participant	D.N.A. - Comment on Brief	The definitions and standards cited in the survey were not adequately described.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
and Production					
Oil & Gas - Exploration and Production	SASB Approach	Inaccuracy	Market Participant	D.N.A. - Inaccuracy	Industry briefing covered many areas that may be material, but would have been strengthened by more robust disclosure of the likelihood of events happening. For example, GHG emissions are a huge risk factor, but not in the short term. If there were a way to build those considerations into the briefing, it would have been helpful.
Oil & Gas - Exploration and Production	SASB Approach	Inaccuracy	Corporation	D.N.A. - Inaccuracy	I think the SASB standard could be based on the existing ones (GRI, IIRC framework, CDP, IPIECA, API & OGP...) in order to favour the companies' disclosures and not to discourage them due to so many requirements sometime too detailed and not usefull for users. Thanks
Oil & Gas - Exploration and Production	SASB Approach	Inaccuracy	Corporation	D.N.A. - Inaccuracy	Now that I've seen the draft product I can tell you that a lot of people are going to have a bird if you release these standards without additional outreach to industry, in particular groups such as API and the IPIECA social responsibility working group. Also speaking for my companyy, we would probaly appreciate a brief on this by videoconference or teleconference to understand how this complements GRI and to better understand timing, roll out etc etc.
Oil & Gas - Exploration and Production	SASB Approach	Inaccuracy	Public Interest	D.N.A. - Inaccuracy	I really apreciate the Value Impact and Timing section. It really makes the connection between sustainability impact and financial impact.
Oil & Gas - Exploration and Production	SASB Approach	Inaccuracy	Market Participant	D.N.A. - Inaccuracy	I have many suggestions. first as I mentionned in the service survey it would have been helpfulto get a sense of metrics that were considered and rejected and why. Second a better explanation on the points amde in the brief and the derived metrics would also have been helpful. There were points made at the start of this brief which did not appear to have led to any metrics and that puzzled me. The governance metrics were very narrow and did not address risk management. Was this deliberate? Finally it would have beenhelpful to have had the opportunity of more interaction with others filling out the survey. A longer time period to answer and some specific timeline suggestions so that a group conference call where partcular issues could have been discussed would have been helpful to you and us.
Oil & Gas - Exploration and Production	SASB Approach	Inaccuracy	Corporation	D.N.A. - Inaccuracy	It is important to limit the amount of indicators per topic, in order to avoid "information overload", when the actual goal is to make these topics more accessible and relevant to investors and managers. It is more important to ensure comparable, auditable, meaningful data that can be provided without extensive new tools and processes, rather than focusing on comprehensiveness only. Data quality issues should not be underrated. Reporting just for the sake of reporting should also be avoided. A material topic does not necessarily require ten different indicators.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Oil & Gas - Exploration and Production	SASB Approach	Inaccuracy	Public Interest	D.N.A. - Inaccuracy	I did not detect any specific inaccuracies per se; it appears that most facts stated have a specified reference. However, the brief is short on providing necessary context around existing SEC environmental/carbon reporting and disclosure requirements (thus the launch point for defining additional areas for material disclosure), as well as a better balance of what companies already are doing to address the identified issues.
Oil & Gas - Exploration and Production	SASB Approach	Inaccuracy	Market Participant	D.N.A. - Inaccuracy	I have a general question as to your definition of "auditable." Would companies in fact be subject to audit, and if so by whom?
Oil & Gas - Exploration and Production	SASB Approach	Inaccuracy	Corporation	D.N.A. - Inaccuracy	There needs to be more definition around the numbers. Are they to be Gross operated or net equity (ownership share). Are numbers to be based on production or throughput (for pipelines, refineries and gas plants for example) or both. In general the scope of the metrics appear too broad. Concentrating on the key indicators rather than trying to capture everything would be beneficial and save time and money and aid comparability. Some of the metrics are just not metrics e.g. descriptions and discussions. Thought should be given to turn these into meaningful metrics.
Oil & Gas - Exploration and Production	SASB Approach	Inaccuracy	Market Participant	D.N.A. - Inaccuracy	I recon the suggested materiality issues and accounting metrics as relevant and accurate as they address the most common and complex ESG challenges faced by the companies in this industry. As an analyst, I conduct a dialogue with companies which face alleged violations of international norms and standards in the context ESG issues, from my experience the most common and problematic issues for the companies are: oil spills (land and water contamination), community relations, occupational health and safety. The suggested metrics will definitely help to assess the actual performance of companies in the essential areas.
Oil & Gas - Exploration and Production	SASB Approach	Inaccuracy	Corporation	D.N.A. - Inaccuracy	In general, the most relevant information for a reasonable investor is a comprehensive disclosure on management approach for material issues. For the most part, the metrics focused on quantitative data are too granular to be useful and the majority is typically reported elsewhere (e.g., corporate sustainability reporting, both stand-alone or integrated in the corporate annual report). The first metric, disclosure of management approach (e.g., strategy and management methods) would be relevant to a reasonable investor. The quantitative metrics are too granular and these data are publicly available elsewhere (e.g., corporate sustainability reporting). The SEC 10-K does not seem to be the appropriate venue for this level of detail. Also, too much emphasis is being given to the issue of the "carbon bubble."



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Oil & Gas - Exploration and Production	SASB Approach	Inaccuracy	Market Participant	D.N.A. - Inaccuracy	SASB's efforts are both admirable and very ambitious. I anticipate that there will be significant challenges in moderating and reconciling the views and interests of all of the constituencies involved in this and, likely, ever other industry review process. In fact, I tend to think that if such conflicts were not to arise, the usefulness of this exercise may be in question. With that said, I believe strongly that in matters of determining the material and applicability of disclosures deference must be given to the investor constituency. I believe this is true because materiality must be understood from the context of the user of investment information and because other constituencies, particularly industry, have a clear vested interest in the status quo and in perpetuating the market inefficiencies that sufficient sustainability disclosure should lessen.
Oil & Gas - Exploration and Production	SASB Approach	Inaccuracy	Corporation	D.N.A. - Inaccuracy	just typos
Oil & Gas - Exploration and Production	SASB Approach	Inaccuracy	Market Participant	D.N.A. - Inaccuracy	Great background report. Liked metrics at end then evaluating them in the survey. A few metrics need to be fixed. Look forward to helping more on this.
Oil & Gas - Exploration and Production	Supply Chain Management	Add Issue	Market Participant	Supply chain management	As Macondo made abundently clear the supply cahin in this industry is very complex and very long. it of course satrts with the E&P operator of a project and needs to be managed very carrefully. There are labor and enviroenmental risks that can arise from contractors and subcontractors not to mention jurisdiction (about decision making) dispute that can arise when problems occur. So supply chain management would appear to me to be a material issue. As you only allow three additional issues I will add a one more issue here although it does not really relate to supply chain: The issue is control of projects. In large projects collaboration between comapnies is key because of the capital involved- but only one comapny is the operator- it is therefore important to undertand what percentage of their projects do company control and other decison making metrics which are very rarely if ever disclosed in fillings.
Oil & Gas - Exploration and Production	Survey comment	Inaccuracy	Market Participant	D.N.A. - Inaccuracy	Consider grading the burden of the audit going forward? Allow skipping of questions, as some are relevant to companies that a participant may have less experience with. It would be helpful for participants to PDF and/or view the complete survey.
Oil & Gas - Exploration and Production	Survey comment	Inaccuracy	Public Interest	D.N.A. - Inaccuracy	Not direct inaccuracies, but seems self-selecting on examples and no real opportunity to engage in pros/cons of what is proposed.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Oil & Gas - Exploration and Production	Survey comment	Inaccuracy	Corporation	D.N.A. - Inaccuracy	The link to the Exploration and Production brief was no longer available. i was unable to access the link.
Oil & Gas - Exploration and Production	Survey comment	Inaccuracy	Market Participant	D.N.A. - Inaccuracy	Many of questions don't lend themselves to Yes or No. Plus many of KPIs could be very useful to O&G companies but not necessarily investors - two different perspectives.
Oil & Gas - Exploration and Production	Survey comment	Inaccuracy	Market Participant	D.N.A. - Inaccuracy	The prioritization by moving each issue would not work much since all participants are forced to make the list though multiple issue could be parallel and not top-down vertical, thus risks of misprioritizing.
Oil & Gas - Exploration and Production	Survey comment	Inaccuracy	Corporation	D.N.A. - Inaccuracy	Some of the questions on relevance of a metric could have been broken out further. In some cases, there were three or 4 metrics listed within one question. Had they been broken out, I wouldn't have rated them the same.
Oil & Gas - Exploration and Production	Survey comment	Add Issue	Public Interest	none to add however	these are all extremely relevant, having to rank them is ridiculous
Oil & Gas - Exploration and Production	Waste Management	Material issue?	Corporation	Maybe	investors could be interested in environmental performances in general (in particular GHG emissions, water management, ..). probably some information are too detailed for the interest of investors.
Oil & Gas - Exploration and Production	Waste Management	Material issue?	Corporation	Maybe	Waste management is relevant and material for onshore activities, but less of a material issue for offshore operations, as long as the company ensures compliance with legal standards etc. I do not see a substantial financial impact of this issue unless in cases of non-compliance.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/Response	Comment
Oil & Gas - Exploration and Production	Waste Management	Material issue?	Public Interest	Maybe	Both companies and regulators have in place effective means to manage wastes from this industry. While in the US the industry still benefits from the oil & gas waste exemption, not all wastes are exempt and more state authorities are regulating even exempt wastes that demonstrate hazardous characteristics. Additionally there is yet another hammer over the industry's head; if they are so bold as to mismanage waste, it will come back to haunt them as a liability with more far reaching financial impact than if they were to manage the waste properly from the beginning. It should also be noted that the industry has been improving the way in which they minimize, recycle, reprocess waste; these efforts have been ongoing since the mid 1990s. Material waste management compliance issues would be addressed through existing SEC Reg S-K requirements as well.
Oil & Gas - Exploration and Production	Waste Management	Material issue?	Corporation	Maybe	I rated this way based on the minimal requirements. While I do feel it is important, I rank it lower than others and believe it to be more difficult to measure consistently throughout the industry.
Oil & Gas - Exploration and Production	Waste Management	Material issue?	Public Interest	Maybe	Waste management is a material issue and my reservation has more to do with differentiating already identified material issues from a sustainability perspective that are disclosed in sustainability reports versus moving to disclosure in 10-K or other format. The oil and gas and mining sectors have a large number of issues that can be material so comes down to balancing need to disclose with practicalities of detailed disclosure on every single issue.
Oil & Gas - Exploration and Production	Waste Management	Material issue?	Corporation	Maybe	There is already adequate coverage of this issue in current SEC 10-K forms.
Oil & Gas - Exploration and Production	Waste Management	Material issue?	Corporation	Maybe	As it currently does not register as a material impact to our business, with sustained growth of our operations, the waste impact will become a material issue. The associated cost to our business, and impact to our environment will need to be addressed.
Oil & Gas - Exploration and Production	Waste Management	Material issue?	Market Participant	Maybe	See response to air quality impact.
Oil & Gas - Exploration and Production	Waste Management	Material issue?	Corporation	No	I don't think it is of minimum materiality.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Oil & Gas - Exploration and Production	Waste Management	Material issue?	Corporation	No	There are few restrictions on disposal that I'm aware of. We dispose of waste at permitted facilities and otherwise try to recycle wherever feasible. The costs of transportation and disposal are at this point quite low, even the disposal of NORM. Barring lawsuits or new legislation on this topic, I don't see this as material for investors.
Oil & Gas - Exploration and Production	Waste Management	Material issue?	Corporation	No	Waste management is not a material issue compared to the other issues. It is a controlled process and is highly dependent on regulations.
Oil & Gas - Exploration and Production	Waste Management	Material issue?	Corporation	No	The industry brief puts this well. Over 90% of E&P wastes are of produced water and best practices are reducing the amount of waste generated. As a company, we are not involved in Oil Sands mining.
Oil & Gas - Exploration and Production	Waste Management	Material issue?	Corporation	No	AS it stands today there is very little focus on it by regulators therefore existing practices are considered adequate by industry. It is important though doesn't meet the materiality threshold.
Oil & Gas - Exploration and Production	Waste Management	Material issue?	Corporation	No	The oil exploration and production industry is very particular. As the O&G exploration scenario changes rapidly, for example, 10 years ago shale gas, arctic and tar sands were marginal to the E&P scenario. A change in scenario is accompanied by an alteration in the materiality of the sustainability risks the companies are exposed to. The majority of ESG-related information is generally backward looking. This contrasts with other investment-relevant parameters (eg oil prices or share prices) and with financial information that tends to be much more forward-looking. In my opinion, exploration and production indicators must be forward looking, that is, what is the potential of this to be material given the reserves of a company. Another particularity of the O&G E&P industry is the amounts they are accustomed to, in terms of investment, profitability, etc. For an issue to be material, the business must be impacted in quite a significant matter. Although this industry generates a significant amount of waste, it is not an issue that will affect profitability or opportunities.
Oil & Gas - Exploration and Production	Waste Management	Material issue?	Public Interest	No	Upstream E&P waste streams are relatively small and the bulk of the volume (drill cuttings) are covered under the RCRA exemption. There does not appear to be a great deal of community pressure and the cost savings from material efficiencies and waste minimization do not appear to be significant. The one possible exception is surface mining of oil sands. However, Provincial regulations allow for in-site storage, treatment and re-application of cover soil which makes the cost of waste management relatively low.
Oil & Gas - Exploration	Waste Management	Material issue?	Market Participant	Yes	See Equador versus Chevron. Chevron may never pay a dime in that litigation but they will have paid millions to lawyers and their reputation is probably forever tarnished - and they weren't the ones operating down there!



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/Response	Comment
and Production					
Oil & Gas - Exploration and Production	Waste Management	Material issue?	Market Participant	Yes	Clear regulatory risk and business risk for future projects
Oil & Gas - Exploration and Production	Waste Management	Material issue?	Corporation	Yes	There is one of our operations that produces most of our waste and a significant proportion is hazardous waste. The proper treatment of this by-product is costly and could also raise the attention of surrounding communities of not properly dealt with.
Oil & Gas - Exploration and Production	Waste Management	Material issue?	Corporation	Yes	Any industry must regulated for waste management. IMO, this has been a weak point of governmental regulation and only ever evolves after issues occur.
Oil & Gas - Exploration and Production	Waste Management	Material issue?	Market Participant	Yes	Unconventional techniques bring even more potential for spills and leaks through oilsands tailings ponds and fracking for example. Liabilities are often passed on, but as fields start to mature greater focus is needed on decommissioning and restoration.
Oil & Gas - Exploration and Production	Waste Management	Material issue?	Corporation	Yes	This can be a significant cost for companies if they are generating significant amounts of waste. As an investor, I would want to know that companies are managing their waste, reducing waste handling costs, and avoiding future cleanup costs.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/Response	Comment
Oil & Gas - Exploration and Production	Waste Management	Material issue?	Market Participant	Yes	The discussion of regulations that affect water in fracking seem to focus mainly on the water that is pumped down wells, with the chemicals added to create and prop open the fractures, and whether that contaminates groundwater. You're right to say that there are a lot of unknowns here. But the discussion really misses the more pervasive water issues in fracking: (1) whether withdrawals of water for fracking in areas already prone to drought (which would include the western shale formations, not the Marcellus) is competing with other water users, such as agriculture, drinking water, and industry, and (2) how the companies treat the water that comes back up after it's created the fractures in the formation. For the former, in many Western formations, no water comes back up out of the well, or only a small amount, which means that water used for fracking is essentially consumed, which isn't the case with most other water users (who may pollute it, but after treatment it can be returned to the ecosystem). There's a brief mention of this on page 6, I recognize. For the latter, the water that comes back up is usually highly saline, because a lot of the chemicals in the rock formation through which the water passes are soluble in water, and that salinity (plus the fracking chemicals added to it) mean that it cannot be treated in publicly owned treatment works, and it's far too polluted to return to surface waters (and far too expensive to treat). That leaves three options: use it again for fracking (which is a temporary solution; at some point it will have to be dealt with), or inject it into deep underground wells, essentially disposing of it (but where it may begin to pollute groundwater plumes). What happens to this recovered water is increasingly the issue.
Oil & Gas - Exploration and Production	Waste Management	Material issue?	Market Participant	Yes	The mishandling of waste can not only have direct, environmental and health impacts, but may result in highly newsworthy events that also create reputational risk.
Oil & Gas - Exploration and Production	Waste Management	Material issue?	Corporation	Yes	Management and disposal of waste is a material source of ever increasing cost and business risk.
Oil & Gas - Exploration and Production	Waste Management	Material issue?	Market Participant	Yes	Lots of waste produced, much of which is toxic and can lead to damaged reputation and fines.
Oil & Gas - Exploration and Production	Waste Management	Material issue?	Market Participant	Yes	In the relevant sector, waste management issues may play a significant role in investment decision-making and can be material. For example, the treatment and disposal of waste water from unconventional onshore oil and gas development and tailings treatment and disposal in oil sands mining are often material considerations in project economics and other aspects of securities analysis.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/Response	Comment
Oil & Gas - Exploration and Production	Waste Management	Material issue?	Corporation	Yes	managing waste water is an issue both from an environmental and an ecological perspective. companies that reduce waste will be more economic and efficient. companies that are innovative in how they handle waste and in identifying ways to reduce waste will be more competitive
Oil & Gas - Exploration and Production	Waste Management	Material issue?	Market Participant	Yes	The solid waste/waste water management is material to various stakeholders, in terms of community, public health, environmental impacts, and thus could have material impacts on companies including litigation and regulatory (including RCRA)actions as well as reputational risks to the company, particularly due to the use/produce of various toxic substances, including E&P's main products, various hydrocarbons. Any mismanagement of highly toxic solid waste could create long-term financial costs, including clean-ups, litigation as well as regulatory costs including the case of debarment (from federal/state contracts, which could also be seen as loss of future opportunities) if found improper waste management such as the case of BP in Alaska. As combined with air pollution and water, this indicator also can constitute important points to assess the company's directional performance and to some extent, even organizational culture by tracking historic records of violations and regulatory actions. Increase in production scale as well as increase in number of wells as well as their depths, it is also natural to increase total amount of associated waste, particularly in ever increasing unconventional resources operations as example of oil sands in the Briefing. As a side issue, waste liabilities related to the acquisition of oil and gas assets would further increase as well. The most extreme example of Anadarko acquisition of Kerr-McGee though KM's liabilities (while the liabilities in this case particular is not oil & gas assets), exhibits the need for E&P companies to account potential increase in waste-related risks through acquisitions of oil and gas assets (or the company as in the case of Kerr-McGee case).
Oil & Gas - Exploration and Production	Waste Management	Material issue?	Corporation	Yes	Waste - wastage of natural resources - landfill, incineration.
Oil & Gas - Exploration and Production	Waste Management	Material issue?	Corporation	Yes	fracking fluids, tailings (e.g. oil sands) and waste water management issues, along with onsite human waste issues (though less significant)
Oil & Gas - Exploration and Production	Water Management	Material issue?	Corporation	Maybe	Materiality is highly dependent on the site of operation (e.g. water-stressed area).



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Oil & Gas - Exploration and Production	Water Management	Material issue?	Corporation	Maybe	Water management is highly material for certain onshore operations in water scarce areas. Use of (saltine) water offshore or use of water in water abundant areas is less of a material issue. It is important to make the distinction between onshore and offshore operations, and water scarcity in the specific location/region.
Oil & Gas - Exploration and Production	Water Management	Material issue?	Market Participant	Maybe	Again, the potential financial liability to non-compliance is quite small in strict jurisdictions (severe water shortage). However, water restrictions can have a material impact on high water intensity processes - such as oil sands production.
Oil & Gas - Exploration and Production	Water Management	Material issue?	Corporation	Maybe	Water management is not a material issue across the industry. For example, for operations in deep water it is not a material issue, neither it is when water is abundant. It is an issue when there is a combination of intensive operational use and regional water scarcity.
Oil & Gas - Exploration and Production	Water Management	Material issue?	Public Interest	Maybe	Water management continues to be a regional issue. Costs associated with water use continue to be low even in water-stressed regions. Technology in the upstream E&P is progressing on water recycling technologies faster than in other areas reducing the stress placed on water sheds. therefore, the primary material aspects in 'water' are the management of waste water (e.g. surface disposal, trucking or underground injection) and protection of groundwater quality through production well integrity. Therefore, I think this category could be more specific to these material aspects.
Oil & Gas - Exploration and Production	Water Management	Material issue?	Corporation	No	Water is a material issue from a global perspective and also where water resources are scarce or threatened. At the same time, we do not compete with others for access to the resource as we're not using the same water that people drink or use for agriculture. Also the cost of water as an input (as well as the cost of processed water disposal) is at this point pretty low and would have to rise at a substantial rate before it would be an economic threat to our projects and a concern for investors.
Oil & Gas - Exploration and Production	Water Management	Material issue?	Public Interest	Yes	Water is particularly important to the development of unconventional oil and gas resources, and both water scarcity and water quality concerns are threats to oil industry growth and social license to operate in many parts of the world.
Oil & Gas - Exploration and Production	Water Management	Material issue?	Market Participant	Yes	Water is a finite resource. Oil Sands require vast amounts of water to produce. Companies that demonstrate good stewardship may garner competitive advantage and encounter fewer community obstacles.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/Response	Comment
Oil & Gas - Exploration and Production	Water Management	Material issue?	Market Participant	Yes	I think water use management is one the most immediate environmental risk faced by companies. The need to preserve fesh water supplies is becoming more and more important, much of the U.S. and the world is facing water stresses, so the need to recyle resh water and source non-fresh water when possible is important. Oil & Gas E&P companies use tremendous amounts of water in their processes and therefore need to be managing water use. I also see the cost of water growing and becoming more of a financial issue than ever before.
Oil & Gas - Exploration and Production	Water Management	Material issue?	Market Participant	Yes	Principally in the context of hydraulic fracturing where applicable
Oil & Gas - Exploration and Production	Water Management	Material issue?	Market Participant	Yes	Companies are subject to compliance with several pieces of regulation on water quality.
Oil & Gas - Exploration and Production	Water Management	Material issue?	Corporation	Yes	This issue is one of the most closely connected with maintaining our social licence to operate. If the communities where we have facilities are concerned about their water quality or availability we may lose access to those areas. This is less a concern for exisiting operations and more of a concern for business development opportunities.
Oil & Gas - Exploration and Production	Water Management	Material issue?	Public Interest	Yes	Water management is incredibly important as traditional and fracking processes expand. Both will require large amounts of water and create potential pollution that could open up companies to regulatory and legal risk.
Oil & Gas - Exploration and Production	Water Management	Material issue?	Corporation	Yes	A minor issue. Agriculture utilizes 70% of water consumption and industry 20%. But regulations still need to be in place to keep the environment stable and things dilligent.
Oil & Gas - Exploration and Production	Water Management	Material issue?	Market Participant	Yes	Unconventional hydrocarbons are water intensive and this will create increasing tension with other water users.
Oil & Gas - Exploration and Production	Water Management	Material issue?	Public Interest	Yes	Water is the fuel of unconventional extraction. no water = no work = go home.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/Response	Comment
Oil & Gas - Exploration and Production	Water Management	Material issue?	Market Participant	Yes	It does still depend on where operations are, but overall, water is a key input and also requires disposal which can be quite costly.
Oil & Gas - Exploration and Production	Water Management	Material issue?	Corporation	Yes	As water resources become more and more scarce, companies will increasingly be competing for water especially in water scarce regions. If they cannot demonstrate that they can obtain the water necessary for their operations then investors should not feel confident that the company will be able to extract resources over the long-term.
Oil & Gas - Exploration and Production	Water Management	Material issue?	Public Interest	Yes	Clean water is becoming a scarcer resource and significant volumes are required especially for production of non-conventional oil/gas resources. Companies need to demonstrate that they are taking measures to optimize what they use for their operations. Water effluents have a bigger regulatory hammer to control them. If a company does not consistently maintain compliance with regulations, they have a compliance issue that could need to be disclosed and would not speak well for their reputation. Since water effluents are a compliance issue, material compliance and legal risks are addressed through existing SEC Reg S-K requirements.
Oil & Gas - Exploration and Production	Water Management	Material issue?	Market Participant	Yes	In the West, where I live, it often is THE issue. It also encompasses both water quality and water use issues, doubling its importance.
Oil & Gas - Exploration and Production	Water Management	Material issue?	Corporation	Yes	Although the actual consumption of water in oil and gas is relatively low compared to other industries, it is clear that stakeholders have an interest in how companies can mitigate risk when operating in water stressed areas.
Oil & Gas - Exploration and Production	Water Management	Material issue?	Market Participant	Yes	The energy and water companies both compete for water resources, and their uses in some regions can be incompatible. In a context of rising water scarcity, some local governments may impose much stricter rules on water utilization and management for oil&gas exploration and production, making the recovery of unconventional resources impossible. Moreover, today the cost of recovering unconventional oil&gas does not include the impact on water resources; if it does one day, it can make these resources non competitive on the energy market.
Oil & Gas - Exploration and Production	Water Management	Material issue?	Corporation	Yes	Water scarcity is a local scale and / or regional scale issue in most of the world (e.g. Texas). The true value of water is often not considered. Increasing scarcity coincident with increasing demand for water is a significant business risk for this water intensive sector.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/Response	Comment
Oil & Gas - Exploration and Production	Water Management	Material issue?	Corporation	Yes	Water is a scarce resource and access to this critical resource is only going to become more of a challenge for operations. From a reputational and community engagement perspective, water management is top of mind for stakeholders and key stakeholders are placing more focus on water management than ever and in some cases it is becoming more of a focus than GHG emissions.
Oil & Gas - Exploration and Production	Water Management	Material issue?	Corporation	Yes	Again, this is easily measurable and with the dramatic increase in water usage during exploration and the potential for water contamination, there could be dramatic increases in water (or water rights costs) and water filtration costs.
Oil & Gas - Exploration and Production	Water Management	Material issue?	Public Interest	Yes	Stakeholder concerns very significant in oil sands as well as in hydraulic fracturing (although presentation of evidence in brief appears somewhat arbitrary).
Oil & Gas - Exploration and Production	Water Management	Material issue?	Corporation	Yes	Water management is a material issue for locations where there is a lack of availability and/or competing pressures. This can result in project delays, increased costs, and/or limitations on the ability to access and produce reserves.
Oil & Gas - Exploration and Production	Water Management	Material issue?	Market Participant	Yes	Operating in many water-stressed regions, and in certain cases this has led to operational issues for E&Ps
Oil & Gas - Exploration and Production	Water Management	Material issue?	Corporation	Yes	water is fundamental input to removing oil out of an in-situ operation - managing fresh and saline water use is critical to the environment, as well as the communities around our operations.
Oil & Gas - Exploration and Production	Water Management	Material issue?	Market Participant	Yes	In the relevant sector, water management issues may play a significant role in investment decision-making and can be material. Water management may have a significant influence on investment considerations including project economics and efficient capital allocation.
Oil & Gas - Exploration and Production	Water Management	Material issue?	Corporation	Yes	obviously potential discharge to streams is a big deal. not only does it impact the waterways, but it's immediately visible as an oil slick, and is therefore even more "offensive" than the chemicals that may leach from mining projects. water used during fracking is also becoming increasingly important to the public and regulators, and therefore investors. companies that are innovative about water recycling and reducing water consumption will be the most competitive



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/Response	Comment
Oil & Gas - Exploration and Production	Water Management	Material issue?	Market Participant	Yes	The water management issues constitutes an important part of the company's risks in the area where company's operational impacts are at the highest. The water issues are critically important for E&P companies mainly in two aspects: 1. total volume of water use and progress in reducing them due to increased challenges for various stakeholders to have access to clean water; 2. chemical/toxic substance content of water, especially given the growing concerns around the off-shore E&P as well as on-shore unconventional resources, which often require substantial amount of water in the processes. Also, we should note that the water issues are closely related with waste management (contamination of ground/surface water by leak, chemical use) as well as emissions
Oil & Gas - Exploration and Production	Water Management	Material issue?	Market Participant	Yes	It is a high profile public issue, but it is also a real challenge from a logistics, regulatory, and drilling perspective.
Oil & Gas - Exploration and Production	Water Management	Material issue?	Market Participant	Yes	with 30% - 40% of new well completions using hydraulic fracturing in the US water is a critical limiting factor and also source of potential competitive advantage to save costs
Oil & Gas - Exploration and Production	Water Management	Material issue?	Corporation	Yes	Fast becoming a scare resource
Oil & Gas - Exploration and Production	Water Management	Material issue?	Corporation	Yes	Issues relating to drilling and fracing related production activities
Oil & Gas - Exploration and Production	Workforce Health, Safety & Well-being	Material issue?	Market Participant	Maybe	Using a material lens, I conclude that process safety, emergency preparedness and response are more material and therefore warrant disclosure requirements. If a company has interwoven safety into its processes and is prepared to respond to emergencies, then workforce health and safety should be positioned to be managed and issues avoided or mitigated.
Oil & Gas - Exploration and Production	Workforce Health, Safety & Well-being	Material issue?	Market Participant	No	See response to Air Quality impact.
Oil & Gas - Exploration	Workforce Health,	Material issue?	Corporation	No	Working in a developed nation with mature health and safety management systems means it doesn't make the threshold. Yes, emerging issues like silicosis are important and will be dealt with the potential impact does not make this type of issue material to our members.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
and Production	Safety & Well-being				
Oil & Gas - Exploration and Production	Workforce Health, Safety & Well-being	Material issue?	Market Participant	No	Macondo was a rare event, and forcing companies to disclose tons of safety data doesn't lower the incidence of another Macondo. At the end of the data, it comes down to a culture of safety, and it would be hard to figure that out from safety stats, which can be misleading at times.
Oil & Gas - Exploration and Production	Workforce Health, Safety & Well-being	Material issue?	Market Participant	Yes	Indicator of cultural attitude toward safety
Oil & Gas - Exploration and Production	Workforce Health, Safety & Well-being	Material issue?	Market Participant	Yes	A PV 10 of (1) Professionally Designated Employees Lev and Schwartz Model (2) PV Management (3) PV line employees ///
Oil & Gas - Exploration and Production	Workforce Health, Safety & Well-being	Material issue?	Corporation	Yes	Lawsuits. Also from an investor standpoint, if you can't get this right how are they to trust that you can get anything else right in terms of sustainability?
Oil & Gas - Exploration and Production	Workforce Health, Safety & Well-being	Material issue?	Public Interest	Yes	Workers in exploration and production have much higher than average risk and, therefore, the industry faces much higher potential lawsuits for substandard protection of employees if any issues were to arise.
Oil & Gas - Exploration and Production	Workforce Health, Safety & Well-being	Material issue?	Corporation	Yes	The sector is dependent on attracting and retaining highly skilled workers. Ignoring workforce safety could lead to liabilities and also affect recruitment to the sector.
Oil & Gas - Exploration and Production	Workforce Health, Safety & Well-being	Material issue?	Market Participant	Yes	BP has demonstrated with a series of incidents why safety is an important issue for the workforce. The widespread use of sub-contractors is also an issue as this can affect performance. In addition I would add that an ageing skilled workforce is a issue for the industry as the engineers are approaching retirement but are not being replaced.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/Response	Comment
Oil & Gas - Exploration and Production	Workforce Health, Safety & Well-being	Material issue?	Public Interest	Yes	This falls into the category of maintaining and preserving a viable workforce; the company's human capital. Many of the larger oil and gas companies have laudable H&S records; some of the others in the industry do not. Diligence is essential here as the regulations more often stipulate what needs to be done, not necessarily how, thus there is variance on how companies address this issue to be good, better or best.
Oil & Gas - Exploration and Production	Workforce Health, Safety & Well-being	Material issue?	Market Participant	Yes	The high injury and mortality rates associated with the industry, even under the best of circumstances, makes the likelihood of significant events very high. High profile incidents are both expensive and create substantial reputational risk.
Oil & Gas - Exploration and Production	Workforce Health, Safety & Well-being	Material issue?	Corporation	Yes	Keeping our workforce healthy and safe is a key value of our company's culture.
Oil & Gas - Exploration and Production	Workforce Health, Safety & Well-being	Material issue?	Corporation	Yes	H and S performance is a primary criteria for employer attractiveness in the Oil and gas sector. Poor H and S performance represents a significant social impact (e.g. cost of healthcare, lost productivity etc) and an associated significant business risk.
Oil & Gas - Exploration and Production	Workforce Health, Safety & Well-being	Material issue?	Corporation	Yes	There is tremendous cost implications if a company does not have a robust health and safety system in place. Investors will want to know that a company is minimizing injury risk and driving reductions to the number of issues that occur.
Oil & Gas - Exploration and Production	Workforce Health, Safety & Well-being	Material issue?	Corporation	Yes	A strong safety culture is important for worker productivity (employees and contractors).
Oil & Gas - Exploration and Production	Workforce Health, Safety & Well-being	Material issue?	Corporation	Yes	Safety is an integral component of our business and culture - we can not do our work if we can not do it safely
Oil & Gas - Exploration and Production	Workforce Health, Safety & Well-being	Material issue?	Market Participant	Yes	In the relevant sector, workplace safety may play a significant role in investment decision-making and can be material. Aside from the costs associated with poorly managed workplace safety, it is also a leading indicator of efficient project management.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/Response	Comment
Oil & Gas - Exploration and Production	Workforce Health, Safety & Well-being	Material issue?	Corporation	Yes	inadequate health and safety practices hit the company from both an economic and a reputation perspective. lost time from injuries makes the company less efficient and less profitable. failed inspections result in fines. workers who do not feel safe and respected are not loyal and are likely less efficient. investors will not invest in companies that have a bad reputation for health and safety
Oil & Gas - Exploration and Production	Workforce Health, Safety & Well-being	Material issue?	Market Participant	Yes	Given the high risk nature with expensive operations, which most likely require large-scale infrastructures/equipment with highly flammable materials, any employee safety concerns could lead to a major disaster. Often, the best warning signs of potential major safety incidents can be traced to the voices of workers including contractors on-site prior to the accidents/disasters. Recurring pattern of safety negligence might be an indicator of organizational culture prone to future disasters. When failed to prevent, these incidents could cost hundreds of millions (or billions) of dollars to the E&P companies due to the destruction of critical infrastructures and equipment, lawsuits related to the employee injuries and fatalities, regulatory actions including fines and debarment, and loss of social license to operate due to lack of trust among local communities instigated by major safety incidents.
Oil & Gas - Exploration and Production	Workforce Health, Safety & Well-being	Material issue?	Market Participant	Yes	Big accidents may lead to loss of life, destroy reputations and lead to major fines, e.g. Macondo. Major reserves that public E&P companies may be in ultra deepwater areas needing strong process safety, etc procedures. etc. In general greater disclosure that can help investors assess safety culture of company are crucial. In addition - good record here may also be key for employee recruitment and retention.
Oil & Gas - Exploration and Production	Workforce Health, Safety & Well-being	Material issue?	Corporation	Yes	Same as above
Oil & Gas - Exploration and Production	Workforce Health, Safety & Well-being	Material issue?	Corporation	Yes	always a big issue, measuring injuries and fatalities, and related downtime as a result of incidents



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/Response	Comment
Oil & Gas - Midstream	Accidents and Safety Management	Other Comment	Market Participant	D.N.A. - Other Comment	SASB might consider oil and natural gas pipeline integrity and safety as a material sustainability issue. Inadequately designed, aging and poorly-maintained pipelines hold the potential for leaking, cracking, rupturing and exploding, thereby threatening the health and safety of populations along and adjacent to pipeline rights of way. Leaks are potentially insidious since they can be sources of fugitive releases of methane and and present a systemic masked risk to the asset owner. Mishaps and catastrophic events, particularly those with fatalities (such as the San Bruno, California explosion) present significant risks and potentially large liabilities. Pipeline owners are required to report asset age, leaks and leak repair statistics to the US Department of Transportation, US Department of Energy and in some cases, individual states. Therefore, the accounting metrics should already be in a more or less advanced state of development. Further, given the data reporting systems already in place, maintaining audit trails on pipeline safety and integrity for sustainability/risk identification and monitoring should be cost-effective since they would not require significant levels of costly new technology.
Oil & Gas - Midstream	Accidents and Safety Management	Add Issue	Public Interest	Emergency Preparedness and Response	As described in my previous responses, there is little discussed regarding the need for effective emergency and contingency planning as a necessary means to marshal an effective response to pipeline accidents. A major oil release or gas pipeline explosion can have devastating effects to human health, the environment and local community infrastructure. Companies need to be prepared to respond immediately to such events to protect the environment and their communities, as well as their assets and to ensure business continuity. There is a veritable cornucopia of reference materials on this subject, which I encourage your analysts to research, including information provided by some companies on their websites.
Oil & Gas - Midstream	Accidents and Safety Management	Material issue?	Market Participant	Yes	Even one accident can lead to a loss of the right to operate. Lawsuits, fines, etc. can be tremendous resource drains. Oil & gas transportation companies need to be extremely diligent in managing and mitigating accidents.
Oil & Gas - Midstream	Accidents and Safety Management	Material issue?	Corporation	Yes	It's a key issues in the Oil & Gas industry
Oil & Gas - Midstream	Accidents and Safety Management	Material issue?	Corporation	Yes	Pipeline explosions are commonplace in the media, and proper safety management of pipeline assets by a company should be a key consideration for investors.
Oil & Gas - Midstream	Accidents and Safety Management	Material issue?	Corporation	Yes	Good accidents and safety management is an excellent allegory for good financial management. Accidents and injuries are expensive, disruptive, distracting and entirely avoidable, if managed correctly. Accidents can be the most disruptive event to an oil and gas company and substantially affect a companies market value, as demonstrated by the Exxon Valdez, BP Texas City, BP Gulf, and Enbridge Michigan incidents demonstrate.



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Oil & Gas - Midstream	Accidents and Safety Management	Material issue?	Public Interest	Yes	It is interesting that safety is addressed differently between the E&P and midstream segments of the industry. This falls into the category of maintaining and preserving a viable workforce; the company's human capital. Many of the larger oil and gas companies have laudable H&S records; some of the others in the industry do not. Diligence is essential here as the regulations more often stipulate what needs to be done, not necessarily how, thus there is variance on how companies address this issue to be good, better or best. It is interesting how the topic of emergency preparedness and response is not as overtly addressed for midstream, given the emphasis on discussion of pipeline explosions and oil spills. Such procedures are essential for any company to respond to such an event, and it is not addressed in any detail. This is the only way companies can hope to address the H&S of the communities surrounding their operations.
Oil & Gas - Midstream	Accidents and Safety Management	Material issue?	Market Participant	Yes	Oil&gas midstream being high-risk operations, this question is of paramount importance.
Oil & Gas - Midstream	Accidents and Safety Management	Material issue?	Corporation	Yes	There can be significant financial and reputational impacts from fatalities, poor safety records and impacts due to loss of primary containment (e.g., ecological and hard assets).
Oil & Gas - Midstream	Accidents and Safety Management	Material issue?	Market Participant	Yes	As the San Bruno (California) event demonstrated, pipeline safety and integrity is critical to the well being of populations and large and asset owners. Considerable liability can be created by inadequate pipeline integrity and safety policies and practices, creating considerable risk to investors. Outsized events can threaten to bankrupt asset owners, as in the case of PG&E.
Oil & Gas - Midstream	Accidents and Safety Management	Material issue?	Corporation	Yes	Labour - safe work environment
Oil & Gas - Midstream	Community Relations	Material issue?	Corporation	Maybe	Community Relations can be a material issue for some, but not necessarily all midstream operations. Also, it can be challenging to financially quantify the impacts (both positive and negative).
Oil & Gas - Midstream	Community Relations	Material issue?	Market Participant	Yes	You need community support to get your transport lines established - or maintain the ability to transport through existng communities. The Keystone pipeline is a good example of issues that can delay, or derail, oil & gas transportation projects.
Oil & Gas - Midstream	Community Relations	Material issue?	Corporation	Yes	It shows investors that communities are consulted with over the lifecycle of any project. These issues which affect communities tend to have a spillover effect on reputation and bottom line of not attended to
Oil & Gas - Midstream	Community Relations	Material issue?	Corporation	Yes	Communities can significantly alter project timelines, and thus, impact investment timelines.



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Oil & Gas - Midstream	Community Relations	Material issue?	Corporation	Yes	Community relations affects how readily midstream companies can expand their businesses as multiple regulatory approvals and permits are required. Midstream businesses can also impact and be impacted by the communities through which they operate, so good community relations are essential to efficient operations.
Oil & Gas - Midstream	Community Relations	Material issue?	Public Interest	Yes	Companies that develop positive relationships with regulators and the communities in which they conduct business have a better chance of successfully developing their projects and maintaining their operations. Having a proactive and effective process for engaging with stakeholders and the community is essential.
Oil & Gas - Midstream	Community Relations	Material issue?	Market Participant	Yes	Relations with local communities are essential for the acceptability of industrial projects and their resilience over time. When security issues are important, such as in oil&gas midstream operations, these relations should be managed even more carefully.
Oil & Gas - Midstream	Community Relations	Material issue?	Market Participant	Yes	Communities hold the potential to curb or deny operating licenses within their borders for projects they deem unsafe, economically imposing or environmentally unsound. With respect to the oil and gas midstream sector, the issues surrounding the development of new supply sources using "fracking" technologies have increased community opposition and required a greater showing of evidence by project sponsors that the projects deserve approval. Further, new pipeline capacity required to transport the shale gas to market is facing increasing opposition. These unfavorable circumstances create significant risks for the sector in general and for individual companies with heavy pipeline expansion plans in particular. Allegations by the community about toxic releases associated with fracking can also create significant liabilities. It is important for investors to understand the nature of these and other risks and create an atmosphere of trust through action and education.
Oil & Gas - Midstream	Community Relations	Material issue?	Corporation	Yes	1. Community health 2. Job creation and 3. Community wellness
Oil & Gas - Midstream	Ecological Impacts	Material issue?	Corporation	Maybe	This is relevant for major pipelines, but not for all midstream operations.
Oil & Gas - Midstream	Ecological Impacts	Material issue?	Market Participant	Yes	Oil & gas transportation is a prime example of the NIMBY syndrome - Not In My BackYard. Everyone wants oil & gas but no one wants it transported near them. Companies need to assure communities that their method of transportation is as ecologically sensitive as possible.
Oil & Gas - Midstream	Ecological Impacts	Material issue?	Corporation	Yes	Environmental issues are key for the Oil & Gas industry
Oil & Gas - Midstream	Ecological Impacts	Material issue?	Corporation	Yes	Pipeline routing is not done in a way that maximizes existing right of ways and is done without understanding cumulative impacts to the environment.
Oil & Gas - Midstream	Ecological Impacts	Material issue?	Corporation	Yes	Midstream businesses can have a major impact on the ecological environments in which they operate, and businesses that are best at managing those impacts and the related regulatory approvals are permits will be able to grow more easily and quickly.



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Oil & Gas - Midstream	Ecological Impacts	Material issue?	Public Interest	Yes	Construction and maintenance of oil or gas pipelines have significant regulatory requirements to fulfill. The process and requirements are by no means easy, and become more complex with the scale of project. Companies that do this properly can cultivate a positive reputation and can enhance their opportunities to do business. Those that do not, will cultivate a reputation such that the regulators will constantly have to oversee their efforts. This will be especially critical with ongoing development of the Marcellus as more pipeline infrastructure is built to bring this gas to market.
Oil & Gas - Midstream	Ecological Impacts	Material issue?	Market Participant	Yes	For oil transport by tankers and pipelines, the potential impacts on the local environment are very significant, and can incur huge costs in case of an accident (cf. Total in France). For gas pipelines, even if risks are less marked than with oil, proper management of building, maintaining pipelines and managing easements is also key for the company's overall performance. Beyond the issue of potential accidents related to oil and gas maritime transport, the impacts on marine life can be significant (e.g. impacts on various marine species migration routes) and as they directly impact marine biodiversity, should be measured.
Oil & Gas - Midstream	Ecological Impacts	Material issue?	Market Participant	Yes	Negative ecological events can be devastating to not only scarce resources and environments in general, but also to community relations and a company's license to operate.
Oil & Gas - Midstream	Ecological Impacts	Material issue?	Corporation	Yes	All companies need to be responsible
Oil & Gas - Midstream	Greenhouse Gas and other emissions	Material issue?	Market Participant	Yes	Substantial GHGs are generated through the transportation of oil & gas, as well as via fugitive emissions. These emissions will likely soon have a cost applied to them. Also, managing a carbon footprint enhances reputational value - or perhaps more importantly helps to mitigate reputational damage.
Oil & Gas - Midstream	Greenhouse Gas and other emissions	Material issue?	Corporation	Yes	It's a key issue in the Oil & Gas industry, with a bearing on taxes
Oil & Gas - Midstream	Greenhouse Gas and other emissions	Material issue?	Corporation	Yes	AQ at compressor stations of midstream assets can be a potential source of air quality issues.
Oil & Gas - Midstream	Greenhouse Gas and other emissions	Material issue?	Corporation	Yes	Greenhouse Gas Emissions should be lumped in Ecological Impacts and not be a stand alone category. It has no more or less impact to midstream businesses than nitrogen oxide, particulate matter, or other regulated emissions.



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Oil & Gas - Midstream	Greenhouse Gas and other emissions	Material issue?	Public Interest	Yes	Oil gas is a carbon intensive industry and thus this area is best suited as the air quality (and environmental, business and societal) issue. This also an area which is becoming increasingly regulated across the globe, including in the US. It is important that SASB address existing disclosure venues here, as well. Climate change disclosure is already addressed through SEC Reg S-K per the SEC's 2010 interpretive release. And I don't recall any significant mention of how extensively oil and gas midstream companies are disclosing through CDP; albeit not mandatory, a venue requiring very complex disclosure and one where companies' performance is ranked.
Oil & Gas - Midstream	Greenhouse Gas and other emissions	Material issue?	Market Participant	Yes	Potential methane leakage from gas pipeline transport, the utilization of gas or fuel for LNG and oil tankers, the fuel used for pipelines compression stations implies that there are GHG emissions directly associated with such operations; therefore, these should be measured in order to assess the environmental performance of the companies.
Oil & Gas - Midstream	Greenhouse Gas and other emissions	Material issue?	Corporation	Yes	Current and emerging regulations can have material impacts on capex and operating costs, particularly gas processing and major pipeline sources (e.g., compression).
Oil & Gas - Midstream	Greenhouse Gas and other emissions	Material issue?	Market Participant	Yes	Most scientific research supports the hypothesis that GHGs are at least in part responsible for observed climatic warming and changing weather patterns and, indirectly, potential consequential damages to health and societal economic well-being. While CO2 emissions are important in this industry, fugitive methane emissions hold the potential to be a larger risk factor. Further, industry faces a growing volume and variety of state and federal GHG emission regulations, creating clear compliance risks. Finally, the application of significantly higher shadow carbon prices to federally funded and subsidized projects will increase the potential for externality costs to affect corporate financial risks and performance. These circumstances create significant risk for members of the oil and gas midstream industry and for investors.
Oil & Gas - Midstream	Greenhouse Gas and other emissions	Material issue?	Corporation	Yes	Climate change!



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Oil & Gas - Midstream	Industry definition	Inaccuracy	Corporation	D.N.A. - Inaccuracy	While diversity of operations is a strong point for Kinder Morgan. Kinder Morgan has been in the CO2 and EOR business well over a decade, long before the recent spike in rail transport. Generally the industry summary contrasts gas midstream to oil midstream operations. They are more similar than they are different. While it serves the reader to understand the differences between the two, it puts too much emphasis on the differences and not enough on their similarities. Double check the margin's reported in the end note "iv" IBISWorld reports on Gas/Oil?natural Gas Liqueids/Refined Petroleum Pipeline Transportation in the U.S. December 2012. Based on what I see in the market, they are not accurate. I suggest reviewing and rewording the sentence about tar sands and acidic bitumen after reading 6/25/2013—TRB Special Report 311: Effects of Diluted Bitumen on Crude Oil Transmission Pipelines at http://www.nap.edu/openbook.php?record_id=18381 .
Oil & Gas - Midstream	Industry definition	Other Comment	Market Participant	D.N.A. - Other Comment	Oil and gas midstream are two quite different sectors, especially concerning non-financial performance. A differentiated use of sustainability KPIs should be promoted: for example, oil transport presents much higher potential environmental damage risks (and of a different kind) than gas transport.
Oil & Gas - Midstream	Does Not Apply	Other Comment	Corporation	D.N.A. - Other Comment	Too early in process to comment
Oil & Gas - Midstream	New Issue	Add Issue	Public Interest	Corporate Governance	For this and most other industries based in the US, corporate leadership (CEO and Board chair) is most often vested in one person. Since the CEO is technically accountable to the Board, a better governance model is to have different individuals in these positions, ensuring that the Board can 'independently' exercise its fiduciary responsibility. Note I have not provided any documents below, as there is a veritable cornucopia of material published on this issue. One place to start would be the ICCR website.
Oil & Gas - Midstream	New Issue	Other Comment	Corporation	D.N.A. - Other Comment	Generally, it's a good summary of the industry segment. There are relevant metrics being reported now to government agencies (e.g., EPA, OSHA, PHMSA, and state agencies with delegated authorities), and identifying them through the proposed SASB standards would organize them in a useful way for investors and other users of SEC financial reports. Utilizing data reported to government agencies increases report reliability, objectivity, and auditability. As proposed there is too much reliance on undefined metrics and descriptions of activities, and not enough on the well defined measures and associated hard data that already exists. More emphasis needs to be put on regulatory compliance, regulatory risk, environmental governance at the board level, and company ethics. These issues need to be reflected in the identified sustainability issues and in the accounting metrics.
Oil & Gas - Midstream	New Issue	Add Issue	Market Participant	Economic regulatory environment	Much of the natural gas pipeline and storage industry is economically regulated by the federal government (FERC) and in many cases by the states (particularly when the pipelines are intra-state). The sustainability or survivability of any midstream entity controlled by these regulators can be significantly degraded if the quality of the regulations is poor or unduly influenced by politics. This issue is quite material to investors and is most often overlooked as a sustainability issue.



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Oil & Gas - Midstream	New Issue	Add Issue	Corporation	Leadership and Governance	Board structure and independence and regulatory and legal challenges are critical issues for all segments on the traditional energy segments. The market leaders in the midstream industry have leadership that has a excellent understanding of environmental and safety issues. When companies are faced with major incidents, poor leadership response has a negative multiplier affect on the impact to company community relations and market capitalization. If SASB is to be taken seriously, it must advocate the same level of qualification for a sustainability expert on the audit committee as there is required for a financial expert on each audit committee now. Finally, because the industry's prices, an in turn revenues, are largely regulated by a government agency, namely FERC, regulatory challenges are more material than many of the items proposed hear which a expenses.
Oil & Gas - Midstream	Regulations	Comment on Brief	Public Interest	D.N.A. - Comment on Brief	Quite honestly, the brief, although concise, appears to be more of a stream of consciousness compilation of information than an informed analysis of the industry and its issues. The brief was quick to identify issues and (inherent) risks, but was short on acknowledging where and how companies address these risks (thus what are the management controls in place that make these risks less problematic) and do so well and to the industry's credit. The brief is also very superficial in how it addresses regulations. The industry must comply with increasingly complex regulations in the US and abroad, including FERC and DoT for pipeline considerations. While references to specific company 10Ks are provided, there is no coherent explanation of the existing environmental and carbon disclosure requirements in SEC Reg S-K, thus one basis for the additional disclosure areas that SASB is proposing. I clearly understand that there can be widely ranging performance amongst companies. However, selected examples of poor performance (the bad apple) does not spoil the entire bushel. Citing one or even several examples of a major issue as the evidence for an issue or metric being material, while informative, is not balanced by evidence where company's address the issue appropriately.
Oil & Gas - Midstream	Regulations	Inaccuracy	Public Interest	D.N.A. - Inaccuracy	I did not detect any specific inaccuracies per se; it appears that most facts stated have a specified reference. However, the brief is short on providing necessary context around existing SEC environmental/carbon reporting and disclosure requirements (thus the launch point for defining additional areas for material disclosure), as well as a better balance of what companies already are doing to address the identified issues.
Oil & Gas - Midstream	SASB Approach	Inaccuracy	Corporation	D.N.A. - Inaccuracy	There is a clear bias in the industry brief to amplify negative impacts and to source a lot of information from anti-industry sources.
Oil & Gas - Midstream	SASB Approach	Other Comment	Corporation	D.N.A. - Other Comment	It is evident that the researchers that contributed to/prepared the industry brief have little or no industry experience.
Oil & Gas - Midstream	Supply Chain Management	Add Issue	Corporation	Supply Chain	It has several aspects that have grown in importance, including Local Content and Human Rights



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Oil & Gas - Midstream	Survey comment	Other Comment	Public Interest	D.N.A. - Other Comment	I have several general comments: (1) It would be helpful if the issued briefs at least allowed the reader the ability to mark up with sticky notes and highlights so that can questions or issues can be readily highlighted to address in responses to the questionnaire. (2) On the respondent categorization, I'm not certain that I'm an intermediary, per se, but definitely I am not an Oil & Gas company or industry representative. perhaps providing some definitions would be in order. (3) I believe there needs to be an intermediate answer on metrics, as there was for potentially material issues. Due to the complexity of some proposed metrics, an answer is not always clear cut.
Oil & Gas - Midstream	Waste Management	Inaccuracy	Market Participant	D.N.A. - Inaccuracy	I could be wrong, but I have been told that gas leaked during transmission can be calculated without too much difficulty. There is a known quantity of gas that leaves the production phase and a known amount that arrives at its destination following midteam transportation. The difference is loss.
Oil & Gas - Midstream	Waste Management	Add Issue	Public Interest	Waste Management	This industry oil & gas) generates significant wastes from their operations, which generally are not exempt from RCRA subtitle C regulation. Additionally, these industries have a long history of the need for remediation of soil and groundwater contamination. Specific to the natural gas industry, they have dealt with industry wide PCB and mercury contamination issues for almost two decades. There is a long history of information regarding these issues. I would encourage your analysts to research these issues.
Oil & Gas - Midstream	Water Management	Add Issue	Corporation	Water	Water is fast becoming the next material issue for industry.
Oil & Gas - Refining and Marketing	Accidents and Safety Management	Other Comment	Market Participant	D.N.A. - Other Comment	The information sheets are very US focused and seem to feed a few specific issues to the reader. The industry is much more complex and has many more issues which were not including such as spills, operating licences, management systems, use and mangement of contractors. I feel as though the fact sheets provides an over simplified view of the industry.
Oil & Gas - Refining and Marketing	Accidents and Safety Management	Add Issue	Market Participant	Hydrocarbon spills/releases	Hyrdocarbon spills and releases is another important issue for the downstream industry sector.
Oil & Gas - Refining and Marketing	Accidents and Safety Management	Add Issue	Market Participant	process safety	critically important with major financial, operational and reputational impacts when not managed appropriately
Oil & Gas - Refining and Marketing	Air Quality	Material issue?	Market Participant	Maybe	It should be more material than in reality it is. My view, however, is that as important as air quality is, the industry can do a lot to delay and defang regulation. Enforcement actions happen all the time, but tend to be a cost of doing business. Even if it's a large event, it quickly recedes into the white noise of all the other concerns.
Oil & Gas - Refining and Marketing	Air Quality	Material issue?	Corporation	Maybe	Air quality has been a a high focus in the past in Middle East and product specifications are implemented to ensure Air quality.



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Oil & Gas - Refining and Marketing	Air Quality	Material issue?	Public Interest	Maybe	Other than questions about whether or not the company is in compliance with relevant state and federal clean air regulations I don't know that there is significant exposure to liability or reputational risk related to air quality issues.
Oil & Gas - Refining and Marketing	Air Quality	Material issue?	Corporation	No	It is highly regulated and managed with operational controls. Congress is not likely to create more regulation in the near term.
Oil & Gas - Refining and Marketing	Air Quality	Material issue?	Public Interest	Yes	Actions under Clean Air Act or at state level make this potential source of risk as well. Similar to water management.
Oil & Gas - Refining and Marketing	Air Quality	Material issue?	Market Participant	Yes	All refineries are required to report under the EPA as well as other global requirements. This is because they combust unrefined products which need to be managed.
Oil & Gas - Refining and Marketing	Air Quality	Material issue?	Market Participant	Yes	Air quality standards continue to evolve and tracking the impacts of poor air quality on the overall health of surrounding communities is important.
Oil & Gas - Refining and Marketing	Air Quality	Material issue?	Corporation	Yes	governments and communities are highly interested and may impact licence to operate severely. Not meeting air quality standards may create additional local regulatory requirements to prevention measures which may not apply to the industry as a whole.
Oil & Gas - Refining and Marketing	Air Quality	Material issue?	Corporation	Yes	Refineries are frequently near high density population areas; again an expectation to manage this to be a good neighbor.
Oil & Gas - Refining and Marketing	Community Relations	Material issue?	Market Participant	Maybe	Rarely does a community relations issue or event bring down a company. It certainly causes headaches for the PR folks, CSR staff, and the legal team, but not at a rate and on a scale that would affect a company's bottom line. That said, you have your MTBE and Chromium 6 and oil sands challenges that have tarred companies, but they don't usually single handedly bring them to their knees. Yes, BP's Gulf oil spill was a huge community relations debacle, but it was a debacle on so many levels, who's to choose which one had the most impact and by how much? Intertwined evils.
Oil & Gas - Refining and Marketing	Community Relations	Material issue?	Corporation	Maybe	compliance with regulation and legal requirements are crucial
Oil & Gas - Refining and Marketing	Community Relations	Material issue?	Corporation	Maybe	Communities are having financial issues related to securing revenues from the state and federal government. They rely on the tax revenues of large facilities.



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Oil & Gas - Refining and Marketing	Community Relations	Material issue?	Public Interest	No	I don't believe that these are more pertinent to the refiners and marketers industry than for any other industrial companies. Besides the environmental issues identified, I don't think there is substantial risk to companies from community relations as they currently stand.
Oil & Gas - Refining and Marketing	Community Relations	Material issue?	Market Participant	No	I think this is refinery dependent. Some refineries and marketing terminals, based on their location at very close to large communities and therefore they need to have close community relations and management of odour and emissions. However, some refineries are not close to communities and therefore, community relations are not as material for these sites.
Oil & Gas - Refining and Marketing	Community Relations	Material issue?	Public Interest	No	As it's presented it seems too abstract and too subjective to identify useful metrics for measuring the status of community relations. In many cases the relationship with the community has as much (or more) to do with the community in question than the behavior of the facility.
Oil & Gas - Refining and Marketing	Community Relations	Material issue?	Market Participant	No	Unclear on how this is impactful and can be measured adequately.
Oil & Gas - Refining and Marketing	Community Relations	Add Issue	Corporation	Site selection and land use	1. Refinery/infrastructure location near oceans a concern with rising levels and storm impacts. 2. Communities with high concentration of refineries and associated industries (petro chem) not eager to host new refineries that are often in poor or highly industrialized areas and that discourage other land uses.
Oil & Gas - Refining and Marketing	Community Relations	Material issue?	Corporation	Yes	Need for community relations development is becoming more and more important especially after Arab spring and administrators of oil rich nations are using this as a tool to gain support of population.
Oil & Gas - Refining and Marketing	Community Relations	Material issue?	Market Participant	Yes	Stakeholder engagement, public safety awareness is fundamental.
Oil & Gas - Refining and Marketing	Community Relations	Material issue?	Corporation	Yes	Critical to social license. Look at what Chevron spends in Richmond to maintain theirs.
Oil & Gas - Refining and Marketing	Employee health, safety & well-being	Material issue?	Public Interest	Maybe	Again, I'm not sure if this is any more pressing than for any other type of company. This is certainly a risk across the board, especially in industrial sectors, but not more pressing here than elsewhere in my opinion.
Oil & Gas - Refining and Marketing	Employee health, safety & well-being	Material issue?	Corporation	No	There are sufficient regulations in place and operational controls to make sure that requirements are met. Congress will not make this more stringent in near future.



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Oil & Gas - Refining and Marketing	Employee health, safety & well-being	Material issue?	Market Participant	Yes	Mostly an issue companies can keep a lid on, especially with OSHA so weak, the MMS (aka Bureau of Ocean Energy Management, Regulation) on the run, and unions curtailed. Occasionally, you do get a Texas City or Macondo well, which demonstrate that when it goes wrong, it really can go wrong.
Oil & Gas - Refining and Marketing	Employee health, safety & well-being	Material issue?	Corporation	Yes	Middle Eastern countries are under the international lens on health, safety and well being of contract employees and there is an increasing trend to increase contract employment to achieve localization targets and employee health, safety and well being is disclosed only about the regular employees.
Oil & Gas - Refining and Marketing	Employee health, safety & well-being	Material issue?	Market Participant	Yes	Health and safety is a very material for any industrial process which uses high pressures and temperatures. This has been seen with the explosions at gas plants and refineries. With the manual maintenance of these units - there also requires large issues and management of OHS such as confined spaces permits and working at heights.
Oil & Gas - Refining and Marketing	Employee health, safety & well-being	Material issue?	Corporation	Yes	due to the high risk associated with hydrocarbons and the pressure on low cost production (more in Europe than in the US)
Oil & Gas - Refining and Marketing	Employee health, safety & well-being	Material issue?	Market Participant	Yes	I'm glad to see this here. It is too often treated as a non-material issue by many of the ESG research providers.
Oil & Gas - Refining and Marketing	Employee health, safety & well-being	Material issue?	Corporation	Yes	Safety is always a huge issue. Think BP Texas City, Chevron's Richmond refinery fire etc.
Oil & Gas - Refining and Marketing	Greenhouse Gas Emissions	Material issue?	Corporation	Maybe	There has not been an effective movement in the United States to drive the requirements for reductions in this industry. Congress is likely to thawft any major changes.
Oil & Gas - Refining and Marketing	Greenhouse Gas Emissions	Material issue?	Market Participant	Yes	More an issue from a product perspective, but this certainly affects R&M if and when curbs are put on the sale of gasoline and other petroleum products.
Oil & Gas - Refining and Marketing	Greenhouse Gas Emissions	Material issue?	Public Interest	Yes	Incoming and current EPA and state regulations will likely make this a substantial business risk to refiners and marketers. Investors should want to know how exposed these businesses are.



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Oil & Gas - Refining and Marketing	Greenhouse Gas Emissions	Material issue?	Corporation	Yes	Green house has emissions has higher significance in Middle East as the per capita GHG intensity is very high with all the major middle eastern countries figure in the top 10 per capita GHG emitters. Moreover, GHG emissions is of high importance as it can drive energy efficiency in the region creating surplus oil reserves for export to generate additional national revenues.
Oil & Gas - Refining and Marketing	Greenhouse Gas Emissions	Material issue?	Market Participant	Yes	Due to the number of regulatory requirements and cap and trade schemes, O&G companies are required to a). report their GHG emissions and obtain third party verification b). purchase permits for the quantity of GHG emissions they are liable for. This is resulting in a large impact on a companies financial interest. For example - a small facility would be liable for approx \$30 million under the AB32 Regulations. GHG emissions reporting is also an indirect indicator for overall energy management at a site level.
Oil & Gas - Refining and Marketing	Greenhouse Gas Emissions	Material issue?	Market Participant	Yes	This is a key sustainability metric being addressed globally across multiple industries.
Oil & Gas - Refining and Marketing	Greenhouse Gas Emissions	Material issue?	Corporation	Yes	Energy intensive process to crack hydrocarbons. Stakeholders expect industry to be responsible for and drive down GHG across value chain.
Oil & Gas - Refining and Marketing	Hazardous Materials Management	Material issue?	Market Participant	Maybe	Again, like air quality, haz mat management is a cost of doing business. Most companies have the system down and are well aware of what's required to comply with laws. But in terms of an issue that has large scale financial or even social and environmental impacts, I don't see HMM as a priority to measure.
Oil & Gas - Refining and Marketing	Hazardous Materials Management	Material issue?	Market Participant	No	NA - don't think this is as material as other areas. Refineries generate hazardous materials which are managed but so do many other industries and therefore, I don't see this as a large issue.
Oil & Gas - Refining and Marketing	Hazardous Materials Management	Material issue?	Corporation	No	This is being covered with regulatory compliance and associated operational controls. Not likely to become more regulated in the short term.
Oil & Gas - Refining and Marketing	Hazardous Materials Management	Material issue?	Market Participant	Yes	Similar to air quality from a health concern perspective.
Oil & Gas - Refining and Marketing	Hazardous Materials Management	Material issue?	Corporation	Yes	due to the nature of the products and the risk they impose on humans and the environment
Oil & Gas - Refining and Marketing	Hazardous Materials Management	Material issue?	Market Participant	Yes	Informs operational improvements - lagging and leading indicators.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Oil & Gas - Refining and Marketing	Hazardous Materials Management	Material issue?	Corporation	Yes	Always requires diligence.
Oil & Gas - Refining and Marketing	Does Not Apply	Add Issue	Market Participant	energy use	major input with high capital costs and influences GHG emissions
Oil & Gas - Refining and Marketing	New Issue	Add Issue	Corporation	Ability to address external risks with a business continuity plan	Companies should consider the use of the new ISO 22301 business continuity management system to deal with the planning and recovery from external risks - terrorism, intense storms, earthquakes, water scarcity, etc.
Oil & Gas - Refining and Marketing	New Issue	Add Issue	Corporation	Adversion to using International management systems	The industry is conservative in nature and tends to do what it is required to do. It needs to use international management systems to ensure that it is addressing the items that pose risk (ISO 31000).
Oil & Gas - Refining and Marketing	New Issue	Add Issue	Corporation	corruption and anti bribery	raw materials may arise from areas with poverty or low ethical standards. R&M on the other hand operates and sells products everywhere. Managing relationship with country governments well and in an ethical manner may impact the reputation. UK Bribery Act enforces compliance for any company with business in the UK and non compliance could result in large penalties or imprisonment of key staff.
Oil & Gas - Refining and Marketing	New Issue	Other Comment	Corporation	D.N.A. - Other Comment	It is a very comprehensive and well written report. I am missing comments on overall demand for gasoline and diesel and the impact a decrease in the US/EUR will have on these regions while others are still growing. The R&M companies in your report may not have a strong manufacturing / marketing presence in emerging markets where local players are strongly supported by local governments (e.g India or Russia). This may give a different on view on sustainability factors in the near future.
Oil & Gas - Refining and Marketing	New Issue	Add Issue	Corporation	Human rights	For Middle Eastern countries, human rights is a major aspect to be included from two perspectives. First one the human rights issues related to employment in middle eastern countries and second one on the human rights issues related to equipment supply from emerging economies as Middle Eastern oil and gas companies are building up significant capital projects during the next two decades.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Oil & Gas - Refining and Marketing	New Issue	Add Issue	Market Participant	Resourcing	Refineries globally are requiring good engineers to manage the sites. A lot of engineers are retiring and there is a large gap in the market. In order to manage sites appropriately - they need to make sure they have the correct skills and training in place to ensure appropriate operations.
Oil & Gas - Refining and Marketing	New Issue	Add Issue	Corporation	Risk Management	Companies need to have a means of reducing the uncertainty of meeting their stated objectives - definition of risk in ISO 31000. All the ISO management system standards are requiring a link to mandated risk management and sustainability programs. The inability to integrate risk management programs and improve the overall risk management poses the biggest threat to the members of this industry.
Oil & Gas - Refining and Marketing	Pricing Integrity and Transparency	Material issue?	Corporation	Maybe	Pricing in Middle East is subsidized and is not considered as a material issue by customers, who are the main stakeholders to this aspect
Oil & Gas - Refining and Marketing	Pricing Integrity and Transparency	Material issue?	Market Participant	No	Too heavily influenced by other factors outside the immediate industry. Oil traders game the system and drive up prices; global eb and flow of the market: these and other factors aren't necessarily within the control of the R&Ms.
Oil & Gas - Refining and Marketing	Pricing Integrity and Transparency	Material issue?	Corporation	No	There is some scrutiny that the industry is used to handling. Congress is not likely to touch this in the near term.
Oil & Gas - Refining and Marketing	Pricing Integrity and Transparency	Material issue?	Corporation	No	In our business pricing is more relevant to the midstream where the product is sold at well head.
Oil & Gas - Refining and Marketing	Pricing Integrity and Transparency	Material issue?	Public Interest	Yes	Given high refined product prices, any instances of pricing irregularities or malfeasance could be a prime target for legal action. Information on how companies are handling this would be helpful to investors.
Oil & Gas - Refining and Marketing	Pricing Integrity and Transparency	Material issue?	Market Participant	Yes	This is an issue which is faced globally and when there are so many consumers watching the price of fuel it is a clear material issue with so much regulation associated with it.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Oil & Gas - Refining and Marketing	Pricing Integrity and Transparency	Material issue?	Corporation	Yes	Pricing management impact the economy and individuals strongly. Major pricing changes in the past created a lot of pressure on politics to manage this in favor of their people which in result created additional cost or loss of return in R&M. This may become less important with additional volumes from fracking and expectation of lower cost for crude. One important competitive advantage in R&M comes from excellence in supply / demand management which limits opportunities to be transparent in pricing integrity.
Oil & Gas - Refining and Marketing	Pricing Integrity and Transparency	Material issue?	Market Participant	Yes	I'm also glad to see this issue make it to the list of material things. Price elasticity seems to be quite different in this industry depending on whether crude is going up or down, and that's a significant source of reputational risk, at least.
Oil & Gas - Refining and Marketing	Product Stewardship	Material issue?	Public Interest	No	I believe this should be contained more within descriptions of corporate strategy and is less an issue of ESG reporting. More of laying out how company is planning to invest in development or research.
Oil & Gas - Refining and Marketing	Product Stewardship	Material issue?	Market Participant	No	There are a range of management systems set up in place for petroleum products - such as E10% and the clean fuel in California. However, I believe this is not the same kind of risk to the organisation. The primary risk is to make sure that the site can supply the required product type for each season.
Oil & Gas - Refining and Marketing	Product Stewardship	Material issue?	Public Interest	No	Product stewardship, particularly in this sector, seems too far divorced from the actual behavior and performance of the company to constitute a material issue.
Oil & Gas - Refining and Marketing	Product Stewardship	Material issue?	Corporation	No	Product stewardship has been a part of a responsible care focus in the industry. Congress does not effectively deal with this issue.
Oil & Gas - Refining and Marketing	Product Stewardship	Material issue?	Corporation	No	This process does not really result in finished products that end up with consumers.
Oil & Gas - Refining and Marketing	Product Stewardship	Material issue?	Market Participant	Yes	If disruptive innovation or high profile externality renders petroleum obsolete or damaged goods, that's a game changer. I may have misread this one, but I think of MTBE switch to Ethanol very material for many of the R&Ms. Climate change obviously works in here.
Oil & Gas - Refining and Marketing	Product Stewardship	Material issue?	Corporation	Yes	Petroleum products are under constant scrutiny for product specifications and gaining improved quality of high importance
Oil & Gas - Refining and Marketing	SASB Approach	Other Comment	Public Interest	D.N.A. - Other Comment	This is a great project. I think SASB did a great job of categorizing the issues this industry faces and developing reporting standards.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Oil & Gas - Refining and Marketing	Survey comment	Other Comment	Market Participant	D.N.A. - Other Comment	Although the choices to many of the survey questions were either YES or NO, my real answers often aren't absolute. For instance, if I answered NO to cost effectiveness or auditability, it might reflect my belief that although a particular metric may technically be feasible, the reality is that companies would not likely collect the data or create a system that would allow for auditability.
Oil & Gas - Refining and Marketing	Survey comment	Comment on Brief	Corporation	D.N.A. - Other Comment	There was no discussion of the risk management programs common to publicly traded firms and how they are used for sustainability purposes. There was no mention of the use of international management systems by this industry. There was no mention on the reporting accuracy of the items in the industry's sustainability reports. A comparison to the reporting of the Dow Jones Sustainability Index Questionnaire would have been helpful since it takes risk into account. There was mention of "looking forward" without any leading indicators being posed. The authors were fixated on lagging measures because they felt that they were easy to measure. However the facilities have little to no influence over them without the leveraging power of leading indicators. Many operational excellence programs are already using these leading indicators. EFQM in Europe claims the 30,000 companies use their self assessment program. None of these companies are reporting on these leading indicators in their sustainability program although they often release the results in their annual reports as an indication of excellence.
Oil & Gas - Refining and Marketing	Water Management	Material issue?	Corporation	No	It is highly regulated and managed with operational controls. Congress is not likely to create more regulation in the near term
Oil & Gas - Refining and Marketing	Water Management	Material issue?	Market Participant	Yes	As the brief well articulates, water in general is growing more scarce. Even if a company has the wherewithal to pay big money to acquire water, the bottom line is that in certain hot spots (western U.S. for instance), there just isn't enough to go around and it's getting worse.
Oil & Gas - Refining and Marketing	Water Management	Material issue?	Public Interest	Yes	Regulations from the Clean Water Act and at the state level make this a potential source of risk to these companies for large fines or other actions.
Oil & Gas - Refining and Marketing	Water Management	Material issue?	Corporation	Yes	I am located in Middle East countries and water is a scarce resource in Middle East. However, water usage is very high as water is produced using subsidized energy which is significantly cheap. Off late stakeholders understand this aspect are expecting oil and gas companies to focus on efficient water management.
Oil & Gas - Refining and Marketing	Water Management	Material issue?	Market Participant	Yes	Water discharge is a large issue as well as water availability and cost of water. Refineries use large quantities of water and as such - with the increasing price and reduced availability - it becomes a more material area - particularly in water stressed regions of the globe.
Oil & Gas - Refining and Marketing	Water Management	Material issue?	Market Participant	Yes	Water is a scarce resource and must be monitored.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Oil & Gas - Refining and Marketing	Water Management	Material issue?	Corporation	Yes	governments and communities are highly interested and may impact licence to operate severely. Not meeting water management standards may create additional local regulatory requirements to prevention measures which may not apply to the industry as a whole.
Oil & Gas - Refining and Marketing	Water Management	Material issue?	Market Participant	Yes	Supply side sourcing issue for operator. Water availability / management issues for community.
Oil & Gas - Refining and Marketing	Water Management	Material issue?	Corporation	Yes	Even in water abundant areas, use vs. others reliant on water sources plus
Oil & Gas - Services	Air Quality	Material issue?	Corporation	No	This issue does not affect our financial solvency.
Oil & Gas - Services	Air Quality	Material issue?	Corporation	No	Service companies are not material polluters of air - similar to Water Mgmt - operators control Flaring for example albeit executed by service company using technology developed by service company so can influence the Air Quality impact and this can be a technology selling point but not a requirement. Again may not be material but perhaps in interest of industry transparency and also for speciifc local compliance such as Nox and Sox in US there may be a case for relevant reporting using indicators that make sense for the company such as ones driving performance and/or meeting regulatory requirements.
Oil & Gas - Services	Air Quality	Material issue?	Market Participant	No	This is more an issue for oil & gas producers (the asset owners).
Oil & Gas - Services	Air Quality	Material issue?	Market Participant	No	The industry is not paid based on improving air quality, but well productivity. I think focusing on water management as a material issue would be better because the industry is incentivized to be safer and more efficient around water logistics, which would naturally have a positive effect on air quality (the number of trucks on a road would go down).
Oil & Gas - Services	Air Quality	Material issue?	Corporation	Yes	health and safety impacts
Oil & Gas - Services	Air Quality	Material issue?	Market Participant	Yes	both flaring and fugitive gas emmissions are fundamental issues. CO2 has been determined to be subject to regulation under the clean air act.
Oil & Gas - Services	Air Quality	Material issue?	Corporation	Yes	If a company's activities negatively impact air quality, it not only affects the health of employees in the workplace, but can impact the broader community with associated negative responses.
Oil & Gas - Services	Air Quality	Material issue?	Public Interest	Yes	The EPA recently finalized a NSPS for Air Quality for the oil and gas sector that is going into effect in 2015.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Oil & Gas - Services	Business Ethics and Payments Transparency	Material issue?	Corporation	Maybe	This issue may affect our financial solvency, but at this time it is not clear that it certainly would.
Oil & Gas - Services	Business Ethics and Payments Transparency	Material issue?	Corporation	Yes	a lack of this, is negative to business growth and stability
Oil & Gas - Services	Business Ethics and Payments Transparency	Material issue?	Corporation	Yes	Business Ethics is the golden indicator category. any business conducted unethically is either short term or outside the law - no self-respecting business wants to be either. Payments Transparency is not necessarily the same category and I suppose the issue here is about levels of transparency - e.g. who sees what? Full open kimono style transparency is rarely productive but specified transparency to competent authorities is no doubt desirable - should be pitched at the right level of incentive to drive good performance. Full transparency to audiences who not competent is not desirable.
Oil & Gas - Services	Business Ethics and Payments Transparency	Material issue?	Market Participant	Yes	It is fundamental to the "governance" part of ESG analysis, in an industry both heavily engaged in lobbying and political activity in the US, and that operates in parts of the world where government corruption is rife.
Oil & Gas - Services	Business Ethics and Payments Transparency	Material issue?	Corporation	Yes	An ethical business operation is fundamental to a sustainable business. Breaches of legislation such as the FCPA can result in fines of hundreds of millions of dollars, negatively affect a company's reputation, and result in imposed restrictions and activities for years after the event.
Oil & Gas - Services	Business Ethics and Payments Transparency	Material issue?	Public Interest	Yes	many operations in countries with high risks of corruption
Oil & Gas - Services	Business Ethics and Payments	Material issue?	Market Participant	Yes	There are clear examples of where problems in this area have had a meaningful impact on companies.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/Response	Comment
	Transparency				
Oil & Gas - Services	Business Ethics and Payments Transparency	Material issue?	Public Interest	Yes	Section 1504 of the Dodd-Frank Act requires payments transparency to foreign governments.
Oil & Gas - Services	Community Relations	Material issue?	Corporation	Maybe	Typically operators are between service companies and the community and they do not want us all running around running our own CR programs that may exacerbate the overall asset risk. There is a need to mature the levels of dialogue and cooperation. Service companies win their tenders based on technology, price and service delivery. They do not win them on ability to manage community relations and they never will. However having a good reputation on this topic certainly influences business development in a soft way. It's worrying to see the topics creeping in to Invitations to Tender without there being any systematic way to rate the responses or elevate them to the required level of attention such that they might make a difference in tender outcomes. Nonetheless I believe Service Companies have a business case to be selectively proactively managing community relations based on exposure to risk and even if only to stay active with the customer who may or may not be on top of the topics. So like for several of the indicators an aggregated global view will be meaningless. Materiality needs to be applied at the right level of granularity - and that will often be country level and customer/location specific.
Oil & Gas - Services	Community Relations	Material issue?	Market Participant	Maybe	Responsibility lies more with E&Ps or NOCs, less with the service companies. It is not that it is entirely unimportant, just that it is less than 'material'.
Oil & Gas - Services	Community Relations	Material issue?	Corporation	No	This issue does not affect our financial solvency.
Oil & Gas - Services	Community Relations	Material issue?	Market Participant	No	This is more an issue for oil & gas producers (the asset owners).
Oil & Gas - Services	Community Relations	Material issue?	Market Participant	No	The community relations issues within the industry are more around producers' activity levels in certain areas which are deemed to be environmentally sensitive rather than the actual operations of any oil services firms. In short, the issue is more Chesapeake choosing to drill in x location rather than Schlumberger providing well testing services for that well.
Oil & Gas - Services	Community Relations	Material issue?	Public Interest	Yes	The greater intensity of development that comes with unconventional resource extraction (especially shale development) has brought with it increased community concerns and opposition, in many cases threatening the industry's license to operate.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/Response	Comment
Oil & Gas - Services	Community Relations	Material issue?	Corporation	Yes	comm relations important, unhappy community can impact negatively on the bottom line
Oil & Gas - Services	Community Relations	Material issue?	Market Participant	Yes	Service companies bring labor to exploration and development sites just as E&P companies do, in onshore operations these additional and non-local workers can create large disruption in the life of a community, these need to be managed, as they could cause longer term disruption and pushback that affect reputation and license to operate.
Oil & Gas - Services	Community Relations	Material issue?	Corporation	Yes	Social license to operate - cannot be a profitable business unless you /the E&Ps can get community buy-in to dig/operate in their communities.
Oil & Gas - Services	Community Relations	Material issue?	Market Participant	Yes	The service industry is by definition somewhat migratory, and it is easy for them to "hit and run" and be part of a boom and bust cycle in the communities where they do business. Or, done right, they can be much better than this.
Oil & Gas - Services	Community Relations	Material issue?	Corporation	Yes	The voice of the community is becoming increasingly important to companies. Objections from the community can significantly impact the license to operate. Good relations with the community can bring many benefits, including being recognized as a good company to work for and retaining talent.
Oil & Gas - Services	Community Relations	Material issue?	Public Interest	Yes	The importance of community relations, although not necessarily the responsibility of service companies, has become increasingly clear as moratoria on oil and gas development have resulted from community concerns.
Oil & Gas - Services	Ecological Impacts	Material issue?	Corporation	Maybe	I have reservations with considering ecological impacts as a material issue because the location of the service operation will dramatically impact the extent to which materiality comes into play for ecological impacts. Because geography of the service matters; that is, service operations in service shops in highly-industrialized areas will not have the same level of potential ecological impacts as service operations that take place in offshore settings, I have reservations with regards to classifying ecological impacts as a material issue in every situation, regardless of locational context.
Oil & Gas - Services	Ecological Impacts	Material issue?	Corporation	Maybe	May be material in specific contexts. But globally not material. For Seismic for example it's important that our customers know we can manage biodiversity impacts be it on land or marine and we are active members of IAGC the industry association for seismic which drives industry standards amongst other missions.
Oil & Gas - Services	Ecological Impacts	Material issue?	Corporation	No	This issue does not affect our financial solvency.
Oil & Gas - Services	Ecological Impacts	Material issue?	Market Participant	No	This is more an issue for oil & gas producers (the asset owners).
Oil & Gas - Services	Ecological Impacts	Material issue?	Market Participant	No	I would suggest that ecological and community relations are material issues for E&Ps and other oil and gas companies because they own the wells and are thus responsible for any negative outcomes from an environmental perspective. The services firms in many cases are providing services as requested by the producers, and thus are not directly responsible for any ecological or community relations issues.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/Response	Comment
Oil & Gas - Services	Ecological Impacts	Material issue?	Corporation	Yes	damage to local ecology, lead to unanticipated impacts on human animal plant life indeed on the business concerned
Oil & Gas - Services	Ecological Impacts	Material issue?	Corporation	Yes	Land remediation costs.
Oil & Gas - Services	Ecological Impacts	Material issue?	Market Participant	Yes	again, duh!
Oil & Gas - Services	Ecological Impacts	Material issue?	Corporation	Yes	Ecological impacts such as contamination of a site can lead to loss of habitat for local fauna. Clean-up costs can be significant (tens of millions of dollars).
Oil & Gas - Services	Ecological Impacts	Material issue?	Public Interest	Yes	Impacts to endangered species pose a risk of litigation.
Oil & Gas - Services	Employee health, safety & well-being	Material issue?	Market Participant	Maybe	Have not seen enough examples of where this has been a material issue (cf company size). However, it could be material if a small company had a problem with this.
Oil & Gas - Services	Employee health, safety & well-being	Material issue?	Market Participant	Maybe	Macondo has obviously put worker safety in a spotlight. However, the industry by and large has always been very tightly focused on safety, and I don't think anyone in the industry would compare working on an offshore rig to a office job. I would like to see better disclosures around injury rates and any regulatory violations so I can obtain a better sense of if a company walks to walk with regards to safety. However, at the same time, I recognize that Macondo is a rare occurrence, and forcing substantial additional reporting requirements here might be a low-value effort.
Oil & Gas - Services	Employee health, safety & well-being	Material issue?	Corporation	No	This issue does not affect our financial solvency.
Oil & Gas - Services	Employee health, safety & well-being	Material issue?	Corporation	No	Employee health, safety, and well-being do not have separate & distinct characteristics within the O&G services sector that are different from other heavy industry.
Oil & Gas - Services	Employee health, safety & well-being	Material issue?	Corporation	Yes	healthy workforce more productive



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/Response	Comment
Oil & Gas - Services	Employee health, safety & well-being	Material issue?	Corporation	Yes	Similar to process innovation - Employee Health and Safety is fundamental to protecting talent, attracting talent, managing for the long term, and being a responsible employer especially for service companies who are entirely dependent on people and their brain power and commitment to the company
Oil & Gas - Services	Employee health, safety & well-being	Material issue?	Market Participant	Yes	The occupations in this industry are by any measure quite hazardous. Hence the differential between a well operated and poorly operated company are material.
Oil & Gas - Services	Employee health, safety & well-being	Material issue?	Corporation	Yes	Companies that have poor health and safety performance can be considered by employees and the community as not caring about their staff. Accidents can lead to lost work days, and serious accidents, including fatalities can lead to law suits and financial penalties.
Oil & Gas - Services	Employee health, safety & well-being	Material issue?	Public Interest	Yes	Employee Health, Safety & Well-being is important for maintaining a productive workforce and avoiding costs associated with lost time incidents.
Oil & Gas - Services	Greenhouse Gas Emissions	Material issue?	Corporation	Maybe	Service companies are not material emitters [2012 emissions for SIb were less than .0001% of global emissions] but as members of an industry so closed associated with emissions it seems divisive to not share information that could be helpful to the sector and to investors or other stakeholders. However an instrument such as CDP is overkill for a service company level emitter
Oil & Gas - Services	Greenhouse Gas Emissions	Material issue?	Corporation	No	This issue does not affect our financial solvency.
Oil & Gas - Services	Greenhouse Gas Emissions	Material issue?	Corporation	No	Greenhouse gas emissions are not AS material for service providers in this space, as the E&P companies that they serve. GHG emissions are a consideration but not at the same scope and scale as the others noted; the GHG resulting from service operations is typically very small within the scope of the industry.
Oil & Gas - Services	Greenhouse Gas Emissions	Material issue?	Market Participant	No	This is more an issue for oil & gas producers (the asset owners). Oil service companies may offer solutions (e.g. CO2 storage and sequestration)
Oil & Gas - Services	Greenhouse Gas Emissions	Material issue?	Market Participant	No	Please see my earlier response on air quality, as I think the issues are similar here.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/Response	Comment
Oil & Gas - Services	Greenhouse Gas Emissions	Material issue?	Public Interest	Yes	Climate change, and actions to address it, pose a fundamental threat to the industry's core business of finding and selling carbon-intensive fossil fuels.
Oil & Gas - Services	Greenhouse Gas Emissions	Material issue?	Corporation	Yes	climate change mitigation
Oil & Gas - Services	Greenhouse Gas Emissions	Material issue?	Market Participant	Yes	I believe that in addition to the factors enumerated in your brief which correctly focus on equipment including transportaton equipment owned and operated by the service companies, Methane emissions are a major issue for the unconventional fossil fuel industry in the US and that service compnaies need to focus on helping to find solutions to this problem.
Oil & Gas - Services	Greenhouse Gas Emissions	Material issue?	Market Participant	Yes	Very simple - this is THE issue.
Oil & Gas - Services	Greenhouse Gas Emissions	Material issue?	Corporation	Yes	Greenhouse gas emissions are believed to contribute to climate change and the negative outcomes (changing weather patterns, drought, flooding, hurricanes and cyclones) can significantly affect our operations. Extreme weather can cause damage to assets, disrupt operations and the supply chain, prevent access to work areas and affect the continuity of supply of key raw materials.
Oil & Gas - Services	Greenhouse Gas Emissions	Material issue?	Market Participant	Yes	Significant emitters that would be subject to legislation.
Oil & Gas - Services	Greenhouse Gas Emissions	Material issue?	Public Interest	Yes	Greenhouse Gas Emissions and, in particular methane emissions, have been identified by the IEA and the Obama Climate Action Plan as an important area of mitigation. Also, whether electric power from natural gas is less greenhouse gas-intensive than coal is a question of how much methane leakage is occurring.
Oil & Gas - Services	Industry definition	Inaccuracy	Market Participant	D.N.A. - Inaccuracy	AT THE STArT OF THE BRIEF THE STATEMENT WAS MADE THAT SERVICE COMPANIES DO NOT OWN MUCH EQUIPMENTS AND THAT e&p COMPANIES OWN RIGS. Both STATEMENTS WERE INNACURATE.Oil and Gas companies sometimes own rigs, but mostly rigs are ownen by specialized service comapnies called drillers and leased to E&P companies for specific projects. Large sophisticated drill ships needed for deep water drilling are always owned by service companies. Futher more many service companies own specialized equipment. Blow up preventers are one example. The companies in the example universe are less capital intensive but in spite of being the four largest they only represent a samll portion of the Oil and Gas service companies universe.
Oil & Gas - Services	Industry definition	Inaccuracy	Market Participant	D.N.A. - Inaccuracy	In the brief there seems to be a lot of confusion and blurring between E&Ps and service companies. While there is a lot of overlap in forces affecting the two industries, there should be more effort to disaggregate the differences. Service companies are, in many ways, more like industrial firms than E&Ps.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Oil & Gas - Services	Does Not Apply	Add Issue	Market Participant	Capital expenditures	considering how capital intensive some of the companies are, capital expenditure especially relate to 1-long lived assets and two equipment that can reduce the ecological and environmental foot print of the projects are important.
Oil & Gas - Services	Does Not Apply	Inaccuracy	Corporation	D.N.A. - Inaccuracy	I will need to review it again to be able to answer this question. I will do so.
Oil & Gas - Services	Labor Relations	Material issue?	Corporation	Maybe	This issue does not affect our financial solvency.
Oil & Gas - Services	Labor Relations	Material issue?	Corporation	Maybe	Again may be material in a specific set of circumstances - such as Gabon in 2013 but not material globally
Oil & Gas - Services	Labor Relations	Material issue?	Market Participant	Maybe	The lion's share of this topic may be captured under the health and safety issue.
Oil & Gas - Services	Labor Relations	Material issue?	Corporation	No	Labor relations in the sector are a challenge but do not in my view rise to a level of materiality in that they are not separate and distinct from labor relations in many other industries.
Oil & Gas - Services	Labor Relations	Material issue?	Market Participant	No	This is more an issue for oil & gas producers (the asset owners).
Oil & Gas - Services	Labor Relations	Material issue?	Market Participant	No	The oil services industry is not unionized, while talent is in short supply, prompting regular cost increases for the industry, more color on this topic isn't essential in my mind. Strikes are a rare occurrence within the industry, and the workers are generally extremely well paid for the efforts, so for the most part, I think relations are healthy.
Oil & Gas - Services	Labor Relations	Material issue?	Corporation	Yes	labor relations, happy workforce more productive
Oil & Gas - Services	Labor Relations	Material issue?	Market Participant	Yes	I will offer a number of additional metrics in this category, however, missing from your brief were some important factors about the labor force for the whole industry. the current labor force is aging and the industry faces a potential shortage of skilled labor both in the US and abroad. given the cyclicity of the industry, companies have done better when they have retained their workforce during down time and therefore have been able to respond faster and better during recovery. Workers often work in family unfriendly environment and the one week on one week off (or 3 on, 3 off) is more often the norm so in spite of high pay, companies need to pay particular attention to the treatment of their workforce.
Oil & Gas - Services	Labor Relations	Material issue?	Corporation	Yes	May also want to consider labor / human rights in supply chain (e.g., O&G companies are being subject to recent SEC conflict minerals rule).
Oil & Gas - Services	Labor Relations	Material issue?	Corporation	Yes	Poor labor relations can lead to employee unrest. Strikes by employees can cause serious disruption to a company's operations and can adversely affect revenues.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Oil & Gas - Services	Process Innovation	Other Comment	Market Participant	D.N.A. - Other Comment	It might have been helpful if there had been a section on issues and metrics which had been considered for inclusion and then rejected. and the reasons for the rejections. Also narrative on tying in the discussion in the brief, with the material issue and the metrics. While I believe that process innovation is a most material issue for the service industry, that is value added they bring to the table, I was puzzled by the metrics you used. They are all valid metrics and if they show improvement over time they absolutely relate to process innovation, but that was not made clear. I did propose some additional metrics for this issue. some of which do get reported by companies but not all. I understand the need to keep issues very focused so as to justify inclusion in the form 10k as well as the focus on risk. However I believe that narrows the scope too much and allows for less creativity in terms of considering positive impact and some future material issue. For example I found the metrics on community relation too narrow and especially in this difficult industry with such enormous potential negative impacts the choices of potential metrics to offer became limited by the criteria. However I think this is something that you have already considered and settled.
Oil & Gas - Services	Process Innovation	Add Issue	Corporation	Innovation	Innovation is not visible enough in the Sustainability space and it deserves the highest attention as addressing the various SD challenges requires either product or process innovation the level of which seems to be taken for granted by most activist audiences. All change requires innovation at some level and what they look like and how it plays out gives huge insights into how a company is equipped to address SD. Also should create a space in which credit can be given for even managing change. A head down on everything but the kitchen sink bucket of indicators is not what drives performance in businesses. I am of the view that any company should only look at indicators that truly drive performance but where necessary they should be "forced" into adopting leading indicators that take them out of their comfort zone. Voluntary reporting is often ahead of the regulatory curve but until a requirement applies to all players the free rider phenomenon queers the play field.
Oil & Gas - Services	Process Innovation	Material issue?	Market Participant	Maybe	The results or lack of results in a company's ability to innovate are likely to be captured within other measures.
Oil & Gas - Services	Process Innovation	Material issue?	Corporation	No	This issue does not affect our financial solvency.
Oil & Gas - Services	Process Innovation	Material issue?	Public Interest	Yes	The O&G services business is increasingly becoming commoditized, placing a premium on innovation for companies that wish to grow and prosper.
Oil & Gas - Services	Process Innovation	Material issue?	Corporation	Yes	process innovation - improved economic outcomes, potentially improved environmental damage
Oil & Gas - Services	Process Innovation	Material issue?	Market Participant	Yes	as the exploration projects get more complex process innovation is key to improving productivity and ecological footprint of oil and gas
Oil & Gas - Services	Process Innovation	Material issue?	Corporation	Yes	Process innovation in the O&G service sector will dramatically differentiate companies in terms of the extent of services they are able to provide, and thus the revenue derived from those services.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Oil & Gas - Services	Process Innovation	Material issue?	Corporation	Yes	Process Innovation is probably always material for any industry - it's part of being at the top of one game and running a business to the highest standards.
Oil & Gas - Services	Process Innovation	Material issue?	Corporation	Yes	A company must be innovative to compete in an industry. A lack of technical innovation and not offering products and services that meet the demands of customers can quickly result in a loss of market share and significant revenues.
Oil & Gas - Services	Process Innovation	Material issue?	Public Interest	Yes	possibility to reduce impacts
Oil & Gas - Services	Process Innovation	Material issue?	Market Participant	Yes	These are fundamentally technology companies
Oil & Gas - Services	Process Innovation	Material issue?	Public Interest	Yes	Process Innovation can lead to better cost controls as well as reduced environmental impacts.
Oil & Gas - Services	Process Safety, Emergency Preparedness and Response	Material issue?	Corporation	Maybe	This issue may affect our financial solvency, but at this time it is not clear that it certainly would.
Oil & Gas - Services	Process Safety, Emergency Preparedness and Response	Material issue?	Market Participant	Maybe	This is more an issue for oil & gas producers (the asset owners).
Oil & Gas - Services	Process Safety, Emergency Preparedness and Response	Material issue?	Market Participant	Maybe	I would like to see more disclosure with hard statistics about what the companies do with regards to training, safety practices, injury rates etc. However, at the same time, I think it is kind of a low-value focus area because Macondos are inherently unpredictable.
Oil & Gas - Services	Process Safety, Emergency Preparedness	Material issue?	Public Interest	Yes	The Macondo explosion is a vivid reminder of just how much damage- human, environmental and financial- can arise when process safety is not properly managed.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
	s and Response				
Oil & Gas - Services	Process Safety, Emergency Preparedness and Response	Material issue?	Corporation	Yes	good prpeparation brings good outcomes
Oil & Gas - Services	Process Safety, Emergency Preparedness and Response	Material issue?	Corporation	Yes	In the event of incidents that cause loss of life any company needs to show it was implementing best possible practice - if only to protect its reputation.
Oil & Gas - Services	Process Safety, Emergency Preparedness and Response	Material issue?	Market Participant	Yes	Due to the high risk of catastrophic events.
Oil & Gas - Services	Process Safety, Emergency Preparedness and Response	Material issue?	Corporation	Yes	The oil and gas industry has experienced catastrophic incidents that have impacted employees, the environment and affected the livelihood of communities. Having a good process safety program with multiple levels of control is critical to preventing such incidents. If things do go wrong, the immediate response can prevent the situation escalating and so having solid and tested emergency plans and crisis response plans is critical.
Oil & Gas - Services	Process Safety, Emergency Preparedness and Response	Material issue?	Public Interest	Yes	emergency response is crucial for this sector



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Oil & Gas - Services	Process Safety, Emergency Preparedness and Response	Material issue?	Public Interest	Yes	Particularly for high risk operations such as deepwater drilling, Process Safety, Emergency Preparedness and Response is critical for avoiding catastrophic accidents like the Deepwater Horizon incident for which service companies were implicated.
Oil & Gas - Services	SASB Approach	Comment on Brief	Market Participant	D.N.A. - Comment on Brief	The fines discussed in examples were not put in context of the companies themselves or industry. Therefore it was hard to assess materiality. A \$20m fine may be material for a small company but irrelevant for a larger one.
Oil & Gas - Services	SASB Approach	Other Comment	Corporation	D.N.A. - Other Comment	A lot of the metrics proposed are either not readily available, or not available in a format that would be comparable between companies. Also, many of the issues vary widely across companies due to different geographic footprints, which results in different risk exposures to governments and political situations. Several tools that already exist attempt to normalize these issues across companies, but struggle to do so (CDP, DJSI, Bloomberg Equity Index, et al.).
Oil & Gas - Services	SASB Approach	Other Comment	Corporation	D.N.A. - Other Comment	Thank you for this excellent initiative. I am filtering indicators to recommend to Schlumberger for reporting and once that exercise is complete I will share the findings. The timing should correspond with your public comment period. I am using GRI 4, IPIECA and SASB as well as our internal performance indicators. Finally I have asked our Head of Enviro Affairs to view the survey offline and if his answers differ from mine we will discuss and will recalibrate as necessary. with kind regards Johana Dunlop Schlumberger
Oil & Gas - Services	SASB Approach	Other Comment	Market Participant	D.N.A. - Other Comment	The greatest challenge with respect to many of the measures is auditability. Self regulation or industry self-regulation is unlikely to be effective and accurate. Truly independent 3rd part verification will be necessary, albeit more expensive in most instances.
Oil & Gas - Services	SASB Approach	Other Comment	Corporation	D.N.A. - Other Comment	Please note that the views given are my own and may not represent the views of others, including the leadership of Baker Hughes. I am not privy to all aspects of the business, including litigation and can not verify fully that the details of law suits mentioned in the brief are totally accurate.
Oil & Gas - Services	Supply Chain Management	Add Issue	Corporation	Local Content	If were in the ranking I would place it as number 3. It's really an umbrella term for Sustainability at country level and it can only be fully understand when viewing business through a socio-economic development lens. I've attached some reading and links to reports that are available for purchase [afraid my copies are single reader copies] Local Content is increasingly a compliance issue affecting entire value chain not just Operators. LC is however an umbrella term and covers the entire gamut of SD issues but especially community relations, employee recruiting and development and the biggest challenge of all for Service Companies - anchoring more of the supply chain value chain in the local economy



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Oil & Gas - Services	Supply Chain Management	Add Issue	Corporation	material usage	are sustainable materials/supplies used? i.e timber.
Oil & Gas - Services	Supply Chain Management	Add Issue	Corporation	Supply Chain	However well you can control the material sustainability issues pertaining to your own company, it is very much more difficult to control how your suppliers conduct their business. There are many instances of suppliers who have been corrupt or been party to breaches of human rights, and this has affected the reputation of their clients.
Oil & Gas - Services	Supply Chain Management	Add Issue	Corporation	Supply chain code of conduct	Supply chain risks (environmental and social) are becoming more of a prevalent issue, risk and cost to downstream O&G companies. For example O&G companies in the Oil Field Services sector like Schlumberger manufacturer drilling equipment that may contain 'conflict minerals' and thus they are now responsible for the cost of putting in place a program to trace those minerals back to the country or origin/mine to understand if they source/do not source an armed group (who are part of human rights atrocities in that region). Although they are downstream in the supply chain they still carry a cost to comply with this new SEC rule. They also may need to be aware of reputational risk of doing business with at risk suppliers who do not adhere to supplier codes of conduct, human rights or sustainable env practices.
Oil & Gas - Services	Supply Chain Management	Add Issue	Market Participant	supply chain management.	While less important than for the E&P company, supply chain management is critical for the service companies as well on most projects there is a long supply chain and the service companies sometimes sit at the front and the larger and more complex the project the more complex is the supply chain. so managing from procurement of chemicals to labor at a subcontractor supply chain management carry both reputation and productivity risks.
Oil & Gas - Services	Survey comment	Other Comment	Public Interest	D.N.A. - Other Comment	As an NGO representative, I cannot claim to have authority on cost. So for the sake of simplicity, I noted that all metrics were cost effective. Given that this was for oil and gas services, I found the survey to be quite general and potentially more applicable to exploration and production companies. It will be important to clarify which metrics apply to which services.
Oil & Gas - Services	Waste Management	Material issue?	Market Participant	Maybe	This is more an issue for oil & gas producers (the asset owners). However, oil services are often responsible for this so it could be an issue for them
Oil & Gas - Services	Waste Management	Material issue?	Corporation	No	This issue does not affect our financial solvency.
Oil & Gas - Services	Waste Management	Material issue?	Corporation	Yes	good waste management, reduces costs of operations, reduces risk of litigation
Oil & Gas - Services	Waste Management	Material issue?	Corporation	Yes	It's material in that it's the priority environmental impact for us as a service company and we apply very strict standards. But may not be material in the SASB/SEC sense
Oil & Gas - Services	Waste Management	Material issue?	Market Participant	Yes	The service part of the O&G industry is the main user of potentially toxic materials in the industry in general



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/ Response	Comment
Oil & Gas - Services	Waste Management	Material issue?	Corporation	Yes	The disposal of waste is expensive, it can represent a loss of non-renewable resources (e.g. waste water), and it can generate areas that are unsanitary, and a health risk (e.g. solid or hazardous waste).
Oil & Gas - Services	Waste Management	Material issue?	Public Interest	Yes	Many of the incidents that have occurred due to hydraulic fracturing operations are associated with waste management. Proper management of waste is critical to maintain a social license to operate and avoid litigation.
Oil & Gas - Services	Water Management	Material issue?	Corporation	Maybe	Control is largely operators but Service company can have significant influence on amounts of water used and where it is sourced but is not the ultimate operational decision maker. Also service companies are the ones inventing the technologies that reduce Fracking water footprint for example - e.g. Schlumberger's HiWay technology.
Oil & Gas - Services	Water Management	Material issue?	Market Participant	Maybe	This is more an issue for oil & gas producers (the asset owners).
Oil & Gas - Services	Water Management	Material issue?	Corporation	No	This issue does not affect our financial solvency.
Oil & Gas - Services	Water Management	Material issue?	Public Interest	Yes	Concerns around water- actual and perceived scarcity, as well as impacts on water quality- are material threats to the industry's license to operate in many areas, particularly in unconventional basins.
Oil & Gas - Services	Water Management	Material issue?	Corporation	Yes	water use - important to manage it, water is a scarce and important resource
Oil & Gas - Services	Water Management	Material issue?	Market Participant	Yes	Water is a material problem in al oil and gas exploration. while E&P companies are correctly viewed as the ultimate party responsible for water mangement, this is often tied to the "services" that the service company provides and it is therefore in their brief to reduce the amount of water used as much as possible.
Oil & Gas - Services	Water Management	Material issue?	Corporation	Yes	Fines for non-compliance/spills.
Oil & Gas - Services	Water Management	Material issue?	Market Participant	Yes	Because both water quality and water use (in the west and globally in arid climates) are fundamental potential areas of environmental impact.
Oil & Gas - Services	Water Management	Material issue?	Corporation	Yes	Fresh water is an increasingly scarce resource and there is a general lack of appreciation for its value. Some oilfield operations utilize large quantities and can deplete reserves for communities.
Oil & Gas - Services	Water Management	Material issue?	Public Interest	Yes	water scarcity
Oil & Gas - Services	Water Management	Material issue?	Public Interest	Yes	Water Management has become increasingly important as the use of hydraulic fracturing has become so prevalent across the industry. Several researchers have identified Water Management as a key area of environmental risk.



Industry	Mapping to SASB Topic	Survey Category	Interest Group	Suggested Topic/Response	Comment
Oil & Gas - Services	Water Management	Material issue?	Market Participant	Yes	I think this is a critical issue for the industry because of the millions of gallons of water that needs to be recycled per well, and the associated logistical challenges. The potential for legal and regulatory issues are large, and we have very little disclosure on what best practices are for the industry today. Furthermore, this could be a substantial market opportunity for the industry in terms of providing new types of services, which makes it important there too.