Supplement to Standards Outcome Report

Infrastructure

This is a supplement to the Standards Outcome Review report for the Infrastructure sector, prepared for the SASB Standards Council meeting on September 16, 2015. This supplement contains detailed feedback from SASB Industry Working Groups (IWG) for this sector. The Standards Outcome 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 October 7, 2015, accounting standards for the eight industries in the Infrastructure sector.

Section 1

This section provides the percentage of IWG members that determined the likely materiality for each issue in an industry, for all eight industries put forward to the IWGs. Green bars indicate that the IWG respondent agrees that the issue is likely to constitute material information, red bars indicate that the IWG respondent disagrees, and blue bars indicate that the IWG respondent considers that the issue may be material, but has reservations. These responses determine which issues the SASB Standards Development team investigates further in greater detail to present disclosure topics for public comment.

Section 2

Section 2 lists the comments received during the IWG, including: the industry, disclosure topic[1], question type on the survey, interest group, suggested disclosure topic where IWG members suggested adding a topic, 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 likely to constitute material information, as discussed in the Standards Outcome Review report.

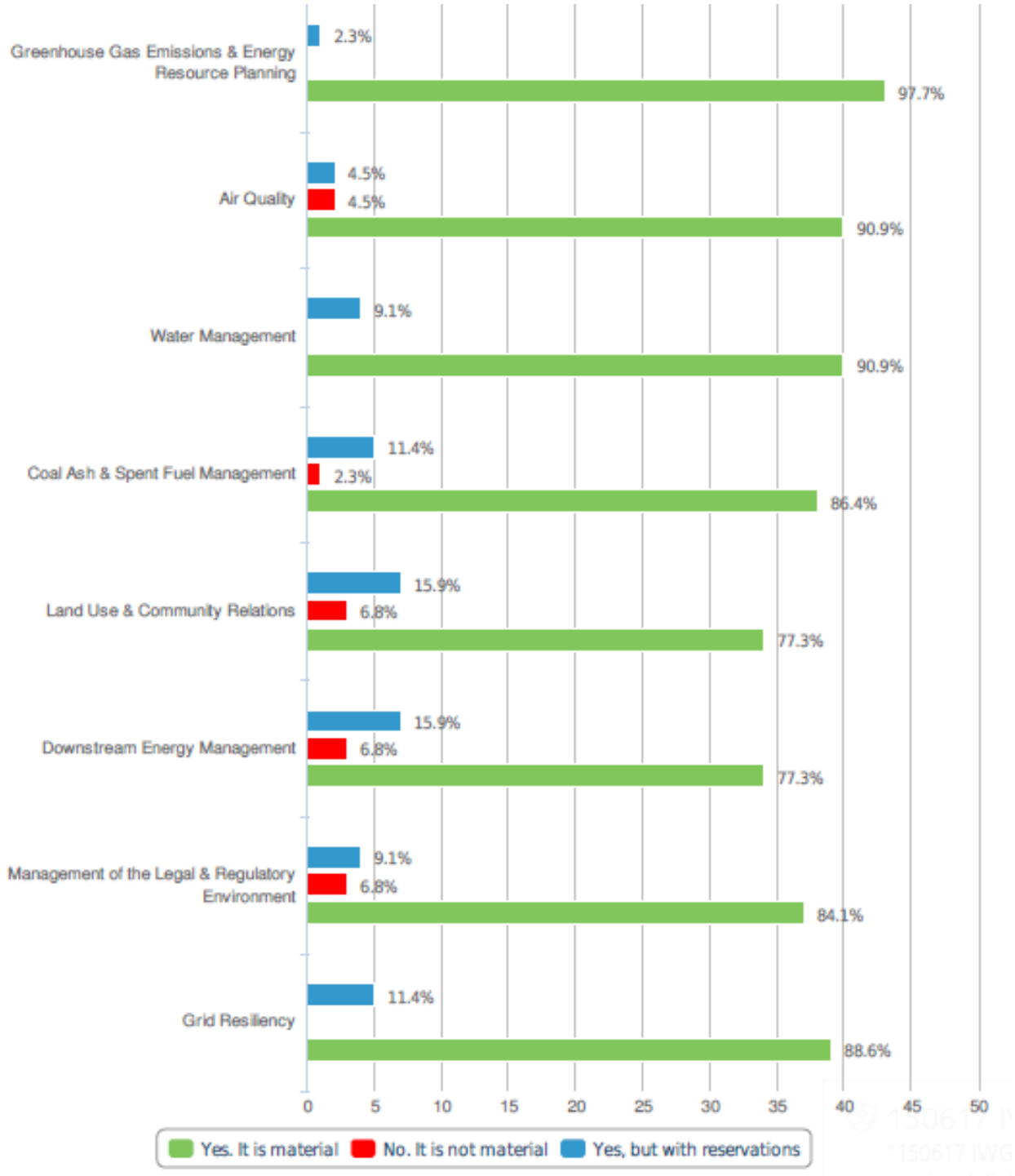
Comments related to suggestions for new issues have been considered when adding disclosure topics to an industry, as discussed in the Standards Outcome Review report.

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

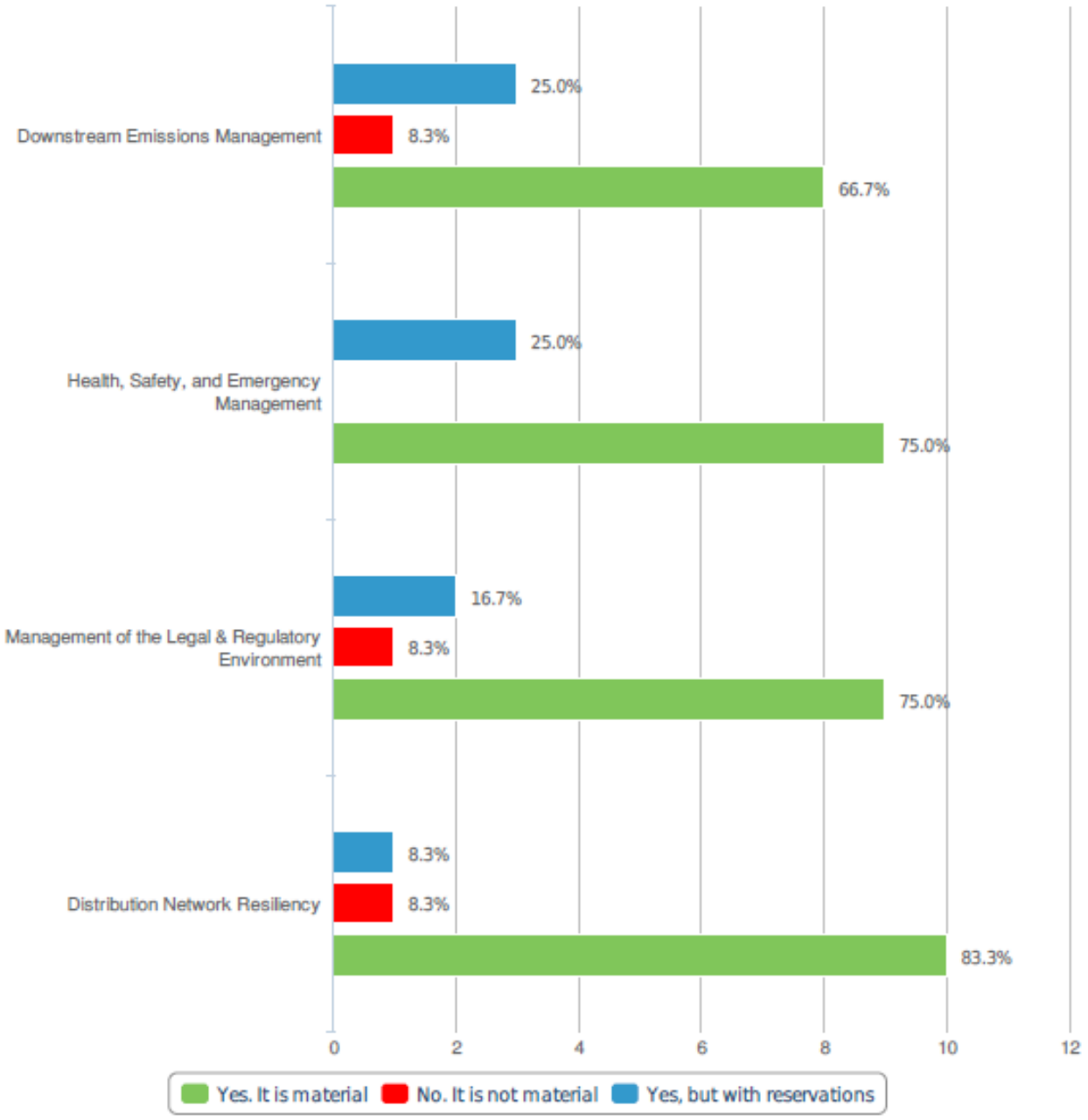
[1] In cases where general comments were made that related to a sustainability topic already presented by SASB for an industry, these comments have been mapped back to the topic.

Section 1 - IWG Assessment of Materiality

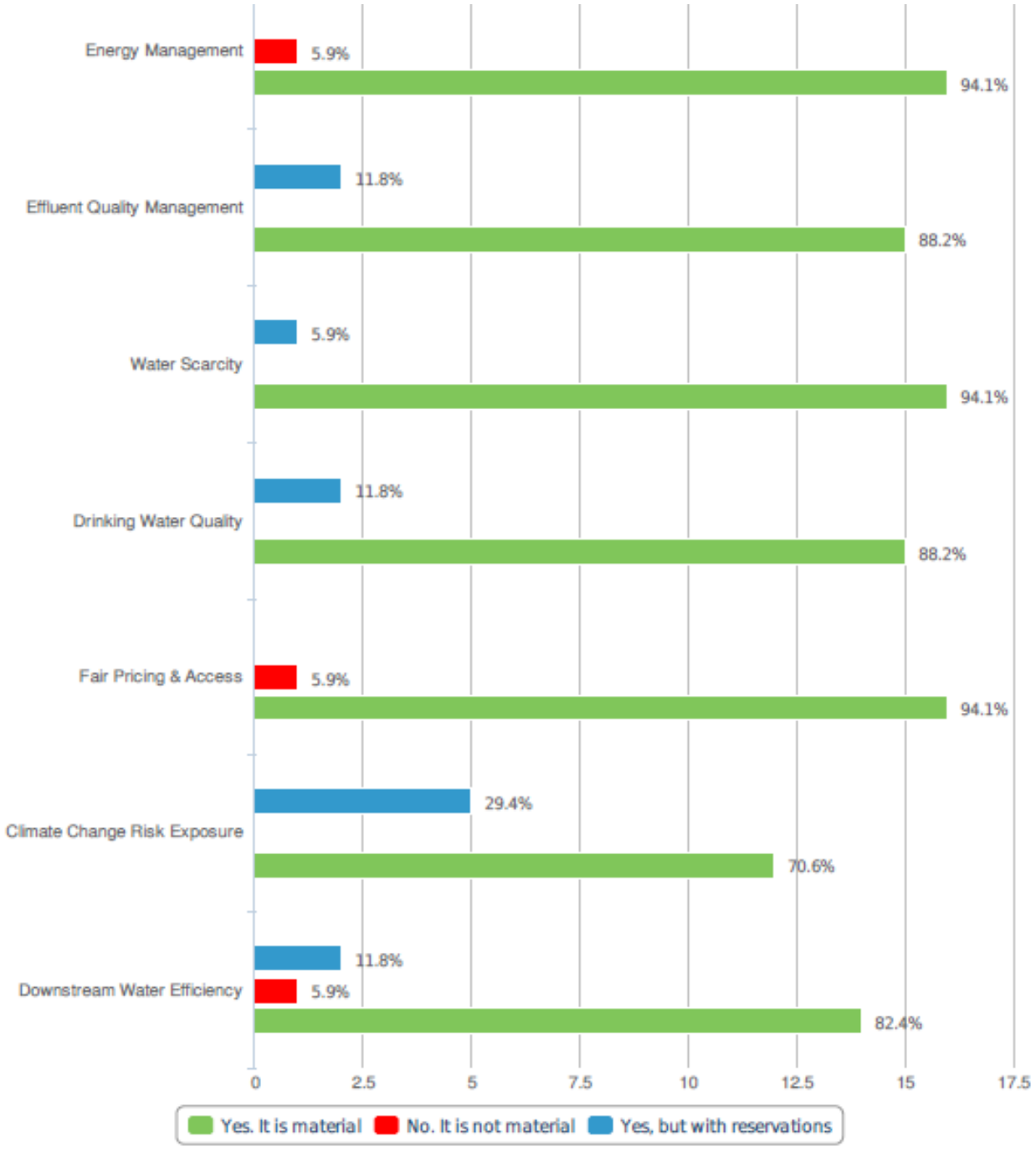
Electric Utilities



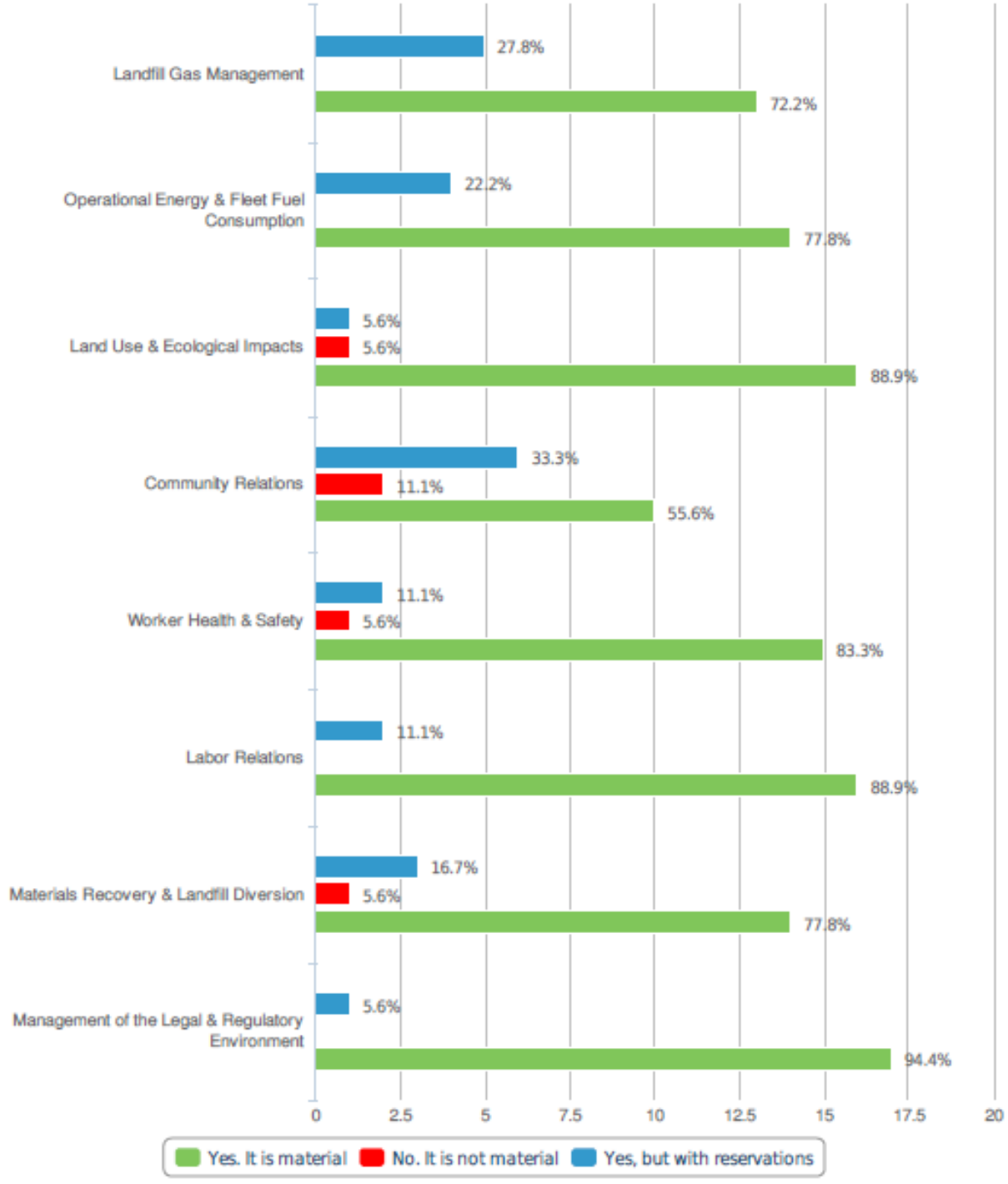
Gas Utilities



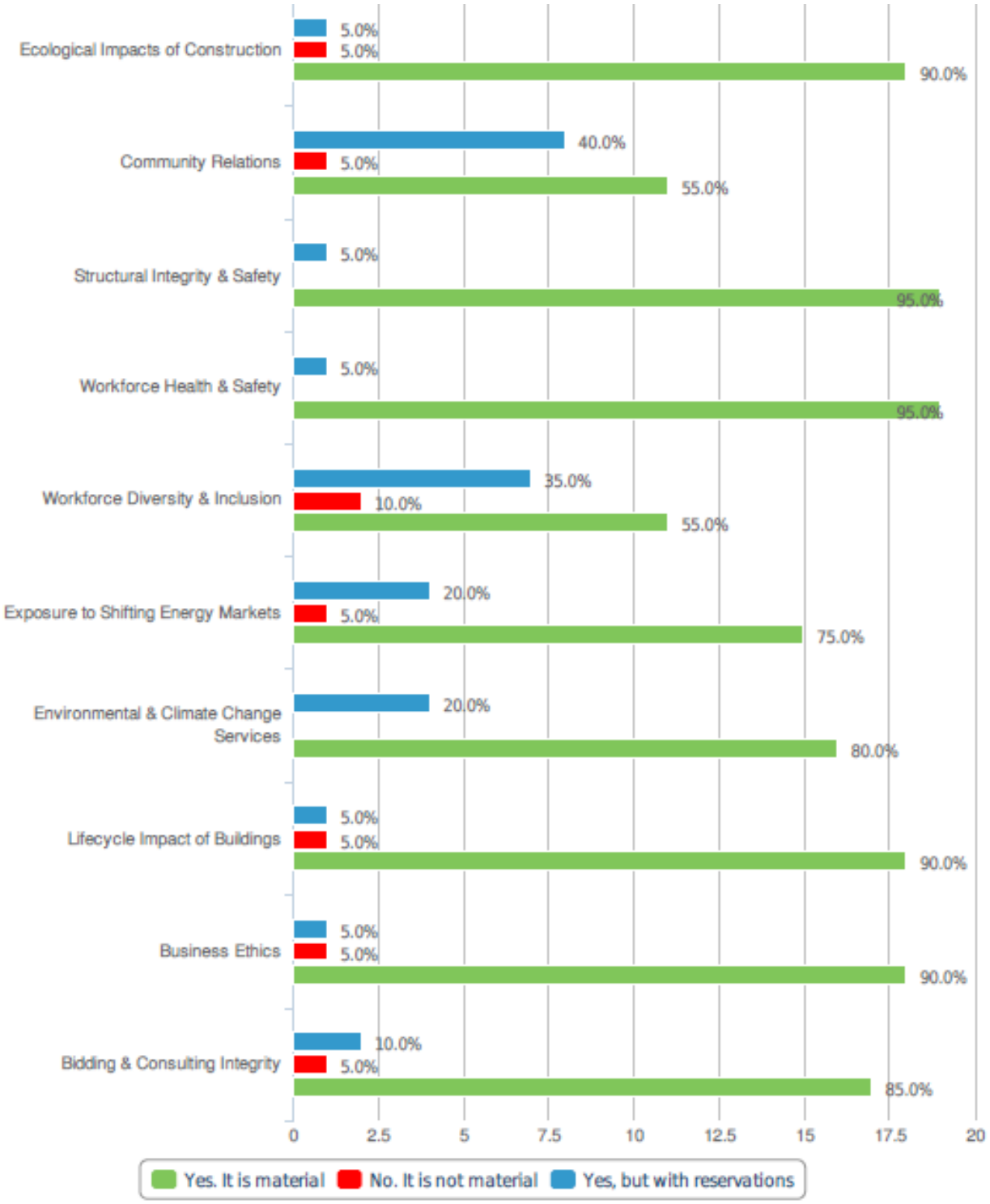
Water Utilities



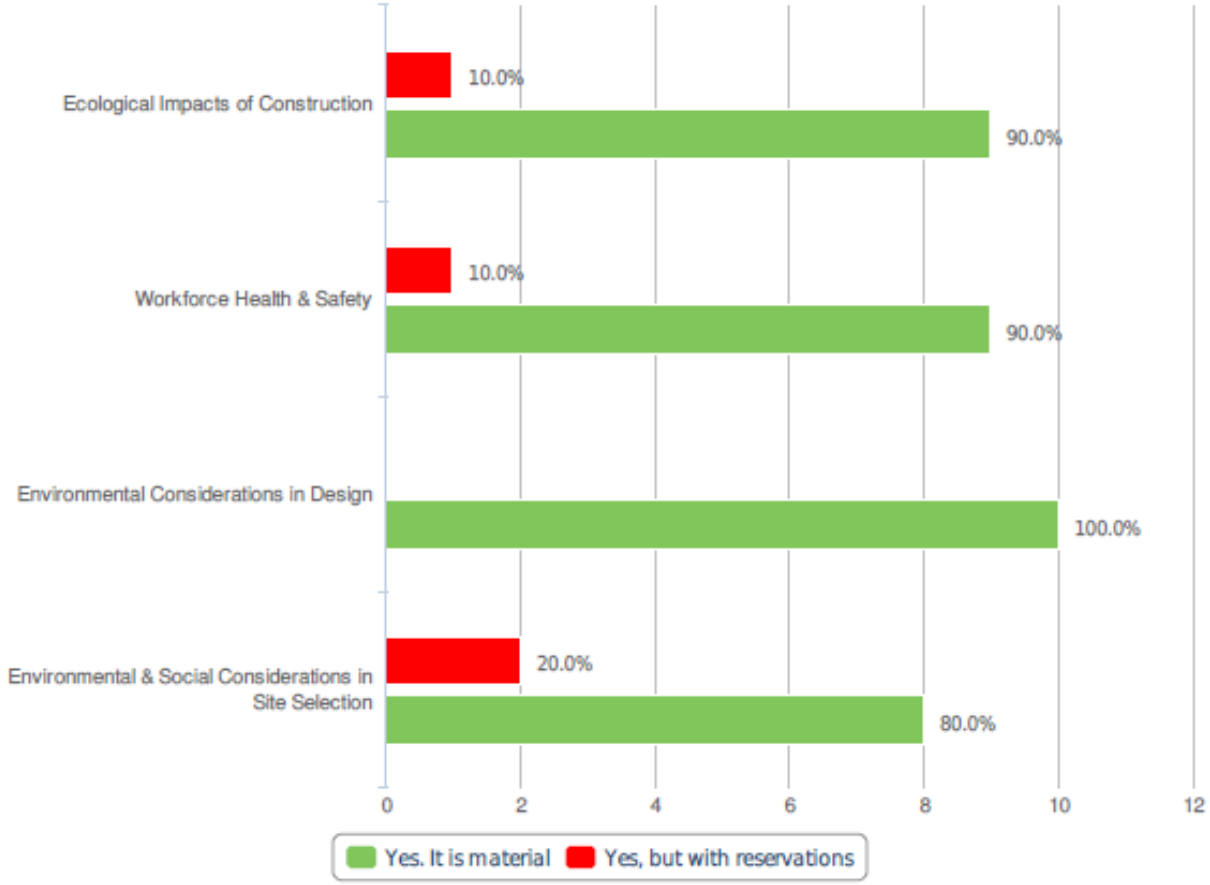
Waste Management



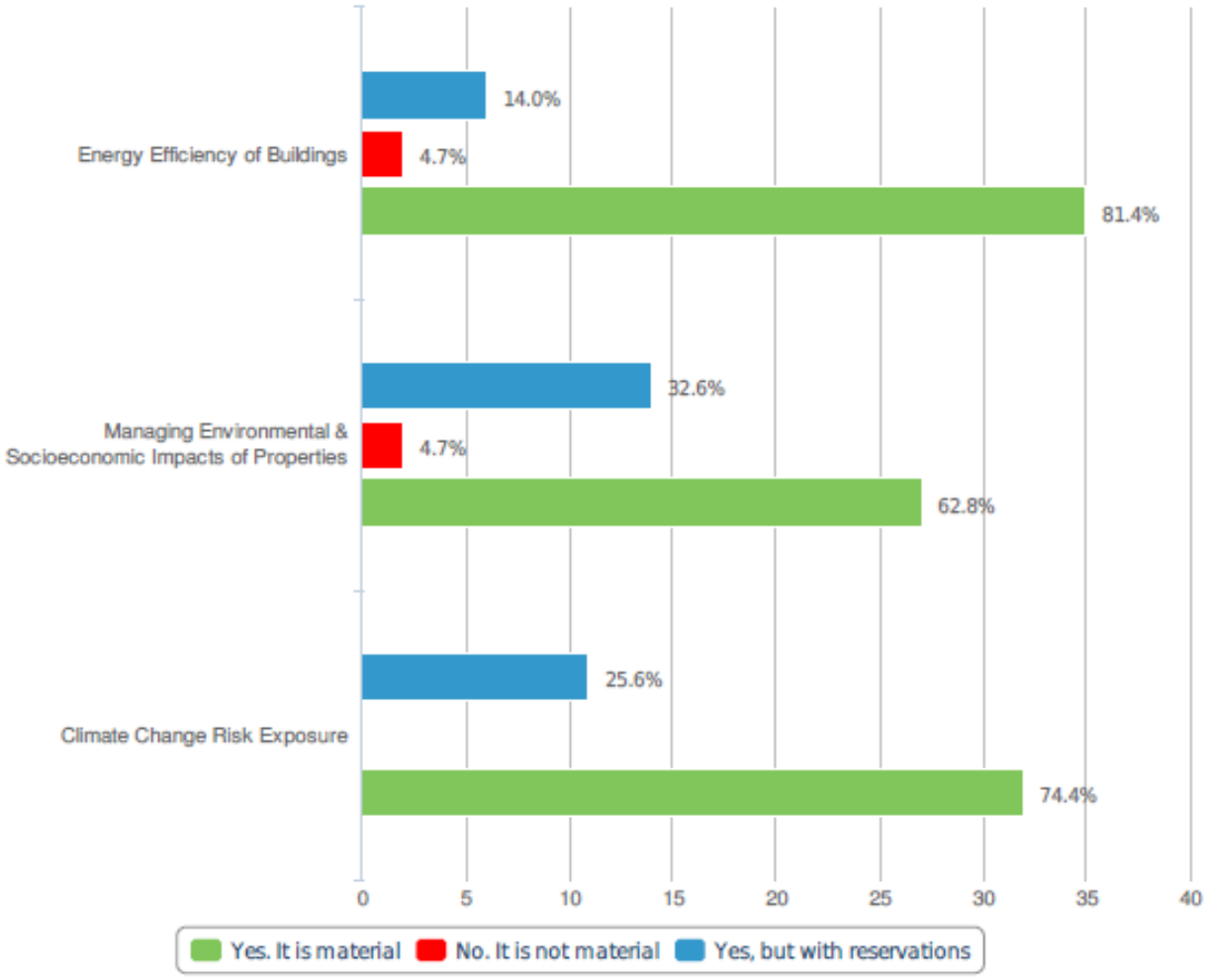
Engineering & Construction Services



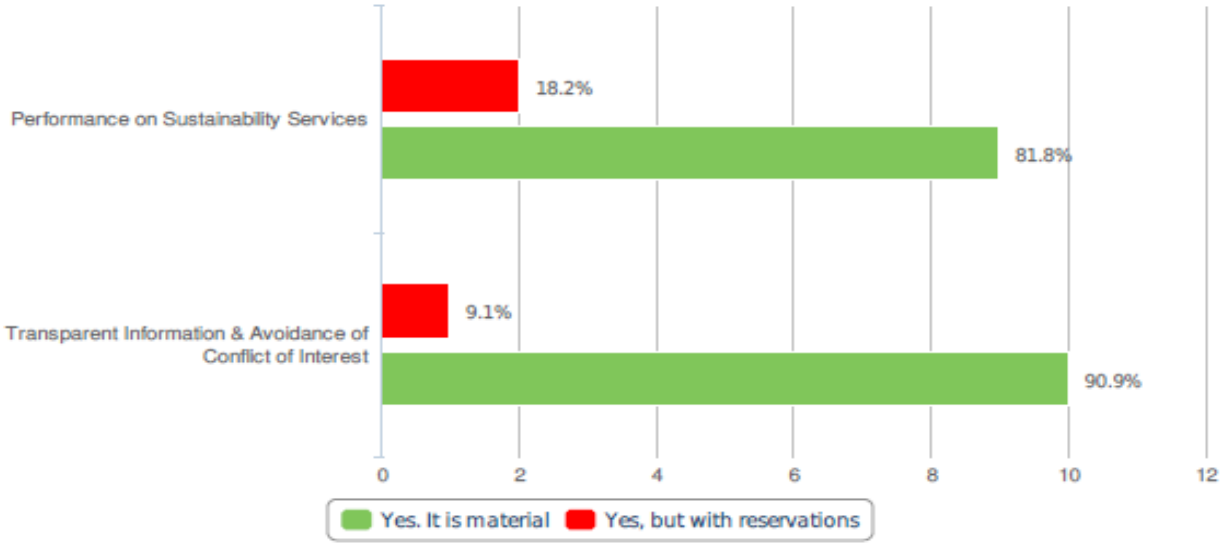
Home Builders



Real Estate Owners, Developers & Investment Trusts



Real Estate Services



Section 2 - IWG Comments on Disclosure Topics

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Electric Utilities	Air Quality	Materiality?	Corporate Professional	No	In my opinion, air quality is a subject well controlled by the industry. Because of this, cannot be a material issue for the industry.
Electric Utilities	Air Quality	Materiality?	Corporate Professional	Yes	In Ontario, we have shut down all coal plants in an effort to reduce / eliminate impact on Air Quality. Production is much more focused on nuclear and hydroelectric, and in most recent years. See also: http://www.desmog.ca/2014/04/17/ontario-s-electricity-officially-coal-free
Electric Utilities	Air Quality	Materiality?	Corporate Professional	Yes	This is definitely a material issue for this industry. However, the metrics that are proposed miss the mark on what is truly relevant measurements and require more research/data to support this approach.
Electric Utilities	Air Quality	Materiality?	Corporate Professional	Yes	Perhaps more specific proximity to air quality issues, similar to a radius search.
Electric Utilities	Air Quality	Materiality?	Market Participant	Maybe	http://www.lung.org/healthy-air/outdoor/protecting-your-health/what-makes-air-unhealthy/electric-utilities.html
Electric Utilities	Air Quality	Materiality?	Market Participant	Yes	Similar to greenhouse gas, air quality is being increasingly scrutinized, and companies that impact air quality will be under regulatory scrutiny.
Electric Utilities	Air Quality	Materiality?	Market Participant	Yes	This can be a more immediate driver for pressure on utility companies, such as those in asia.
Electric Utilities	Air Quality	Materiality?	Market Participant	Yes	Define relevant substances.
Electric Utilities	Air Quality	Materiality?	Market Participant	Yes	Air quality constitutes material information for a utilities company because these companies exhibit high exposure to risks of environmental liabilities and compliance costs associated with toxic releases from their operations. Electric power generation produces highly toxic air pollutants and there are regulatory and reputational risks associated with that that could result in higher costs.

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Electric Utilities	Air Quality	Materiality?	Public Interest	Maybe	Certain parts of the world have very low population concentrations and/or highly-energetic air resources.
Electric Utilities	Air Quality	Materiality?	Public Interest	No	Air quality is difficult to pinpoint to specific untis.
Electric Utilities	Air Quality	Materiality?	Public Interest	Yes	Similar to GHG, electric utilities are a major source of emissions, including NOx, SO2 and particulate, as well as HAPs. How these companies address compliance with applicable regulations (or do not) and the extent that they choose to go beyond compliance is crucial to inform stakeholders. This not only speaks to a company's compliance record, but the veracity of their overall corporate governance, risk and compliance management process.
Electric Utilities	Air Quality	Materiality?	Public Interest	Yes	Air Quality constitutes material information because it is subject to environmental regulation and restrictions. Electricity utilities in the EU, the US and certain regions of China are already subject to relevant legislation and more countries could follow in the near future.
Electric Utilities	Air Quality	Materiality?	Public Interest	Yes	Air quality constitutes material information of interest to the reasonable investor because pollutant and particulate emissions can decrease community health in the area of any given electric utility investment. Reducing risks to community health in any given investment will improve stakeholder relations, reducing the risk for delays in project completion or operation, or cost overruns, associated with community protests or lawsuits.
Electric Utilities	Air Quality	Materiality?	Public Interest	Yes	I agree air quality is a material topic. However, criteria air pollutants and toxic air pollutants are heavily regulated in the US, with specific technological requirements to meet BACT/LAER (http://cfpub.epa.gov/RBLC/), what I'm not understanding is how will this be compared between different EGUs, and for those plants already meeting BACT requirements, what possible future targets could be requested. I also think there needs to be a detail definition of "near areas" what is the minimum or maximum distance that defines "near"?
Electric Utilities	Air Quality	Materiality?	Public Interest	Yes	Simliar to greenhouse gas emissions and energy resource planning, as state jurisdictions require minimum renewable portfolios and federal regulation

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					continues to evolve, both the general public and the investing community will likely have increased interest air quality as it relates to electric utilities.
Electric Utilities	Air Quality	Materiality?	Public Interest	Yes	Nowadays it represents most part environmental OPEX in different companies around the world. Companies shall monitor Air Quality, since it can impact both people and environment, and than, they are responsible for their activities.
Electric Utilities	Air Quality	Materiality?	Public Interest	Yes	In light of the long history of federal, state and local regulation and court cases upholding government authority to limit air pollution and its impact on air quality, there is a robust set of authorities whose decisions support the position on the materiality of air quality SASB reporting standards
Electric Utilities	Air Quality	Materiality?	Public Interest	Yes	http://www.epri.com/abstracts/Pages/ProductAbstract.aspx?ProductId=3002000920 http://www.ceres.org/roadmap-assessment/sector-analyses/electric-utilities
Electric Utilities	Air Quality	Materiality?	Public Interest	Yes	There are major health effects associated with the burning of coal with the fine particulates. Air pollution control equipment to remove particles use a large amount of electricity, thus more carbon dioxide emitted.
Electric Utilities	Air Quality	Materiality?	Public Interest	Yes	Air Quality compliance could have a material impact on certain assets (e.g., mercury removal on older coal fired power plants) but not on most.
Electric Utilities	Coal Ash & Spent Fuel Management	Materiality?	Corporate Professional	Maybe	Sensitive topics such as 316b and water use in power plants need some extra consideration to establish limits.
Electric Utilities	Coal Ash & Spent Fuel Management	Materiality?	Corporate Professional	Yes	Water is continuously monitored and shortages in peak summer periods affect nuclear production. We are also worried about creosote which enters are our waterways if wood poles are abandoned on our lands (said poles are high theft items used for residential purposes). See for example:

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					http://www.env.gov.nl.ca/env/waterres/regulations/policies/utility_poles.html
Electric Utilities	Coal Ash & Spent Fuel Management	Materiality?	Corporate Professional	Yes	Water management, in particular compliance with water-related regulations, is very important legally and for investors. poor compliance can lead to fines and penalties as well as limit access to water in the future. Recent and ongoing rulemakings have, and will continue, to affect our generation portfolio and exposure. In its 2015 research brief, the Sustainability Accounting Standards Board (SASB) summarized the electric utility industry and provided relevant sustainability risks and opportunities. Water management was one of the sustainability disclosure topics with SASB noting that "ensuring continued access to the water supplies needed for energy generation," will be one of several issues driving the competitiveness of the industry. SASB correctly stated that electricity generation requires huge amounts of water, most of which is used for cooling purposes. The Board also proposed the following direct and indirect performance metrics with regards to water: *Total water withdrawn; percentage in regions with high to extremely high baseline water stress, *Percentage recycled water usage, and *Number of incidents of non-compliance with water quality permits, standards and regulations. The proposed metrics, while sincere in their intent, could be improved and are discussed as follows: Total water withdrawn – This is a common metric that, while not accounting for water consumption, is widely used across most water use sectors. While a simultaneous accounting of water consumption would be helpful, future metric reporting for the industry, if based on water withdrawals only, will actually reflect positively on the industry, as withdrawals will decrease significantly due to plant closures and conversions from wet to dry coal ash disposal. For example, AEP's total water withdrawals for 2016 will be

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					approximately 23% less than those made during 2014. The Board has referred to a report that provides information on the amount of water withdrawn versus the revenue produced (cubic meters/USD). A better metric would account for the efficiency of the water use, which could be captured with a metric of cubic meters of water withdrawn versus the MWHs produced. This is how AEP reports water "use" in its GRI submittal. Water use data presented in this way also makes it clear which plants are once-thru cooled and which are closed cycle. To be truly representative of water risk, this metric needs to be normalized against water availability, which the Board is attempting to do with its request for the percentage of water withdrawals in regions with high or extremely high baseline water stress. However, a better way to do this is to report the amount of water withdrawn and normalize it against the average annual flow from the supplying river or stream. Water availability from lakes may be more difficult to estimate, but it could be measured as a percentage of inputs into the relevant lake. This would make it readily clear which facilities were vulnerable to water "stress" and which were not, however, assessing water availability is not always clear. Water availability can be limited by scarcity, upstream users, quality, regulation or by reputation. For example, due to concerns over ground water contamination, the state of New York does not allow hydraulic fracking. Environmental groups often object to the installation of new facilities, particularly if they will use large amounts of water, and the presence of endangered species can prevent access to water. Most states also include "antidegradation" provisions in their water quality standards which require that water users assess the impact of any new discharge into state waters. If this discharge is into a water with a protected designation, such as "outstanding state resource water," the water treatment requirements for the new facility will be very strict and may make the construction of the facility cost prohibitive. Percentage in regions with high or extremely high baseline water stress – This metric is based on the use of the WRI Water Risk Atlas, which has

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					been used to assess AEP water supplies in the past. The problem with this metric is that it is not clear how the metric is to be reported. Does the Board want "percentage of total water withdrawn from water stressed areas," to be reported, which, if true, would be very low, since most facilities in water stressed areas would conserve or recycle water and withdrawal very little. Or does the Board want the percentage of facilities located in water stressed areas to be reported? If so, there are problems with this metric as well. The WRI Water Risk Atlas was applied to AEP facilities last year (2014), however, the water data in the Atlas was only current through 2008. This meant that more recently water stressed areas, such as California, were not represented in the Atlas. The resolution of the Atlas is also inadequate. All of AEP's facilities fall into the Mississippi River watershed, which is the smallest designation available using the Atlas and is much too broad for an analysis of this type. U.S. Drought maps are much more current and provide water stress information that is updated every two weeks. The Board must determine if it wants information on long-term trends (favored), more recent trends, or both. In addition, the WRI Water Risk Atlas defines "baseline" water risk as "the ratio of total annual water withdrawals to total available annual renewable supply, accounting for upstream consumptive use." A recent review of AEP facilities using the WRI Water Risk Atlas indicates that AEP's Comanche, Mone, Oklaunion and Weleetka plants are in areas of high to extremely high baseline water stress. However, the Mone plant is located in Ohio, utilizes ground water, and is not known to be experiencing water stress. Baseline stress does not specifically account for drought conditions, which, if used as a metric, would include a different set of AEP facilities. For business purposes, it may be better to combine all of a utility company's water use and assess according to the percentage of water withdrawn from "stressed" areas. The majority of AEP facilities that are in water stressed areas utilize closed cycle cooling and recycle most of the cooling water in

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					cooling lakes or are combined-cycle gas plants. As a percentage of total water use, AEP's exposure to water stress would be very low, while those companies located exclusively in more arid parts of the country, would have a higher exposure. Percentage recycled water usage – AEP recycles nearly 100% of the water withdrawn for cooling at facilities with cooling lakes. This appears to be a good metric and, as a percentage, AEP's recycling rate will increase with the closing of most of the once-thru cooled facilities, which recycle very little water. One caveat is that this metric should only include recycled water, not "reused" water. Reused water metrics often include the use of "grey" water, such as storm water, the flow of which is intermittent, highly variable, and difficult to measure. It would not be a good metric. Number of incidents of non-compliance with water quality permits, standards and regulations – This is a good metric, provided that it is normalized according to the number of possible violations, which in AEP's case, could be thousands of potential incidents depending on how the metric is scored. The Board needs to decide if the potential number of violations would include exceedances of daily limits, monthly limits, limits for every listed parameter, results of every measurement, lab analysis, etc. Alternately, since most corporations have a goal of "zero violations" any violation could be seen as a problem. Still, without a method of standardizing the number of violations against the potential number, companies, such as AEP, which operate many large facilities, would not receive appropriate credit for their excellent compliance record.
Electric Utilities	Coal Ash & Spent Fuel Management	Materiality?	Corporate Professional	Yes	Energy/water nexus: energy and water are intricately connected. Energy is used to pump water where it is needed, and water is used to cool power plants that produce energy. It's qualitative, but it may be worthwhile to inquire how water and electric utilities are working together to improve

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					efficiency and/or encourage customers to save energy and water. Our 2014 water response to CDP is here: https://www.cdp.net/en-US/Pages/CDPAdvancedSearchResults.aspx?k=sempra%20energy
Electric Utilities	Coal Ash & Spent Fuel Management	Materiality?	Corporate Professional	Yes	It would be interesting to measure the types of water used as it pertains to energy usage; potable, waterways, ocean etc. Using (or re-using) different types of water carry individual emission factors with some having more favorable social capital gains across the board.
Electric Utilities	Coal Ash & Spent Fuel Management	Materiality?	Market Participant	Maybe	http://www.ceres.org/roadmap-assessment/sector-analyses/electric-utilities
Electric Utilities	Coal Ash & Spent Fuel Management	Materiality?	Market Participant	Yes	Water management is becoming increasingly regulated across the entire energy sector
Electric Utilities	Coal Ash & Spent Fuel Management	Materiality?	Market Participant	Yes	Water is an increasingly scarse resrouce, depending on the region. In many regions, the security of its availability will be an important factor.
Electric Utilities	Coal Ash & Spent Fuel Management	Materiality?	Market Participant	Yes	The methods of water withdrawal, ecological sensitivity of the location, how much water was returned to the source at what quality.
Electric Utilities	Coal Ash & Spent Fuel Management	Materiality?	Market Participant	Yes	Utilities use a large amount of water, and companies involved in these operations have high exposure to the risks of operational disruptions and increase usage or compliance costs that may stem from water shortages.
Electric Utilities	Coal Ash & Spent Fuel Management	Other Comment	Public Interest	DNA - Other Comment	I have recently published a paper in on coal ash that I think will be quite useful. The cite is: Connors, E. 2015. Coal-ash management by U.S. electric utilities: Overview

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					and recent developments. Utility Policy 34: 30-33. Call me at 508 380-5797 if you have trouble accessing it and I will send you a pdf. Overall, well done!
Electric Utilities	Coal Ash & Spent Fuel Management	Materiality?	Public Interest	Maybe	My reservation with regards to water management is a one-size-fits-all approach. Specifically, requiring standard disclosure relating to water management for a T&D or solar / wind renewable focused electric utility certainly would not be meaningful, while similar disclosure for an electric utility with a large fossil or nuclear fleet may be. Finding the correct balance in disclosure or parameters when such disclosure would be necessary would be (in my opinion) the critical aspect if one was to include this topic.
Electric Utilities	Coal Ash & Spent Fuel Management	Materiality?	Public Interest	Maybe	Much of the water used is not consumed. There are issues with the intake structures and the discharge of heated water. Cooling towers use a lot of energy. Many of the climate change people look only at the amount of water withdrawn. Many power plants have to shut down in the summer when the water flows in rivers is too low to allow for cooling.
Electric Utilities	Coal Ash & Spent Fuel Management	Materiality?	Public Interest	Yes	This can be an issue from two perspectives. As the industry requires substantial volumes of cooling water, water withdrawal especially is substantial. While water consumption is a small percentage of this, understanding how electric utilities are better managing use and consumption speaks to their commitment to a sustainable business. I recently examined this issue for a client who was looking into establishing a metric around their use of RE to reduce water consumption associated with fossil based energy water use/consumption. I've included citations for several of the source references:

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					- J.F. Kenney et al., Estimated Use of Water in the United States in 2005, US Geological Survey, Circular 1344, US Department of the Interior, September 2009. - P. Torcellini, et al., Consumptive Water Use for U.S. Power Production, National Renewable Energy Lab, NREL/TP-550-33905, US Department of Energy, December 2003. - J. Meldrum, et al., Life Cycle Water Use for Electricity Generation: A Review and Harmonization of Literature Estimates, Environmental Research Letters 8, IOP Publishing Ltd., UK, 2013. - T. Younos et al., Water Dependency of Energy Production and Power Generation Systems, VWRRC Special Report No. SR46-2009, Virginia Polytechnic Institute and State University Blacksburg, Virginia, July 2009. - US Department of Energy, Energy Demands on Water Resources, Report to Congress on the Interdependency of Energy and Water, December 2006. - J. Macknik et al., A Review of Operational Water Consumption and Withdrawal Factors for Electricity Generating Technologies, NREL/TP-6A20-50900, National Renewable Energy Laboratory, NREL/TP-6A20-50900, US Department of Energy, March 2011. A second dimension is about water resource quality resulting from mismanagement of coal combustion discharges and residuals. Clearly, leaking ash ponds can have deleterious effects on groundwater resources. Cooling water discharges will affect surface water resources, not only due to thermal effects but pollution from residual chemicals in the treated cooling water stream. How these companies address compliance with applicable regulations (or do not) and the extent that they choose to go beyond

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					compliance is crucial to inform stakeholders. This not only speaks to a company's compliance record, but the veracity of their overall corporate governance, risk and compliance management process. However, there is a water related issue that did not appear to be addressed through the SASB research, that is releases of tritiated water. I became aware of this issue when I worked for a Big 4 accounting firm auditing companies' environmental exposures and liabilities. Aside from the human health and ecological exposure issues, this often can fall between the cracks of regulation by NRC (occurring within the boundaries of a nuclear power plant site) and EPA (beyond power plant site boundaries). There is a substantial material available on this issue, with a few items provided below: - http://www.nrc.gov/reactors/operating/ops-experience/grndwtr-contam-tritium.html - http://www.greenpeace.org/usa/Global/usa/binaries/2010/5/fact-sheet-on-tritium-leaks-in.pdf
Electric Utilities	Coal Ash & Spent Fuel Management	Materiality?	Public Interest	Yes	Electricity utilities (thermal) use water for cooling and upstream water is also used for the extraction of shale gas and processing of coal. Water is also used directly by hydro power stations. Water is a fundamental resource for a number of operations in the electricity utilities.
Electric Utilities	Coal Ash & Spent Fuel Management	Materiality?	Public Interest	Yes	For the same reasons above, integrated water resource management can help decrease project risks including construction and operation delays, cost overruns, and lawsuits, that may be associated with polluted or contaminated water resources, lack of equity in water resource access, and impacts on aquatic species that are valuable to a project-affected community, such as fish or sediment deposition. Such is the case usually with investments in hydropower that provide electricity to the national grid or isolated grids. Integrated Water Resource Management best practices

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					include the creation of a Basin Plan and river basin committees to allocate water resources in an equitable fashion. This is done through participatory workshops inviting representatives of each basin committee to the table in order to negotiate. E.g. while a dam operator needs XX cubic meters per second of flow to move turbines for generation, an upstream agricultural company causes sediment increases which make operation of the dam more costly, and downstream there is a conservation area that houses endemic fish species which needs a certain amount of water and certain pH in order to reproduce. Such a context calls for Integrated Water Resource Management and shared electricity-conservation planning measures. The risks associated with upstream and downstream cooperation or lack thereof represent material concerns for an investor.
Electric Utilities	Coal Ash & Spent Fuel Management	Materiality?	Public Interest	Yes	316(b) is a major regulatory requirement for most power plants subject to this regulation. Cost associated can make operations non viable. I think this needs to be captured as an accounting metric, it is referenced on the Water Management Section, however, no specific metric is proposed. How is this captured?
Electric Utilities	Coal Ash & Spent Fuel Management	Materiality?	Public Interest	Yes	In the event of extreme water shortages due to drought or other from of interruption, generating plants that rely on water for power production and cooling are susceptible to shut down, higher costs, loss of revenue and potential damage to assets. Further, how well a company manages its dams, reservoirs (e.g., pumped storage) and other hydro assets can have a significant effect on the quantity and quality of available water for generation, as well as its relationship with environmental groups and the general public. Management of both man-made and natural water systems can also adversely influence the safety and security of coal ash storage facilities.
Electric Utilities	Coal Ash & Spent Fuel Management	Materiality?	Public Interest	Yes	Water Management may impact companies in terms of quality and availability. The quality may affect the lifetime of power plants as well as availability long-term strategy for companies. With the advent of climate change, hydro power plants can be affected in short, medium and long terms. http://www.pagina22.com.br/index.php/2013/08/fio-de-incerteza/

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Electric Utilities	Coal Ash & Spent Fuel Management	Materiality?	Public Interest	Yes	Fresh water use in power generation may compete with human and agricultural needs.
Electric Utilities	Coal Ash & Spent Fuel Management	Materiality?	Public Interest	Yes	Unlike Air Quality, Water Management is an emergent concern in the electric utility sector and it will vary in different parts of the US. In most parts of the nation, rising temperatures will require increasingly more electric power output and the harmful effect of heat waves on human health will also raise the stakes for the reliable provision of electric power. However, areas of the US that are drought prone create one scenario for materiality and coastal areas of the US that will become increasingly flood prone with rising sea levels & storm surges create another scenario for managing loss of power (think Sandy in NYC).
Electric Utilities	Coal Ash & Spent Fuel Management	Materiality?	Public Interest	Yes	http://www.wbcsd.org/work-program/sector-projects/water/global-water-tool.aspx http://www.epri.com/abstracts/Pages/ProductAbstract.aspx?ProductId=3002000920 http://www.ceres.org/roadmap-assessment/sector-analyses/electric-utilities
Electric Utilities	Coal Ash & Spent Fuel Management	Materiality?	Public Interest	Yes	Water scarcity will have a material impact on existing and certainly future thermal powered production.
Electric Utilities	Coal Ash & Spent Fuel Management	Materiality?	Public Interest	Yes	water scarcity is becoming a very serious issue in the US more specifically
Electric Utilities	Congratulations	Other Comment	Corporate Professional	DNA - Other Comment	I applaud the effort of SASB to develop and refine these standards for the electric utilities industry. Well done.
Electric Utilities	Congratulations	Other Comment	Market Participant	DNA - Other Comment	These were a robust set of suggested metrics and very thorough and useful industry brief.
Electric Utilities	Congratulations	Other Comment	Market Participant	DNA - Other Comment	I thought I would have more comments, yet SASB you have done a great job. Impressive.

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Electric Utilities	Congratulations	Other Comment	Public Interest	DNA - Other Comment	The IWG research brief seems to me well researched and gives a very helpful overview over regulations and developments in the electricity sector in the US. Thank you for the opportunity to review the metrics.
Electric Utilities	Congratulations	Other Comment	Public Interest	DNA - Other Comment	My remarks here are from the perspective of Sallan's participation as a civil society representative. I applaud the effort to get a wide range of experts and stakeholders engaged in the IWG process. In this regard, I look forward to further in-depth communications from you in the form of periodic updates. Over time, I would encourage you to engage the electric power industry, IWG stakeholders, independent experts in the field, the media and the engaged public with dissemination of the results of SASB reporting because its effectiveness will be materially enhanced by making its findings and significance truly accessible. Problems with reporting or analyzing the significance of the data reported should be dealt with in a transparent manner. Ultimately, that's how SASB will contribute to our shared sustainable future.
Electric Utilities	Congratulations	Other Comment	Public Interest	DNA - Other Comment	Keep up the good work!
Electric Utilities	Downstream Energy Stewardship	Add Issue	Market Participant	Sustainability-related services and projects	Investors want to know what opportunities exist.
Electric Utilities	Downstream Energy Stewardship	Add Issue	Public Interest	Adaptation of the grid to incorporate renewable energies	With more renewable energy capacity added and the rise of distributed renewable energy generation, the transformation of the grid is a major challenge for grid operators. As the current network was designed for centralised large-scale power plants that provide base load electricity, it is generally not flexible enough to integrate renewable energy sources that are

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					often decentralised and experience high fluctuation in electricity production. New grids will need to be able to integrate decentralised electricity generation and balance fluctuation in times of high/low availability of wind and sunshine. There is the need of intelligent networks (smart grids) and innovative storage systems, along with an increasing cross-boarder electricity exchange. Grid operators would need to show investors in how far they will be able to transform their grid to respond to these trends.
Electric Utilities	Downstream Energy Stewardship	Materiality?	Corporate Professional	Maybe	This is not well-defined. It is not clear if the measurement is on the customer side of the meter or not. Smart grid technology is effective on both sides of the meter. Also, the penetration of smart grid technologies is highly dependent on state public utlity commissions who approve or deny such deployments. It is something companies can advocate for but can't control the regulatory outcome. The data and discussion on energy efficiency are relevant and are currently reported by AEP and many other utilities. This needs a lot more information to understand the context of what we're trying to measure and how that's relevant for investors.
Electric Utilities	Downstream Energy Stewardship	Materiality?	Corporate Professional	Maybe	Effectiveness of true savings are difficult to quantify, for example: an industrial customer may install LED lighting to save energy and then through company growth add a third shift of workers. This would require additional energy use for lighting and equipment.
Electric Utilities	Downstream Energy Stewardship	Materiality?	Corporate Professional	No	Oil and Gas should tackle
Electric Utilities	Downstream Energy Stewardship	Materiality?	Corporate Professional	Yes	Ontario is a leader in smart meter technology. See for example: http://www.oce-ontario.org/news-events/blog/Post/smart-meter-data/
Electric Utilities	Downstream Energy Stewardship	Materiality?	Corporate Professional	Yes	The cheapest energy is that which you don't use. Efficiency is great, though I'd compare it's actual impact next to line losses and emission factors of individual distribution lines. The energy programs serving all rate payers may be better served updating parts of their distribution lines.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Electric Utilities	Downstream Energy Stewardship	Materiality?	Market Participant	Maybe	I think comparability of this is challenging depending on whether or not decoupled
Electric Utilities	Downstream Energy Stewardship	Materiality?	Market Participant	Maybe	I believe some of the risks associated with not managing downstream would actually be acknowledged in the risks section of an MD&A. This one I can agree with being material in some cases, but not all. It just doesn't seem like a strong enough topic to deem disclosure in all 10-Ks, You are assuming not only is the utility trying to reduce GHG, but also they are approaching it from an energy efficiency perspective.
Electric Utilities	Downstream Energy Stewardship	Materiality?	Market Participant	Yes	Smart meters and other such downstream energy management systems are not going away. They will be key for customer satisfaction and retention.
Electric Utilities	Downstream Energy Stewardship	Materiality?	Market Participant	Yes	depends on whether the utility is a pure play generator or also involved in distribution
Electric Utilities	Downstream Energy Stewardship	Materiality?	Market Participant	Yes	This is a matter of product stewardship, as well as emerging sustainability interests.
Electric Utilities	Downstream Energy Stewardship	Materiality?	Market Participant	Yes	Utilities companies should manage both upstream and downstream operations. The ability to effectively manage all aspects of the value chain will enhance efficiency and effectiveness.
Electric Utilities	Downstream Energy Stewardship	Materiality?	Public Interest	Maybe	Downstream energy management is important mostly for grids that are stressed by peak demand. This is something that may be very important for certain grids but not so important for others. It should be included nevertheless.
Electric Utilities	Downstream Energy Stewardship	Materiality?	Public Interest	Maybe	Depends on progress of state in decoupling consumption with revenue, and also weather patterns that may limit extent to which end users can vary their behaviour.
Electric Utilities	Downstream Energy Stewardship	Materiality?	Public Interest	Maybe	Many business do not spend a lot of money in conversation of energy because it is not on their business risk map as a priority item. The utilities are using state governments and lobbyists to curb the use of solar and wind energy since they loose rate payers that help subsidize their share of

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					maintaining the grid. Despite the embodied energy in wind and solar energy and the social rights issues associated with the use of rare earth magnets in the wind turbine stators (something the renewable energy lobby refused to talk about), I think the utilities would be best advised to move from subsidized energy conservation to research in lowering the sustainability issues associated with wind and solar and then purchasing the industries that are benefiting financially from the installation of these renewable energy options - like NRG in New Jersey.
Electric Utilities	Downstream Energy Stewardship	Materiality?	Public Interest	No	Using telecommunications as a comparison, the equipment on customer premises is a mix of owned, leased and third-party equipment.
Electric Utilities	Downstream Energy Stewardship	Materiality?	Public Interest	No	Downstream Energy Management is rarely regulated. Typically voluntary. Although there is an ability to influence there no strong direct financial link back to shareholder value creation.
Electric Utilities	Downstream Energy Stewardship	Materiality?	Public Interest	Yes	This is another area where the rubber meets the road and where companies can distinguish themselves in helping consumers optimize their energy use. The extent to which companies encourage and support deployment of RE with their consumers underscores their commitment to a more sustainable industry.
Electric Utilities	Downstream Energy Stewardship	Materiality?	Public Interest	Yes	Downstream energy systems (e.g. microgrids, solar, wind, storage batteries) represent one of the largest existential threats to the electric utility industry. The history of PUCs adopting policies that not only promote downstream, customer-side systems but also fairly compensate utilities for the adverse load and revenue effects of dispersed generation have not been encouraging...and the political environment has not been supportive of policies that would correct this problem. Consequently, utilities need to repatriate the lost revenue through financial participation in what has heretofore been regarded as "non-utility" business (e.g., demand side management, energy efficiency, promotion of on-site customer generation). The current regulatory and political environment in most states appears opposed to providing utilities with the non-utility option. Therefore, requiring utilities to promote downstream energy management options without either

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					compensating them for loss of revenue or financial participation is highly risky for the long term sustainability of the utility business model.
Electric Utilities	Downstream Energy Stewardship	Materiality?	Public Interest	Yes	Consistent with the messages from the recent EEI CEO forum, I believe that reporting standards on downstream energy management would be both beneficial to the stakeholders, as well as to the electric utilities to provide comparable metrics on how they are embracing the evolution in the energy market. Electric utilities of today are not our grandparent's electric companies. They recognize that change and innovation are avenues to provide better service to their customers and deliver continued future profits to their shareholders.
Electric Utilities	Downstream Energy Stewardship	Materiality?	Public Interest	Yes	Downstream Energy Management in an era of emergent federal GHG rules AND emergent state radical rethinking of electric utility regulatory schemes, where the New York REV is the one to watch, make the case for the materiality of DEM. These changes will impact on company revenue prospects by their impact on rate making and the range of electric power services -- ranging from distributed renewable energy, to energy efficiency and demand response markets-- that are game-changers for the electric utility sector.
Electric Utilities	Downstream Energy Stewardship	Materiality?	Public Interest	Yes	http://www.eei.org/ourissues/finance/documents/disruptivechallenges.pdf http://www.epri.com/abstracts/Pages/ProductAbstract.aspx?ProductId=3002000920 http://www.ceres.org/roadmap-assessment/sector-analyses/electric-utilities
Electric Utilities	Greenhouse Gas Emissions & Energy Resource Planning	Add Issue	Corporate Professional	Generation Mix [GHG EMISSIONS & ENERGY RESOURCE PLANNING]	The percentage of MW's (Capacity) and/or Net MWh's (generation) by fuel type.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Electric Utilities	Greenhouse Gas Emissions & Energy Resource Planning	Add Issue	Market Participant	Energy mix (for power generators) [GHG EMISSIONS AND ENERGY RESOURCE PLANNING]	Energy mix of realised production and theoretical capacity.
Electric Utilities	Greenhouse Gas Emissions & Energy Resource Planning	Add Issue	Market Participant	Opportunities in renewable energy [GHG EMISSIONS & ENERGY RESOURCE PLANNING]	It is important that a utility disclose investments they are making in capacity/generation of renewable energy sources and if they are taking advantage of the opportunity. Diversifying the energy mix mitigates risk and shows innovative strategy.
Electric Utilities	Greenhouse Gas Emissions & Energy Resource Planning	Other Comment	Public Interest	DNA - Other Comment	Question regarding greenhouse gas emissions intensity estimates on pages 12-13: It would be helpful to discuss the source of greenhouse gas emissions from non-combustion sources, such as nuclear, onshore wind, and solar PV. What is the basis of these estimates? What greenhouse gases are produced by "emission-free" electricity generation such as wind and solar?
Electric Utilities	Greenhouse Gas Emissions & Energy Resource Planning	Add Issue	Public Interest	Fuel supply diversity [GHG EMISSIONS & ENERGY RESOURCE PLANNING]	Due to recent trends in comparative fuel supply costs, coal plant retirements and renewable energy standards, there is a growing concentration of natural gas fired generation to provide both base and mid-load generation, as well as back up generation for "firming up" intermittent sources of energy, such as utility scale solar and wind. While battery backup and storage may eventually provide the necessary firming power, they remain relatively expensive today, especially in comparison to natural gas, which is and promises to be in great abundance in the US at very attractive cost.

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					Compounding this problem is the high cost and lack of policy interest in nuclear. As nuclear plants are decommissioned and few if any new plants built, even greater impetus will be given to the choice of natural gas for new generation. Additionally, federal and state green house gas emission targets encourage the use of natural gas...especially as a low capital cost, near term GHG solution. For now, a new natural gas combined cycle combustion turbine can be built and brought to operational stage and provide more kilowatts of capacity per dollar investment faster than its equivalent capacity in renewable energy sources. Any portfolio of physical or financial assets poses more risk as the diversity of investments in the portfolio decreases. The US and its member electric utilities are at risk of over concentration. If gas plant additions continue at the present pace there is the risk that our generation mix will become over concentrated in the near to intermediate time frame. US generation will then be exposed to an increasing variety of risks,)e.g., cessation of fracking due to environmental regulations; natural supply line interruptions; increasing competition from renewables as such technology advances; increasing and more stringent GHG regulations that penalize natural gas, including methane emission standards; an aging gas pipeline structure; some combination of these; and/or other risks that are not yet identified.
Electric Utilities	Greenhouse Gas Emissions & Energy Resource Planning	Add Issue	Public Interest	Generation mix - current and mid-term projections [GHG EMISSIONS & ENERGY	I will cite RobecoSAM as it reflects quite good the importance of this topic: "Electricity utilities are increasingly subject to regulations to reduce their emissions levels. Using renewable sources of energy which emit fewer pollutants helps create a competitive advantage and generate additional revenue from price premiums. In addition, the generation mix determines the

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
				RESOURCE PLANNING]	vulnerability of companies to fuel and/or CO2 price increases". (question 2.6.1 of DJSI questionnaire).
Electric Utilities	Greenhouse Gas Emissions & Energy Resource Planning	Materiality?	Corporate Professional	Yes	GHGs continue to be an area of focus in Ontario (and more broadly in Canada). The Ontario government just introduced a cap and trade program. See for example: http://www.occ.ca/rapid-policy-update/rapid-policy-update-ontario-introducing-cap-and-trade-system/
Electric Utilities	Greenhouse Gas Emissions & Energy Resource Planning	Materiality?	Corporate Professional	Yes	This is definitely a material issue for this industry. However, identifying the percentage under a regulatory program would be difficult and require additional time and analysis beyond what is currently done.
Electric Utilities	Greenhouse Gas Emissions & Energy Resource Planning	Materiality?	Corporate Professional	Yes	Our response to CDP's 2014 survey on climate change and air emissions is here: https://www.cdp.net/en-US/Pages/CDPAdvancedSearchResults.aspx?k=sempra%20energy
Electric Utilities	Greenhouse Gas Emissions & Energy Resource Planning	Materiality?	Corporate Professional	Yes	Each energy generation or distribution line has it's own emissions factor that factors line losses. I'd like to see line losses and emission factors for each distribution line reported more formally. A blended average approach can mislead us to make really large misteps in all of our next steps. It stands to reason that end user efficiency (and generation when brought back on the grid) might be much less impactful where there are greater line losses. This logic holds true for water and other infrastructure as well.
Electric Utilities	Greenhouse Gas	Materiality?	Market Participant	Yes	As the EPA continues to increase regulations, understanding companies' compliance/compliance plans is important to evaluate potential risks.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
	Emissions & Energy Resource Planning				Companies that require more work to meet new standards will likley be seen as negatively impacted, while those already in compliance would be advantaged.
Electric Utilities	Greenhouse Gas Emissions & Energy Resource Planning	Materiality?	Market Participant	Yes	Because of the risk of stranded assets and pressure from government/society to mitigate the risks of climate change.
Electric Utilities	Greenhouse Gas Emissions & Energy Resource Planning	Materiality?	Market Participant	Yes	http://www.epa.gov/climatechange/ghgemissions/sources/electricity.html
Electric Utilities	Greenhouse Gas Emissions & Energy Resource Planning	Materiality?	Market Participant	Yes	While I recognize that there is significant overlap between GHG Emissions and Energy Resource Planning, I think treating them as separate topics would allow for material elements of each to be explored more comprehensively.
Electric Utilities	Greenhouse Gas Emissions & Energy Resource Planning	Materiality?	Market Participant	Yes	The standard should have an unified unit, for instance, CO2-equivalent, or Gigajoules. Different disclosure makes comparison troublesome.
Electric Utilities	Greenhouse Gas Emissions & Energy	Materiality?	Market Participant	Yes	Carbon emissions are a material risk to utilities in that they heighten potential exposure to increased costs linked to carbon pricing or regulatory caps. These regulatory risks could pose significant costs on a utilities operations.

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	Resource Planning				
Electric Utilities	Greenhouse Gas Emissions & Energy Resource Planning	Materiality?	Public Interest	Maybe	Science is still evolving. We are tracking simple compounds (SOx, NOx, CO2, H2SO4, methane) but still learning about their interconnection or more complex compounds.
Electric Utilities	Greenhouse Gas Emissions & Energy Resource Planning	Materiality?	Public Interest	Yes	As an industry, electric utilities are a major source of GHG emissions and a sector within which proactive action by the industry can achieve fundamental improvements. Through proper disclosure, stakeholders should be informed of how companies address these challenges.
Electric Utilities	Greenhouse Gas Emissions & Energy Resource Planning	Materiality?	Public Interest	Yes	Greenhouse Gas Emissions constitute material information because they are subject to environmental regulation and restrictions. Electricity utilities in the EU, the US and certain regions of China are already subject to relevant legislation and more countries could follow in the near future. Energy Resource Planning constitutes material information because it is fundamental, especially for utilities that rely on fossil fuel resources that are subject to price fluctuations, imports from countries governed by unstable regimes and other circumstances that may threaten smooth supply.
Electric Utilities	Greenhouse Gas Emissions & Energy Resource Planning	Materiality?	Public Interest	Yes	Companies in the electric utility industry may generate electricity by any number of means. Some of these means may produce greenhouse gas emissions (e.g. coal, natural gas, hydropower reservoirs/methane), and the civil works associated with developing a given project almost always create greenhouse gases. Energy Resource Planning is a methodology that, as best practice, plans least-cost energy options after weighing externalities by equal means, e.g. GHG emissions, conservation/ecosystem function loss, public acceptance, societal benefits, jobs created, etc. Each of these factors plays a role as material information of interest to the reasonable investor.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					Please refer to "Best Practices in Electric Utility Integrated Resource Planning" by Regulatory Assistance Project. http://www.raponline.org/search/site/?q=integrated%20resource%20planning
Electric Utilities	Greenhouse Gas Emissions & Energy Resource Planning	Materiality?	Public Interest	Yes	I believe GHG constitutes material information on Electric Generating Units (EGU). However, I think this information should be measured on an output basis, rather than a percentage. I'm really not sure how % is supposed to be based on. Scope 1 emissions on short tons and metric tons are already been reported for all US EGUs through EPA Facility Level Information on GHG Tool (http://ghgdata.epa.gov/ghgp/main.do), so this will be an easy metric to capture and adjust for ESG management.
Electric Utilities	Greenhouse Gas Emissions & Energy Resource Planning	Materiality?	Public Interest	Yes	As state jurisdictions require minimum renewable portfolios and federal regulation continues to evolve, both the general public and the investing community will likely have increased interest in the greenhouse gas emissions and energy resource planning of electric utilities.
Electric Utilities	Greenhouse Gas Emissions & Energy Resource Planning	Materiality?	Public Interest	Yes	Greenhouse Gas Emissions and Energy Planning are material issues that may impact the strategy and long-term planning of the companies because: - May increase costs - due to regulatory changes (carbon pricing - market or rates); - Can be influenced by the availability of energy resources, resulting in the modification of the product portfolio and long-prazp services; - Among many others. It also can influence positively companies, such as in the case of reducing / dividing portfolio risks, which is the case for example of a Brazilian company that separated all of its assets renewable energy on a single company began to focus only on that market. With this focus set, could go public on

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					the stock exchange and another Group company now has listed shares (Please see CPFL Renováveis website: http://www.cpflrenovaveis.com.br/Default.aspx?linguagem=en).
Electric Utilities	Greenhouse Gas Emissions & Energy Resource Planning	Materiality?	Public Interest	Yes	In light of current, pending & emergent federal, state, local regulation of GHGs and the long and capital intensive nature of energy resource planning, providing information on these topics is material Using the Supreme Court definition) pertaining to companies in the electric utility sector
Electric Utilities	Greenhouse Gas Emissions & Energy Resource Planning	Materiality?	Public Interest	Yes	http://www.wbcsd.org/resilience.aspx http://www.epri.com/abstracts/Pages/ProductAbstract.aspx?ProductId=3002000920
Electric Utilities	Greenhouse Gas Emissions & Energy Resource Planning	Materiality?	Public Interest	Yes	Governments are seeking to meet their pledges of lowering the national emissions of Carbon Dioxide through discouraging the burning of coal for energy. The other large users of energy concrete (used in the base pads of wind energy), steel (used to reinforce the concrete and build wind turbine towers) and glass (used in solar panels) have not seen the same level of scrutiny.
Electric Utilities	Greenhouse Gas Emissions & Energy Resource Planning	Materiality?	Public Interest	Yes	The cost of carbon will become monetized in the U.S. and by many, if not most, investors.
Electric Utilities	Grid Resiliency	Materiality?	Corporate Professional	Maybe	There are a number of complex dynamics involved in Grid Resiliency. Our team does not feel this topic was well developed. Additionally, there are items that companies either cannot or should not discuss in detail due to the sensitive nature surrounding management of these items, such as cyber

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					security. Energy producers are a vital part of Homeland Security, which requires certain confidential cyber security measures.
Electric Utilities	Grid Resiliency	Materiality?	Corporate Professional	Maybe	I think, in general, Grid Resiliency cannot affect, in a high scale the result of the companies. Because of this, I have reservations about this subject.
Electric Utilities	Grid Resiliency	Materiality?	Corporate Professional	Yes	While Data breaches have not been common, cyber and terror threats are high on utility risk profiles given their potential severe impact on operations.
Electric Utilities	Grid Resiliency	Materiality?	Corporate Professional	Yes	This is definitely a relevant metric and what is being proosed are pretty standard disclosures already. However, the use of the term "breach" can be subjective. How do you benchmark this? It could also pose some sensititives around cyber security; companies don't publicize everything they are doing for a reason.
Electric Utilities	Grid Resiliency	Materiality?	Corporate Professional	Yes	I'd prefer a "dumb grid" - one where the smart devices couldn't communicate outside a private network because they can't speak or respond to foreign commands of the grid (not individual proprietary or open protocols). The primary reason this is an issue is because these devices were never intended to be able to "talk" outside the network. Just secure the network and throw all the fancy bells and whistles out and we'll be resilient again.
Electric Utilities	Grid Resiliency	Materiality?	Market Participant	Yes	This is an important way utilities can grow earnings on top of the importance of grid reliability itself
Electric Utilities	Grid Resiliency	Materiality?	Market Participant	Yes	Cyber security and digitalisation increase risks to safe grid operations. These are growing risks.
Electric Utilities	Grid Resiliency	Materiality?	Market Participant	Yes	http://www.nature.com/news/us-electrical-grid-on-the-edge-of-failure-1.13598
Electric Utilities	Grid Resiliency	Materiality?	Market Participant	Yes	Somebody has to look after the quality of the grid that everybody uses.
Electric Utilities	Grid Resiliency	Materiality?	Market Participant	Yes	A utilities main goal is to provide quality energy at all times with as little disruption as possible. Grid resiliency is a key material concern for utilities operations.
Electric Utilities	Grid Resiliency	Materiality?	Public Interest	Maybe	My experience with having performance metrics is that they work for the known risks, but measuring unknown risks would be essential to a worthwhile metric.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Electric Utilities	Grid Resiliency	Materiality?	Public Interest	Maybe	Grid resiliency is a big issue. But if there is more distributed renewable energy, the grid will be further weakened. The push for renewable energy is not focused on helping with grid resiliency since it will increase the (often subsidized) price for the renewable energy. There needs to be some kind of fee placed on renewable energy if the energy or the users are relying on the grid for any of their energy - directly or through the goods they purchase. This is a big issue, not unsimilar to the spent nuclear fuel issue.
Electric Utilities	Grid Resiliency	Materiality?	Public Interest	Maybe	Resiliency is a long-term issue that I believe will be reduced with the advent of new technologies (e.g., micro-grids, etc.). Although these new technologies will be disruptive to most utility business models it is a function of technology change - not addressing a direct sustainability (ES&G) issue. It may be confusing to investors to separate this technology-based issue vs a Sustainability-based issue. Can it be amplified by climate change - yes but over the long-term.
Electric Utilities	Grid Resiliency	Materiality?	Public Interest	Yes	This is a forward looking issue to assure a sustainable industry. It is important for stakeholders to know whether and how companies are proactively addressing this.
Electric Utilities	Grid Resiliency	Materiality?	Public Interest	Yes	Electric utility projects are only as robust as the transmission lines are capable of delivering electricity from point of generation to point of consumption. If peak demand is higher than peak supply capacity, the grid will shut down. Investors will be concerned if a utility-scale generation project is developed but the associated transmission lines are not of the correct capacity to transmit the electricity. Also, if demand-side management measures are not implemented, or if there is no national or state body to coordinate electricity demand (shutting off and shutting on certain sources at peak times, for example, or implementing demand efficiency), then different consumers will compete. Climate change is also a factor in grid resiliency, in the sense that certain sources of generation may be more susceptible to climate change effects. For example, traditional reservoir storage for hydropower is susceptible to droughts and erratic precipitation. Coordinating baseload plants and peaking plants is of the utmost importance, without which investors may not see a return on a given plant or oprating company.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Electric Utilities	Grid Resiliency	Materiality?	Public Interest	Yes	Grid Resiliency comprises to major subcomponents: (1) traditional reliability (measured by the SAIDI, SAIFI CAIDI metrics), and (2) cyber security. Of the two, information about cyber security appears to me to be the most relevant. Utilities have been managing reliability for decades, and measures of reliability are ubiquitous. Reliability of the traditional kind, while material, is eminently measurable and manageable. Cyber crime is relatively new, however, and is clouded by non-standardized data formatting and reporting requirements, rapidly evolving technology and secrecy. The nature of the threat continues to morph rapidly...making risk identification and mitigation extremely difficult. Yet the consequences of a successful cyber attack, particularly on the operating grid (vs., for example, on customer records systems), is potentially huge and implies damages to not just the utility, but to its customers and the general economy in the order of up to billions of dollars. In my view, this is by far the most important threat to the industry, and any data pertaining to it is material.
Electric Utilities	Grid Resiliency	Materiality?	Public Interest	Yes	Our electric grid infrastructure is one of our most important and vunerable assets. The overall disruption that could occur by a cyber attack or other challenges to the grid presents significant risk to society and a number of the electric company stakeholders. Relevant quantitative or qualitative metrics that could be reported by utilities to share what is being done to protect against a failure would be (in my opinion) important to the stakeholders.
Electric Utilities	Grid Resiliency	Materiality?	Public Interest	Yes	As I wrote above in the section on Water Management, grid resilience in an era of rising climate disruption poses serious risk mitigation challenges to the electric power sector. Grid resiliency is also being challenged by the emergence of distributed power, needs for purchasing, installing and properly utilizing smart grid technologies and developing large scale corporate revenue analyses and strategies for a future where energy efficiency and demand reduction, rather than ever increasing electric power sales, become the new normal. "Risky Business: The Economic Risks of Climate Change in the US" http://riskybusiness.org/reports/national-report/executive-summary sets forth the intellectual case for this position and the book Climate Shock makes the compelling case (although it's not

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					specific to companies in the electric power sector) that the best climate policy is fundamentally insurance, the critical risk management strategy for engaging the wicked problem that is climate change, which is almost uniquely global, uniquely long term, uniquely irreversible and uniquely uncertain". In light of the nature of the problem, Grid Resiliency and the other proposed SASB reporting categories are given their justification
Electric Utilities	Grid Resiliency	Materiality?	Public Interest	Yes	http://www.wbcsd.org/resilience.aspx http://www.wbcsd.org/Pages/EDocument/EDocumentDetails.aspx?ID=13605&NoSearchContextKey=true
Electric Utilities	Ind. Brief comment	Innacuracy	Corporate Professional	DNA - Innacuracy	Missing data: Page 3: Add data on agricultrual/irrigation customers to first paragraph Typos: Page 14: "They could also "face" impacts..., not "fact" impacts. Page 18: Remove "of" from third sentence in second paragraph under Evidence. Page 28: Remove "s" from "theirs" in Value Impact section.
Electric Utilities	Ind. Brief comment	Other Comment	Corporate Professional	DNA - Other Comment	Well written. I would have liked to see more in the following related topics; distributed energy, electric vehicle and self generation. Although the discussion centers around electric utilities, we as consumers will someday be considered a "virtual electric utilitiy" of our own.
Electric Utilities	Ind. Brief comment	Other Comment	Market Participant	DNA - Other Comment	Industry briefs were perhaps a bit too basic and long for an audience that is supposedly experts. Overall, the entire brief could have been more concise.
Electric Utilities	Ind. Brief comment	Comment on Brief	Public Interest	DNA - Comment on Brief	The brief provide a superficial overview of the issues. The actual situations are very complicated. The author did not have sufficient experience with the sector and relied too heavily on information a small number of electric utilities.

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Electric Utilities	Ind. Brief comment	Comment on Brief	Public Interest	DNA - Comment on Brief	The Brief is a good working draft. Suggest SASB consider the provided institutional / industry and NGO references to incorporate in its purview. The above referenced materials would provide a wider, strategic point of view on matters of material concern.
Electric Utilities	Ind. Brief comment	Innacuracy	Public Interest	DNA - Innacuracy	I answered "yes" so I could make this comment. There may have been few, if any, inaccuracies. However, the information did NOT provide the depth of knowledge of some of the underlying issues with how the industry is dealing with the matters that are the subject of this effort. This could have been corrected with a more critical search for information in the literature rather than relying on investment bias and industry bias.
Electric Utilities	Ind. Brief comment	Innacuracy	Public Interest	DNA - Innacuracy	Just a type on page 14, last full paragraph. "fact" s/b "face". And the cite on the very top of page 18 is numbered 73 but I think it should be #75.
Electric Utilities	Ind. Brief comment	Innacuracy	Public Interest	DNA - Innacuracy	Page 12 - left column, 2nd paragraph, middle of the paragraph, the statement reads: "Generally, the higher the percentage of energy a utility generates from renewable sources, such as hydro, wind, or nuclear power, and the lower the percentage it generates from coal, the lower its overall emissions will be." This sentence seems to classify nuclear power as renewable energy, which it is not. I'd recommend restating it something like this: "Generally, a utility's overall emissions will be lower to the extent it generates a higher percentage of its energy from renewable sources, such as hydro, solar, and wind; the higher its percentage of nuclear power in its generation mix; and the lower the percentage of coal-fired power."

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Electric Utilities	Industry insights	Comment on Brief	Corporate Professional	DNA - Comment on Brief	It provided a good broad overview but my overarching concern is the tremendous variability in where utilities are geographically located, the progressiveness of the states in which they operate, and the possible failure in being able to capture credit for good work already done. Using California as an example, utilities here have been practicing under decoupling for decades; have been promoting energy efficiency since the late 1970s -- and all of the low-hanging fruit is gone. All of the old buildings and homes have been retrofitted and all of the new buildings are energy efficient and state-of-the-art. If utilities in California are compared to utilities just now beginning to promote energy efficiency (for example, megawatt hours of energy saved per customer) California utilies wouldn't have as good of a metric because they wouldn't be getting credit for 30+ years of efforts that have already taken place.
Electric Utilities	Industry insights	Innacuracy	Corporate Professional	DNA - Innacuracy	It may be accurate for the regions and utilities primarily covered (Exelon, Duke, Southern, AEP and NRG), but the industry brief seems to not reflect the nuances and differences of the full electricity sector. Again, California has been decoupled for decades, promoting energy efficiency for decades, is operating under cap and trade, and an RPS of 33 percent by 2020. While some of these things may have been noted, it is critical that SASB consider these regional differences which could advantage or disadvantage electric utilities. I also believe that since you have a brief for gas utilities and electric utilities, you may also want to consider a separate class of combined utilities too from the standpoint of comparability?
Electric Utilities	Industry insights	Other Comment	Corporate Professional	DNA - Other Comment	I thought the materials and information were well laid out, and the discussion was easy to follow. I anticipate that given the breadth of the issues in some jurisdications there may not be as much relevance. It would be useful in the briefs to indicate if an issue is prevalent in any particular foreign jurisdiction.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Electric Utilities	Industry insights	Other Comment	Market Participant	DNA - Other Comment	The brief was well prepared and thorough and proposed standards did an excellent job of capturing the most material issues for the industry. I don't have specific recommendations, but I would have liked to see more prominence given to the present and future role of renewables.
Electric Utilities	Industry insights	Comment on Brief	Public Interest	DNA - Comment on Brief	The brief provided a lot of background information and source references to inform SASB's analysis, However, it is documented in a way that seems to focus more on industry performance issues/challenges/problems and less to acknowledge/highlight accomplishments and superior performance where warranted (i.e., glass half full perspective). While the analyst did a fair job at documenting the researched facts, the brief as written did not demonstrate any inherent expertise/knowledge about the industry on the part of the analyst(s). More importantly, using a handful of larger electric utility companies as the primary basis for the research is flawed. A far better approach would have been to analyze the industry overall in terms of revenues, generation/transmission/distribution capacity, power gen mix (fossil, nuclear, renewable), geographical locations, etc. to establish an industry profile. Then select companies that span that profile on which to focus the research.
Electric Utilities	Industry insights	Other Comment	Public Interest	DNA - Other Comment	More than other industries, there needs to be a more ethical approach to governance, risk and compliance using the international risk management standard (ISO31000:2009) as embedded in the GRC management standard, ISO 19600:2014. Electric utilities normally have management systems (especially ISO 14001:2004 and OHSAS 18001). Soon both of these standards will be available in the same harmonized high-level structure as ISO 19600 and a host of other standards such as ISO 55001:2014 (assets management), ISO 22301:2012 (business continuity),

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					ISO 27001:2013 (information security) and a number of other standards that would help improve the manner in which the utilities are managed. This would make the industry more transparent and accountable to its stakeholders. It would be much easier to rate an electric utility if managed and independently certified. This is how the chemical industry managed itself - Responsible Care Management System with independent third-party assurance. Even the financial enterprise risk management standard and internal control is being guided with the ISO 31000 risk management guidance. With these issues under control, it will be easier to rate the industry in a consistent manner and to have them participate more transparently in the solutions to the problems created through the generation of electricity,
Electric Utilities	Industry insights	Other Comment	Public Interest	DNA - Other Comment	The industry brief is excellent and the disclosure topics on-point. In some cases, however, the accounting metrics are not sufficiently relevant or material to warrant disclosure. Where appropriate I have suggested and discussed possible modifications to the proposed metric. If my comments need clarification, I would be happy to discuss. I have made comments in particular on the"down stream energy stewardship," "grid resiliency" and "management of the legal and regulatory environment" topics. Although the Evidence matrix (Appendix IIA) suggests there is a material financial impact from "management of the legal & regulatory environment," the proposed accounting metrics for this topic do not capture or reflect that impact. I discuss my reasons in the relevant sections of the survey. I am surprised that grid resiliency received such a low heat map score; the grid is the critical back bone of the electricity infrastructure and the most susceptible to malicious attack. Without it, there can be neither sustainable

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					enterprises nor sustainable energy generation projects. The grid interconnects to many generating sources including geographically remote renewable solar, wind and hydro; it provides access to lower cost energy supplies across regions, thereby reducing costs to customers; it provides the standby power for dispersed and customer-owned generation; and ultimately provides energy security. Without a sound grid, no utility company can remain operationally and financially sustainable, nor can dispersed renewable generation be made secure and interconnected. Disclosure of a company's efforts to secure its grid are very important to understanding its enterprise and operating sustainability. Of course, disclosure needs to be balanced with the need for maintaining confidentiality about technologies and strategies required to protect vulnerable infrastructure. It's a difficult trade off.
Electric Utilities	Industry insights	Other Comment	Public Interest	DNA - Other Comment	Historic environmental liabilities are related to manufactured gas plants , PCB-containing transformer spills, accumulation of tritium in cooling water, and contaminated sediments from water outfalls. Metrics on the efficiency of reducing those liabilities ($x of liability reduced per $1 spent) may improve measurement and management of ASC 410 Obligations and ASB 450 Contingencies. In the last twenty years, these values have only trended upward (per 10-Ks), and imply the initial measurement was not correct, impacts of leg/reg changes were never calculated, and/or current funds are not used efficiently.
Electric Utilities	Industry insights	Add Issue	Public Interest	Governance, Risk and Compliance (GRC) Management	There are serious issues with the Board of Directors not taking responsibility for governance, risk and compliance issues. After the blatant problems with the coal ash issues at Duke Energy, the members of the Environmental Committee on the Board of Directors refused to step down when requested in a proxy filing. They saw no problem with their services on the Board. In 2014, a new risk-based international management system standard for GRC (ISO 19600:2014) was enacted. The electric utility industry should use this standard or cite publicly why they choose not to use the standard. ISO 26000:2010 (social responsibility guidance) offers guidance on the topic of governance that would be more helpful for the electric utility industry than

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					litigating against the governments prosecuting them for wrong doing or trying to impede new regulations.
Electric Utilities	Industry insights	Add Issue	Public Interest	Use of Green Bond and/or other financing mechanism directed at "Responsible Investment."	Those companies, including utilities, with higher ES&G scores have a lower cost of capital. The Deutsche Bank meta-study 2012 was pretty conclusive on this single point. Likewise those utilities that take advantage of sustainability-friendly financing mechanism will drive their Cost of Capital even lower. We are starting to see this in the Green Bond area (search on Denton Law Green Bond Presentation February 2015).
Electric Utilities	Land Use & Community Relations	Materiality?	Corporate Professional	Yes	In Ontario and indeed Canada we have a duty to consult aboriginal people which is a material issue. See requirement for example at: http://www.ontario.ca/aboriginal/duty-consult-aboriginal-peoples-ontario. Also, one major deal just announced because of legacy land issues: http://m.thestar.com/#/article/business/2013/05/09/saugeen_indian_bands_buy_72_million_stake_in_power_line.html?referrer= Finally, it is common to find "Impact Benefit Agreements" in Canada because of these issues, and they are all very material.
Electric Utilities	Land Use & Community Relations	Materiality?	Corporate Professional	Yes	The issue itself is material but the metrics selected are very subjective. project delays are largely influenced by the number of projects underway simultaneously and the location. What conclusion are you trying to draw? Needs more context.
Electric Utilities	Land Use & Community Relations	Materiality?	Market Participant	Maybe	I think that comparison of these types of metrics is difficult
Electric Utilities	Land Use & Community Relations	Materiality?	Market Participant	Maybe	In order to capture the essence of this topic as you have described in the packet, I do not see feasibly clear and one-size fits all questions that would make disclosure valuable. Perhaps the answer is qualitative but this then doesn't provide much value and would only dilute the requirements.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Electric Utilities	Land Use & Community Relations	Materiality?	Market Participant	No	depends on geographic exposure and degree of greenfield projects in pipeline
Electric Utilities	Land Use & Community Relations	Materiality?	Market Participant	Yes	These local communities will be key stakeholders for operational and strategic success. Resistence to planning applications may be one of many issues that result in dissatisfaction from local residents.
Electric Utilities	Land Use & Community Relations	Materiality?	Market Participant	Yes	Utilities are land-intensive businesses, and are inherently involved in host community interests.
Electric Utilities	Land Use & Community Relations	Materiality?	Market Participant	Yes	The communities in which a company operates are a key stakeholder in company operations. Fostering and maintaining those relationships is a material concern for a company's license to operate.
Electric Utilities	Land Use & Community Relations	Materiality?	Public Interest	Maybe	It is important but not in all cases; there are several utilities which are located in very remote/rural areas where these issues are not significant. They should be included but they may be irrelevant for certain electricity utilities.
Electric Utilities	Land Use & Community Relations	Materiality?	Public Interest	Maybe	The main reason is guided by the availability of projects that need large areas to be developed. Except to large exploration areas, with possible impacts on the surrounding communities in the US, the largest potential hydropower projects have been developed. Projects using other energy sources require smaller areas in the deployment.
Electric Utilities	Land Use & Community Relations	Materiality?	Public Interest	Maybe	I can't imagine what metrics can work here.
Electric Utilities	Land Use & Community Relations	Materiality?	Public Interest	Maybe	Suggested metric seem to narrow compared to the topic. Also seems to only address new projects; should also consider on-going impacts and community engagement throughout the life cycle of facilities.
Electric Utilities	Land Use & Community Relations	Materiality?	Public Interest	Maybe	These have been seminal issues for electric utilities since the beginning. The management and experience should be in place to understand and manage these risks.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Electric Utilities	Land Use & Community Relations	Materiality?	Public Interest	No	In reviewing the relevant points associated with this topic included within the electric utilities brief, I am still not confident that I recognize the value proposition of this topic. While I concur that land use & community relations would drive significant costs as part of the needed capital investment in infrastructure, I am curious to the metrics that could be established associated with this costs. The comparability of identifying incremental costs with a NIMBY attitude by local rate payers could be highly subjective and drive difficulties in comparability. Further, I am not sure of the metrics that would be used to evaluate the benefit gleaned from these types of disclosure.
Electric Utilities	Land Use & Community Relations	Materiality?	Public Interest	No	A utility with a strong stakeholder engagement program will not have large problems with these issues. Some large utilities have recreational facilities and other resources that are very attractive to the local communities.
Electric Utilities	Land Use & Community Relations	Materiality?	Public Interest	Yes	My only observation here is that community relations need to go above and beyond the community activities that many companies support. It needs to be a part of proactive stakeholder engagement so as to understand community concerns and to address these concerns. Presently, too many sustainability reports talk about all of the good efforts, and less so about challenges and how companies address and resolve them.
Electric Utilities	Land Use & Community Relations	Materiality?	Public Interest	Yes	Of particular concern to the investor is the materiality related to land use and right of way. Typically, a project developer purchases right of way or leases from the landholder. If the landholder does not have legal title to the land, or if the area is one of seasonal landholding (the case for flood plains for example), then the risk of community disagreement with the project rises. If the developer does legally acquire or lease the necessary land for right of way, the risk for social conflict arises. If the developer does not negotiate a fair compensation package for displaced peoples or a fair price for land, the risk of lawsuits rises.
Electric Utilities	Land Use & Community Relations	Materiality?	Public Interest	Yes	Community relations are key to successful operation of units. Failures in community relations can lead to premature asset retirements - see Sacramento Municipal Utility District - Rancho Seco; Southern California Edison - SONGS and Exelon - Zion Nuclear Units.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Electric Utilities	Land Use & Community Relations	Materiality?	Public Interest	Yes	While concluding that Land Use & Community Relations may create material information pertaining to power generation, transmission and distribution companies in the electric utility sector, I am compelled to note that given the myriad and highly site and project-specific considerations entailed in any particular project undertaken by companies in this sector make it difficult to see what kinds of information should be required to be reported under a SASB regime.
Electric Utilities	Land Use & Community Relations	Materiality?	Public Interest	Yes	http://www.epri.com/abstracts/Pages/ProductAbstract.aspx?ProductId=3002000920 http://www.ceres.org/roadmap-assessment/sector-analyses/electric-utilities
Electric Utilities	Management of the Legal & Regulatory Environment	Materiality?	Corporate Professional	Maybe	I agree that this is a relevant input for investors as noncompliance can be costly in many ways. However, the metric itself seems to be culled from recent events. Rate refunds are due to a variety of factors and is not a good performance measure without greater context. Also, why not ask about under collection of revenue which can also have a material impact? The RPS metric relies on regulatory and/or legislative actions to enact. How do you benchmark one company in state with an RPS against one without it? Also, net metering is not a financially sustainable business practice. And, dollar-for-dollar, you can get substantially more renewable energy from utility scale renwable projects than those that flow from net metering arrangements. Also, if you are using this measure, it should be in U.S. units of measurement. Overall, recommend deleting the net metering metric.
Electric Utilities	Management of the Legal & Regulatory Environment	Materiality?	Corporate Professional	Maybe	We as a company has reservations regarding the open discussion about these topic in venues such as this one.
Electric Utilities	Management of the Legal & Regulatory Environment	Materiality?	Corporate Professional	Yes	Complaints about overcharging have been rampant in Ontario and the subject of an investigation due to be released May 25. See also:

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					http://globalnews.ca/news/1876575/ontario-ombudsman-to-update-investigation-into-hydro-one/
Electric Utilities	Management of the Legal & Regulatory Environment	Materiality?	Market Participant	Yes	License to operate. Avoid fines and penalties.
Electric Utilities	Management of the Legal & Regulatory Environment	Materiality?	Market Participant	Yes	sector is heavily regulated and this regulation is subject to frequent change. needs to be factored into risk/return trade offs
Electric Utilities	Management of the Legal & Regulatory Environment	Materiality?	Market Participant	Yes	Investors need to know how a company responds to current and future regulations.
Electric Utilities	Management of the Legal & Regulatory Environment	Materiality?	Public Interest	Maybe	Not sure how one would measure results.
Electric Utilities	Management of the Legal & Regulatory Environment	Materiality?	Public Interest	Maybe	Because issues related to Compliance / Legal Requirements should not be discussed in terms of performance, but if the company in case are in or not compliance to regulation. But it should be monitored in US because the sector shall increase/improve tools to demonstrate leadership in a high level discussing of regulation.
Electric Utilities	Management of the Legal & Regulatory Environment	Materiality?	Public Interest	No	In reviewing the relevant points associated with this topic included within the electric utilities brief, I am still not confident that I recognize the value proposition of this topic. While I concur that how an electric utility manages it legal and regulatory environment is critical to future success, I am curious to the metrics that could be established associated with this process. What would be used as the qualitative or quantitative metric to provide insight into this area? Some may want to include items such as lobbying costs, but that is a skewed item on a number of fronts as lobbying naturally has a negative connation with the public. However, educating and advocating for

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					reasonable legislation is essential to ensuring that short-sighted decisions do not have long-term impacts on the health of the industry as a whole.
Electric Utilities	Management of the Legal & Regulatory Environment	Materiality?	Public Interest	No	No company faces a unique legal and environment. Each company's responses will differ in qualitative ways, but I can't imagine metrics that would fit here.
Electric Utilities	Management of the Legal & Regulatory Environment	Materiality?	Public Interest	No	The Utilities know how to get around these issues. Duke Energy is contesting the fines they received as being unreasonable and have reached settlements in criminal proceedings that should have gone to trial. If the states and US Government would pursue these cases vigorously as many would like to see, this would be a material matter.
Electric Utilities	Management of the Legal & Regulatory Environment	Materiality?	Public Interest	Yes	As mentioned previously, effective GRC processes, internal controls, and systems is essential to achieving and demonstrating effective compliance, risk and performance management.
Electric Utilities	Management of the Legal & Regulatory Environment	Materiality?	Public Interest	Yes	Much of the financial exposure is triggered by legal and regulatory requirements. This has been born out in other industrial sectors as well.
Electric Utilities	Metric comment	Comment on Brief	Corporate Professional	DNA - Comment on Brief	No; there was not enough solid evidence or data to support selection of these specific metrics and the units of measure and the numerator/denominator application appear to be inconsistent and leaves it up to the investor/analyst to figure out. The overall focus areas for metrics are definitely relevant but the research brief skimmed the surface to provide context, data, etc. Provide the research/data/evidence for the basis of these metrics. SASB appears to have selected metrics by way of what is already in public documents of some companies, determining that if it's public it must be material. The effort to standardize metrics within an industry is a positive and

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					much-needed approach to measurement but it requires a level of rigor and analysis/research to back it up so that the results are truly benchmarkable and auditable and relevant for investors.
Electric Utilities	Metric comment	Innacuracy	Corporate Professional	DNA - Innacuracy	The metrics themselves are not individually normalized; it is left up to the investor to match a numerator and denominator (accounting metric with activity metric). Despite having a U.S. focus, SASB has selected for metrics to be reported in International System of Units (e.g. kilograms and Giga joules) The survey "forces" answer selection that we are not 100% in agreement with. For example, answer options are "no", "yes", "yes with reservations". If we wanted to answer "no with reservations", or "don't know" we are not able to do so. The survey does not appear to be based on evidence or data. It is very difficult to suggest the best way to normalize metrics (choosing a denominator) in the absence of knowing which numerator it will apply to (the investor gets to match the normalizing denominator to the numerator – so you could get GHG emission per kilometer of transportation and distribution lines, for example).
Electric Utilities	Metric comment	Other Comment	Corporate Professional	DNA - Other Comment	SASB's overall intent is good; getting some consistency to reporting is definitely needed. However, the proposed metrics fell short of achieving the goal of providing We have significant reservations with some of the questions asking for strict

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					quantification as there is no attempt to relate the quantity to potential materiality/risk in most cases and without a narrative the interpretation can be extremely subjective. Many of the questions would require additional work and analysis beyond what we already current do for other reporting. Don't see the value add of this additional reporting versus what is already publicly reported. We don't report in GJ; should use MW and MWh as measurements. Since this is a U.S.-focused set of standards the measurement should be what is used in the U.S. There is a general lack of context and business case for why many of these metrics would be relevant to the investment community. Some metrics -- such as the production capacity in/near dense population -- draws inappropriate correlations that are not supported by data or research. Others, such as illegal relations between companies and PUCs, seem to be more reactive to current events. Don't like that “no with reservations”, or “don’t know” were not options. Forcing a thumbs up/down isn't scientific.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Electric Utilities	Metric comment	Other Comment	Corporate Professional	DNA - Other Comment	The survey “forces” answer selection of “no”, “yes”, “yes with reservations.” There is no opportunity to answer "no with reservations”, or “don’t know.” The survey also seemed to be largely focused on a “gut feel” response, rather than based on evidence or data. I felt uncomfortable suggesting the best way to normalize metrics (choosing a denominator) in the absence of knowing which numerator it will apply to (from the write-up, it looks like the investor gets to match the normalizing denominator to the numerator and that could result in irrelevant comparisons? If SASB wants this work to be relevant, there has to be a way to account for past good work in the areas of energy efficiency, RPS differences, emissions trading (e.g., cap and trade) and/or smart grid innovations, and any mechanism must take into account past investments and successes as well as current efforts.
Electric Utilities	Metric comment	Other Comment	Corporate Professional	DNA - Other Comment	Comment: Many electric utilities have diverse lines of businesses, with many having vertically integrated, rate-regulated utilities as well as independent power producing subsidiaries. We are concerned that these metrics will not apply to all operations, which would necessitate additional discussions in a company's reporting, be it sustainability reporting or SEC filings. While we understand that company's routinely discuss material issues by subsidiary in their various communications pieces and SEC filings, we argue that the SASB metrics need to be designed to be relevant at the holding company level, as much as possible, in order to provide investors with relevant and comparable data between companies.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Electric Utilities	Metric comment	Other Comment	Market Participant	DNA - Other Comment	Very few qualitative, analytical metrics suggested. It's difficult to audit/compare but articulating strategic health requires management adept at qualitative thinking/analysis.
Electric Utilities	Metric comment	Other Comment	Public Interest	DNA - Other Comment	I thought that the overall research brief was a very thoughtful document. The points were balanced and shared the value proposition which I believe to be the most critical aspect of any standard. The one challenge with the sector in general is the diversity in size, population concentration, urbanization, etc. As such, a hurdle that SASB will have to face in setting standards will be comparability. Specifically, comparability is relevancy of the information even more so than of the underlying data used for the reportable metrics.
Electric Utilities	Metric comment	Other Comment	Public Interest	DNA - Other Comment	I believe the brief is a great tool. I'm missing some specifics and I think a case example with calculated metrics would be most helpful to see and understand the selected units for some of the quantitative metrics. I'm also missing or wondering if SASB will suggest firms to established specific targets or if upon completing this assessment some type of scorecard, or comparison with analogous firms could be completed.
Electric Utilities	Metric comment	Other Comment	Public Interest	DNA - Other Comment	Although the standard approach has a special focus on financial impacts, there is a preponderance of indicators that protect value for companies, shareholders, and others. In this sense, I feel a little lack of indicators that can materialize opportunities for sectors - which are not properly being captured by the companies but that can positively impact their foundations.
Electric Utilities	Metric comment	Add Issue	Public Interest	Efficiency of power plants	The efficiency of fossil-fuelled power plants is highly relevant, both from a sustainability and a cost perspective. As the availability of finite resources such as fossil fuels (especially coal, but in the long term also natural gas after the shale gas boom) is expected to decline in the long term, there will be cost increases and difficulties to secure sufficient supply for power plants. Companies with highly efficient plants do not only benefit from lower fuel costs, but are less exposed to availability shortages. At the same time, plants with higher efficiencies tend to have lower carbon intensities (e.g. in terms of g CO2e/kWh) and lower intensities of other emissions (e.g. SOx,

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					NOx) as the output is higher. This lowers exposure to GHG and other environmental, regulations and also increases the 'license to operate' and general acceptance among stakeholders. I would suggest to include key metrics such as the 'average thermal efficiency of power generation' (as % value) or the 'heat rate' (maybe more common in the US) and also a discussion of a company's strategy to increase efficiencies in the future. As the efficiency of power plants is included in the Electric Utilities Sector Supplement of the Global Reporting Initiative (see below, EU11), many (listed) companies are already publishing efficiency data.
Electric Utilities	New Angle	Add Issue	Corporate Professional	habitat and wildlife protection/management [LAND USE & COMMUNITY RELATIONS] + ECOLOGICAL IMPACTS	Utility facilities and other owned properties often encompass large tracts of land, which often times overlap with conserved lands for the protection of wildlife. Many utilities have developed comprehensive habitat and wildlife programs to help offset their impacts. Understanding how these programs are managed as well as the long-term financial implications would be material from a risk management and financial perspective.
Electric Utilities	New Angle	Add Issue	Public Interest	SOCIAL CAPITAL - Stakeholder Engagement [LAND USE AND COMMUNITY RELATIONS]	Suggest broaden the Community Relations dimension to include more than discussion of engagement processes for community concerns.
Electric Utilities	New Angle	Add Issue	Public Interest	Soil degradation [LAND USE (AND	This is not relevant to all electricity utilities but especially those that deal with liquid fuels.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
				ECOLOGICAL IMPACTS] or perhaps [WASTE MANAGEMENT]	
Electric Utilities	New Issue	Add Issue	Corporate Professional	Environmental Issues [ELECTRICAL EQUIPMENT LIFECYCLE IMPACTS]	In Canada we have issues surrounding PCB management in transformers, and other electricity equipment. Regulations are in place but becaues this is a legacy environmental issue, most utilities are having difficulty meaning phase out requirements. This is Federal and Provincial issue. See also:
Electric Utilities	New Issue	Add Issue	Corporate Professional	Health and Safety [EMPLOYEE HEALTH AND SAFETY] OR [SAFETY MANAGEMENT]	Including public safety and workers and contractors safety.
Electric Utilities	New Issue	Add Issue	Corporate Professional	Occupational Safety [EMPLOYEE HEALTH AND SAFETY] OR [SAFETY MANAGEMENT]	Safety is a crucial aspect of social corporate responsibility
Electric Utilities	New Issue	Add Issue	Corporate Professional	Safety (unless you are covering this elsewhere)	Safety is generally a material topic for electric and gas utilities. Utilities work hard to make sure the public doesn't come into contact with its infrastructure, that is employees and contractors remain saf. Pages 39 and 46 of our last corporate responsibility report.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
				[SAFETY MANAGEMENT]	
Electric Utilities	New Issue	Add Issue	Market Participant	Nuclear power plant safety [SAFETY MANAGEMENT]	Nuclear power plant safety is considered material. NRC cornerstone framework is useful.
Electric Utilities	New Issue	Add Issue	Public Interest	Human Capital [EMPLOYEE RECRUITMENT AND RETENTION] + (perhaps) [EMPLOYEE DIVERSITY AND INCLUSION]	Workforce / Talent recruitment, development and retention. Other related aspects in accordance with SASB Framework, Utility Sector perspective (EPRI, EEI, etc.)
Electric Utilities	New Issue	Add Issue	Public Interest	Risk associated with an aging workforce [EMPLOYEE RECRUITMENT AND RETENTION] + (perhaps) [EMPLOYEE DIVERSITY AND INCLUSION]	This issue was cited in the brief and may be one of the most significant risks electric utilities have to face to ensure effective complain, risk management and operational excellence. From fossil/nuclear power plant operators, to instrument/maintenance technicians (e.g., that need to properly maintain/calibrate CEMS, maintain power gen equipment in proper operating condition), to managers/executives that understand how to run the industry effectively, many companies are facing this challenge. Several years ago I performed an enterprise risk assessment for a number of fossil power plant facilities and this was the top risk for each of the facilities (a major proportion of their respective workforces would be retiring in the next 3-5 years). Thus, how effective are companies' training programs, succession planning, etc. to ensure continuity. There is a lot of internet info available on this issue.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Electric Utilities	No action needed	Add Issue	Corporate Professional	Electricity Generation	Availability and performance
Electric Utilities	No action needed	Other Comment	Market Participant	DNA - Other Comment	Ultimately I think quantitative and comparable data will be the most useful to investors when considering ESG issues in investment decision-making.
Electric Utilities	No action needed	Comment on Brief	Public Interest	DNA - Comment on Brief	Sustainable-friendly financing (e.g., green bonds)
Electric Utilities	No action needed	Innacuracy	Public Interest	DNA - Innacuracy	See comments above. Additionally my feedback in the questionnaire cites circumstances where information was incomplete or not addressed.
Electric Utilities	No action needed	Other Comment	Public Interest	DNA - Other Comment	Thank you for the opportunity to participate in this survey!
Electric Utilities	SASB Approach	Other Comment	Market Participant	DNA - Other Comment	Some topics such as Renewable Energy Cerficiates are US-specific. A guideline for non-US will be helpful to reach a wider audience.
Electric Utilities	SASB Approach	Other Comment	Public Interest	DNA - Other Comment	While I've already commented on two other industry surveys, it would be helpful if SASB would communicate the next steps in the process. Specifically how questionnaire feedback will be utilized and addressed so as to have a transparent understanding of the comments/feedback that SASB chose to address and not.
Electric Utilities	SASB Approach	Other Comment	Public Interest	DNA - Other Comment	Very well designed process
Electric Utilities	Water Management	Materiality?	Corporate Professional	Maybe	Too many difference in regulatory frameworks.
Electric Utilities	Water Management	Materiality?	Corporate Professional	Maybe	In many countries of the world, as Brazil, coal is not a relevant energy source. Because of this, I have reservations about this subject.
Electric Utilities	Water Management	Materiality?	Corporate Professional	Yes	As above, Ontario has eliminated all coal production. A very recent decision is allowing Ontario's primary generator to dispose of spent fuel underground, and this is causing significant controversy given vicinity to fresh water lakes. See for example: http://www.lfpress.com/2015/05/15/why-not-in-our-backyard

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Electric Utilities	Water Management	Materiality?	Corporate Professional	Yes	This is a material issue but is already publicly available from the U.S. EPA. http://www.epa.gov/wastes/nonhaz/industrial/special/fossil/surveys2/
Electric Utilities	Water Management	Materiality?	Corporate Professional	Yes	Though it's good to measure how much was recylced, perhaps all ash should be properly disposed. When it's not, a regulatory fix would be to tie a monetary ding to the lower performing fuel managers.
Electric Utilities	Water Management	Materiality?	Market Participant	Maybe	Sometimes these are the sole responsibility of the state, away from utility companies. But they are still emissions of utility companies.
Electric Utilities	Water Management	Materiality?	Market Participant	No	depends on electric utility's fuel mix. coal may not be material.
Electric Utilities	Water Management	Materiality?	Market Participant	Yes	This is often a very costly process so disclosure is necessary.
Electric Utilities	Water Management	Materiality?	Market Participant	Yes	The full life cycle of the products used in the companies operations will be need to be considered when analysisinbg the sustainability of the company. Poor waste management will jeopordise license to operate.
Electric Utilities	Water Management	Materiality?	Market Participant	Yes	Managing coal ash and spent fuel are material issues for a utilities company because when managed poorly incidents could result in increased costs, reputation concerns, and a questioned license to operate. The ability to manage waste and air emissions directly reflect on a utilities company and failure to do so can result in environmental liabilities, compliance costs, and community opposition.
Electric Utilities	Water Management	Materiality?	Public Interest	Maybe	My reservation with regards to coal ash & spent fuel management is a one-size-fits-all approach. Specifically, requiring standard disclosure relating to these topics will increasing not be relevant to a large majority of the sector. Specifically, these items are already not directly relevant for T&D-only utilities, as well as those utilities with renewable and gas fleets. Further, as vast coal retirements expected to occur over the next several years occur, this topic would be likely be relevant to a small pool of consistuents with nuclear and or "clean" coal generation facilities. In an effort to design meaningful requirements for the sector as a whole, I would be cautious of instituting guidelines / requirements that one could see as punitive to only a small subgroup.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Electric Utilities	Water Management	Materiality?	Public Interest	Maybe	Lacks clarity between topic title and proposed metric, also not clear how this would impact an investor's analysis.
Electric Utilities	Water Management	Materiality?	Public Interest	Yes	Both of these clearly are material considerations for electric utilities. The effectiveness of a company's GRC process speaks to how well compliance and risk is addressed, with the a company's compliance record demonstrating the tale of the tape. Coal ash, especially ash slurry ponds also have a potential surface water quality impact in that there have been instances in the past several years where containment has been breached on ash ponds, with substantial volumes of slurry released into surface water bodies (PPL, TVA and others). However it is my opinion that the critical issue for the industry is management of spent fuel, with storage in perpetuity the only solution offered. Unfortunately this issue is as much influenced by the US government as the utilities themselves, as a viable repository and associated security around same is required. How companies address this issue must be focused to the aspects over which they have control, so effective GRC around this is critical to demonstrate. Another key aspect around this is transportation of the spent fuel to the final resting place; who has responsibility for this, the electric utility, the transporter, both? Now the real sustainable approach to this is for companies to envision and develop a process to recycle/reuse components from spent fuel so as to either dispose less or none at all.
Electric Utilities	Water Management	Materiality?	Public Interest	Yes	These items are easily measurable in current financial impacts and in the area of Asset Retirement Obligations.
Electric Utilities	Water Management	Materiality?	Public Interest	Yes	Escalating reserve balances for remediation and AROs are at record highs, equal to roughly 10% of assets at 12/31/2014.
Electric Utilities	Water Management	Materiality?	Public Interest	Yes	Given the chemical composition and the bulk of coal ash, the expense of storage and risks of storage system failures make Coal Ash information material to investors in companies in the energy sector. I take "spent fuel

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					management" to refer to nuclear fuel rods. If this is correct, given the long term lack of a national repository for spent fuel rods and the necessity for their on-site storage, with the expense that entails and unpredictability about what future regulation might require, makes the case for the materiality of SASB reporting
Electric Utilities	Water Management	Materiality?	Public Interest	Yes	http://www.epri.com/abstracts/Pages/ProductAbstract.aspx?ProductId=3002000920 http://www.ceres.org/roadmap-assessment/sector-analyses/electric-utilities
Electric Utilities	Water Management	Materiality?	Public Interest	Yes	Companies like Duke Energy have done poor jobs of managing the coal ash and not wanting to discuss the toxicity of the material and the instability of the dikes. They like to tell stories about the amount of the ash that is recycled. These problems are due to mismanagement, not to the ability to handle the materials. Spent fuel is a very large problem associated with nuclear plants. The current methods for spent fuel storage are problematic and can cause a big problem after an earth quake or tsunami.
Electric Utilities	Water Management	Materiality?	Public Interest	Yes	Lack of inspection and State enforcement has caused this problem to grow with the aging infrastructure that is suppose to manage it.
Engineering & Construction Services	Bidding & Consulting Integrity	Materiality?	Corporate Professional	Maybe	This topic is very important for the viability of the project. A preliminary analysis of the draft is essential for a correct costs estimation. Deviations in projects and their budgets are commonplace due to problems of all kinds, and we do not believe they are fundamental for the achievement of projects. It is more important to establish and prepare contingencies to solve these problems (appearing in 90% of cases.)
Engineering & Construction Services	Bidding & Consulting Integrity	Materiality?	Corporate Professional	Maybe	This category, and the identified metrics, feel like a stretch. You're essentially arguing that a company should provide effective services to its customers. This is such a broad topic area, and applies to all businesses. Whether a company is effective in delivering services to its customers will be reflected in its financial results. I can't imagine an investor gaining meaningful information from additional disclosures in this arena. If you believe that "integrity" is the issue - collapse this issue into the Business

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					Ethics category and structure a metric that is specifically focused on bidding/consulting.
Engineering & Construction Services	Bidding & Consulting Integrity	Materiality?	Corporate Professional	No	In part because customs vary wildly as to what is considered "integrity" in the bidding and consulting process, and in part because this is already directly considered by investors as part of their generic due diligence of the sector.
Engineering & Construction Services	Bidding & Consulting Integrity	Materiality?	Corporate Professional	Yes	I think it would be useful to disclose firms and key management members contribution to political campaign and amount spent on lobbyist.
Engineering & Construction Services	Bidding & Consulting Integrity	Materiality?	Corporate Professional	Yes	This topic may constitute material information for companies in this industry due to the perceived history of the industry and the fact that a company subject to a significant fine, or other civil penalty, such as debarment illustrates that its management potentially may not be reliable. This is a factor that is relevant to a reasonable investor. Also, when looking at the Management of a company, significant underbidding could be a sign that the entities Management is deficient in it s ability to execute the pre-bid component of sophisticated and high-dollar work.
Engineering & Construction Services	Bidding & Consulting Integrity	Materiality?	Public Interest	Maybe	This depends on the nature of the firm, the nature of the sector, and the nature of the project. Consulting activities may be considered material in the sense that Third Party Risk exists when an engineering firm subcontracts out for specific tasks. But, this is not always the case- many times a firm is vertically integrated (for larger players at least). In terms of bidding, I could see the materiality in terms of how the auction is structured- is it structured upwards or downwards? Meaning, does the winner reflect lowest price or highest price bid? This matters because if the auction is structured with social benefits in mind, lowest price bids may be

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					favored, whereas the opposite may also be true though not always. Social benefits, say lower electricity tariffs, may create positive or negative incentives for engineering activities, which then turns the issue material. However, the link is weak, and does not always exist. I would have to hear a better argument for why bidding structure is material.
Engineering & Construction Services	Bidding & Consulting Integrity	Materiality?	Public Interest	Yes	For federally funded work Federal Acquisition Regulation (FAR) ubpart 1.1-Purpose, Authority, Issuance 1.101 Purpose. The Federal Acquisition Regulations System is established for the codification and publication of uniform policies and procedures for acquisition by all executive agencies. The Federal Acquisition Regulations System consists of the Federal Acquisition Regulation (FAR), which is the primary document, and agency acquisition regulations that implement or supplement the FAR. The FAR System does not include internal agency guidance of the type described in 1.301(a)(2). 1.102 Statement of guiding principles for the Federal Acquisition System. (a) The vision for the Federal Acquisition System is to deliver on a timely basis the best value product or service to the customer, while maintaining the public's trust and fulfilling public policy objectives. Participants in the acquisition process should work together as a team and should be empowered to make decisions within their area of responsibility. (b) The Federal Acquisition System will- (1) Satisfy the customer in terms of cost, quality, and timeliness of the delivered product or service by, for example- (i) Maximizing the use of commercial products and services;

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					(ii) Using contractors who have a track record of successful past performance or who demonstrate a current superior ability to perform; and (iii) Promoting competition; (2) Minimize administrative operating costs; (3) Conduct business with integrity, fairness, and openness; and (4) Fulfill public policy objectives. https://www.acquisition.gov/?q=browsefar
Engineering & Construction Services	Bidding & Consulting Integrity	Materiality?	Public Interest	Yes	Engineering and construction contracts are subject to competitive procurement processes. Behavior that violates rules can lead to reputational damage and loss of business
Engineering & Construction Services	Bidding & Consulting Integrity	Materiality?	Public Interest	Yes	http://www.business-anti-corruption.com/media/87200/fileadmin-user_upload-pdf-Procurement_Tool_Guidance_Doccument.pdf
Engineering & Construction Services	Bidding & Consulting Integrity	Materiality?	Public Interest	Yes	Given corruption within this sector, and the impact that these uncoverings and legal recourse have on companies in this sector, this is material
Engineering & Constructi	Business Ethics	Materiality?	Corporate Professional	No	Business ethics is already covered by other standards like the Better Business Bureau. Only in very major instances does it constitute a material business risk.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
on Services					
Engineering & Construction Services	Business Ethics	Materiality?	Corporate Professional	Yes	http://www.emeraldinsight.com/doi/full/10.1108/20466091311325827
Engineering & Construction Services	Business Ethics	Materiality?	Corporate Professional	Yes	United States firms have to comply with FCPA. With that said, I think it would be good for companies to disclose their process, rules, training as well as process of working with honorable clients and sub consultants
Engineering & Construction Services	Business Ethics	Materiality?	Corporate Professional	Yes	Codes of conduct and corporate governance are essential to maintain the confidence of our customers, present and future. In this sense, it is necessary to comply with all applicable laws in the areas and regions where Company's activities are developed.
Engineering & Construction Services	Business Ethics	Materiality?	Corporate Professional	Yes	This topic may constitute material information for companies in this industry due to the perceived history of the industry and the fact that a company subject to a significant fine, or other civil penalty, such as debarment illustrates that its management potentially may not be reliable. This is a factor that is relevant to a reasonable investor.
Engineering & Construction Services	Business Ethics	Materiality?	Corporate Professional	Yes	Infrastructure, construction & development industries are known for corruption, graft, bribery, etc. This topic, although universally applicable to all businesses, is especially relevant to this industry.
Engineering & Construction Services	Business Ethics	Materiality?	Public Interest	Maybe	Business ethics is already well placed within the aspects of published financials.

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Engineering & Construction Services	Business Ethics	Materiality?	Public Interest	Yes	I could see where this becomes material in the sense of whether or not a firm has an environmental and social management system in place, which could be argued is a subset of the larger Business Ethics case. However, in practice, many firms frame Business Ethics as their simple CSR statement, policy, or mission, which is a different, more generic set of guidelines rather than the ins and outs, the technical aspects, of the E+S management system. The system per se is highly material in the sense that it oversees the firm's efforts to mitigate E+S impacts. However, Business Ethics policies may be too generic, too inwards facing, or simply have no teeth to manage material outcomes.
Engineering & Construction Services	Business Ethics	Materiality?	Public Interest	Yes	Engineering and construction contracts are awarded via competitive processes that are generally governed by procurement standards. Infringements upon the legal aspects of those processes could lead to reputation harm and loss of business opportunities.
Engineering & Construction Services	Business Ethics	Materiality?	Public Interest	Yes	http://business-ethics-info.blogspot.com/2007/02/ten-most-significant-risks-and-costs-of.html
Engineering & Construction Services	Business Ethics	Materiality?	Public Interest	Yes	This is a fundamental aspect of good sound practice
Engineering & Construction Services	Community Relations	Materiality?	Corporate Professional	Maybe	May or may not have relevance and may not be within scopen of project.
Engineering &	Community Relations	Materiality?	Corporate Professional	Maybe	My reservation is regarding how an investor would evaluate the disclosure relating to community relations activities. The evidence put forward

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Construction Services					regarding local hiring content in international projects to me does not fall into community relations. It is simply part of contract arrangement that all bidders have to comply with and projects are won typically on basis of cost. I just think companies will have a hard time putting forward something that an investor can evaluate and be able to compare to other investment opportunities. The value impact argument seems very weak. I do agree there should be disclosure around projects that may be very sensitive to a local community and lawsuit might cause delay to the project. I also think companies should disclose projects (international) that do no meet the construction or environmental standards of the United States.
Engineering & Construction Services	Community Relations	Materiality?	Corporate Professional	Maybe	These relationships are important for the brand and reputation of the company. To explain and disseminate the objectives and characteristics of the projects conducted within these communities is an important factor to develop our activities. In cases where local supplies are consumed and employees in the area are contracted it will generate economic value and improve welfare, but I do not consider it a material aspect for achieving the project or the results of the company, as long as these Companies comply with passed laws for those regions
Engineering & Construction Services	Community Relations	Materiality?	Corporate Professional	Maybe	It is very subjective and difficult to measure yet it can be important to the success of projects.
Engineering & Construction Services	Community Relations	Materiality?	Corporate Professional	Maybe	This is just part of the basic license to operate for engineering and construction firms. It does not rise to the level of material risk.
Engineering & Constructi	Community Relations	Materiality?	Corporate Professional	Maybe	This is an extremely broad topic area, and I do not feel that the proposed metrics function well as measurements of Community Relations. The inclusion of metrics such as non-technical delays and a general description of risks/opportunities associated with community rights and intrest are highly

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
on Services					subjective, no basis exists for standardized measurement, and it is doubtful that the resulting information would be "actionable" by investors. Furthermore, I don't know that this issue - which is extremely specific to individual real estate assets & developments - is appropriate for an investor's assessment of an overall company (i.e. portfolio owner). It would be akin to asking portfolio developers to disclose risks associated with every individual project they are undertaking as an enterprise. This is an unreasonable and unrealistic level of specificity for disclosure.
Engineering & Construction Services	Community Relations	Materiality?	Corporate Professional	Yes	How a company handles local relations with communities where they are impacting says a lot about how much they understand the community and their issues. Neglecting or not handling it well early on in the conceptual design phase can hamper project success http://www.sciencedirect.com/science/article/pii/S0301479708002697
Engineering & Construction Services	Community Relations	Materiality?	Corporate Professional	Yes	http://www.hardystevenson.com/Articles/Social%20Impact%20Assessment%20of%20Major%20Roads.pdf http://www.equator-principles.com/
Engineering & Construction Services	Community Relations	Materiality?	Public Interest	Maybe	I agree that community relations are extremely important but know that some aspects are beyond the company's control
Engineering & Construction Services	Community Relations	Materiality?	Public Interest	Maybe	I think this is hard to measure and subjective. Here is an interesting link. http://wri.org/blog/2015/05/best-and-worst-countries-environmental-democracy

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Engineering & Construction Services	Community Relations	Materiality?	Public Interest	Maybe	This is somewhat relative to the type of developments and jurisdictions where they operate
Engineering & Construction Services	Community Relations	Materiality?	Public Interest	No	I do not believe it to be material for data that cannot be reconciled factually regarding and perceived positive and or negatives associated with community relations or activism in commercial building.
Engineering & Construction Services	Community Relations	Materiality?	Public Interest	Yes	For government contract work http://environment.transportation.org/environmental_issues/nepa_process/ Section 106 NEPA requires public and stakeholder scoping - http://www.fhwa.dot.gov/federal-aidessentials/catmod.cfm?id=62
Engineering & Construction Services	Congratulations	Other Comment	Public Interest	DNA - Other Comment	I thought the briefs were very well constructed and provide evidence to the level of detail and thought process towards drafting any such standards.
Engineering & Construction Services	Ecological Impacts of Construction	Materiality?	Corporate Professional	Maybe	May or may not have relevance on a given project and may not be within scope or control.
Engineering & Construction Services	Ecological Impacts of Construction	Materiality?	Corporate Professional	No	Decisions related to ecological impacts and their mitigation occur upstream of constrcution services.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Engineering & Construction Services	Ecological Impacts of Construction	Materiality?	Corporate Professional	Yes	The concern here is that all partiers must comply with Clean Air and Clean Water Act and other EPA related matters such as CERCLA and RCRA. This is to say there are already laws in place that a party has an obligation to comply. It is not clear to what kind of information will be useful to disclose besides a litigation matter relating to not complying with these laws. I can see usefulness in disclosing technology or innovative design to address projects with high environmental impact or disclosure on international projects that do not have same environmental standards as United States and its impact to society.
Engineering & Construction Services	Ecological Impacts of Construction	Materiality?	Corporate Professional	Yes	http://isites.harvard.edu/fs/docs/icb.topic661271.files/Horvath_Constr%20Mat%20and%20the%20Environment.pdf http://ec.europa.eu/environment/consultations/buildings_en.htm
Engineering & Construction Services	Ecological Impacts of Construction	Materiality?	Public Interest	Yes	http://www.epa.gov/oecaerth/resources/publications/assistance/sectors/constructmyer/myer1c_species.pdf old but good - http://www.epa.gov/oecaerth/resources/policies/nepa/ecological-impacts-highway-development-pg.pdf Environmental Review Toolkit | FHWA is a good source http://www.nature.com/nature/journal/v513/n7517/pdf/nature13717.pdf
Engineering & Construction Services	Ecological Impacts of Construction	Materiality?	Public Interest	Yes	Construction programs can have ecological impacts within and beyond the footprint of projects involved. such impacts can be positive or negative and some of those impacts can be translated to monetary values
Engineering & Constructi	Ecological Impacts of Construction	Materiality?	Public Interest	Yes	Ecosystem Valuation http://www.naturalcapitalproject.org/decisions/scenarios.html

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
on Services					https://www.whitehouse.gov/sites/default/files/final_principles_and_requirements_march_2013.pdf http://footprintnetwork.org/en/index.php/GFN/
Engineering & Construction Services	Ecological Impacts of Construction	Materiality?	Public Interest	Yes	Definitely ties into lifecycle of building materials and of construction, so that impacts form brownfield and greenfield developments are understood and minimized
Engineering & Construction Services	Environmental & Climate Change Services	Materiality?	Corporate Professional	Maybe	Not all Engineering and Construction firms offer Environmental and Climate Change Services and not all firms offering those provide Engineering and Construction services - so dependent on firms. Presence or absence of environmetnal and climate change services does not necessarily impact business outcomes for construction firm.
Engineering & Construction Services	Environmental & Climate Change Services	Materiality?	Corporate Professional	Maybe	It is a service offering that does not necessarily translate to profitable activity vs. another type of engineering services. These types of work are typically gov't based contracts that are cost plus and tend to be lower margins compared to work done in private industry.
Engineering & Construction Services	Environmental & Climate Change Services	Materiality?	Corporate Professional	No	Companies already disclose quite a bit about their core business lines. If a firm is engaged in providing these services - and the firm believes this uniquely positions the it with a strategic advantage, it should be at their discretion to share this with investors and other stakeholders. This does not constitute a "risk" to the firm and, to the extent it is viewed by management as a strategic advantage, it should be at management's discretion to share information externally. Just because it is topically related to ESG, doesn't mean it should be a mandatory disclosure topic.
Engineering & Construction Services	Environmental & Climate Change Services	Materiality?	Corporate Professional	Yes	Activities in construction are destructive- it involves demolition, clearing of land etc. In addition, buildings contribute up to 40% of global carbon emissions and 40% of world's energy use, it is only right that climate change is addressed.

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Engineering & Construction Services	Environmental & Climate Change Services	Materiality?	Corporate Professional	Yes	http://www.environmentalleader.com/2014/08/04/report-climate-change-adaptation-offers-business-opportunities/ http://ebionline.org/updates/1840-new-report-details-billion-dollar-markets-in-climate-change-adaptation-services
Engineering & Construction Services	Environmental & Climate Change Services	Materiality?	Corporate Professional	Yes	This topic is not only essential to preserve this planet but it is also important for a Company to focus on the right sustainability path
Engineering & Construction Services	Environmental & Climate Change Services	Materiality?	Corporate Professional	Yes	Environmental restoration and climate change adaptation and mitigation can improve the markets for certain types of construction.
Engineering & Construction Services	Environmental & Climate Change Services	Materiality?	Public Interest	Maybe	I think this is hard to measure and don't think a company's valuation should be based on environmental remediation revenue.
Engineering & Construction Services	Environmental & Climate Change Services	Materiality?	Public Interest	Maybe	This is a difficult area to define, and one where existing services or partnerships may provide energy services (for instance) that address climate change services, but are not communicated as such. Awareness of these risks and integration of this thinking into their services would however likely bring business benefits
Engineering & Construction Services	Environmental & Climate Change Services	Materiality?	Public Interest	Yes	Society is just requiring risks be shared https://sustainabledevelopment.un.org/topics/sustainabledevelopmentgoals http://www.worldbank.org/en/programs/global-Infrastructure-facility http://www.gib-foundation.org/

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					http://www.100resilientcities.org/#/-_/ http://www.ipcc.ch/
Engineering & Construction Services	Environmental & Climate Change Services	Materiality?	Public Interest	Yes	This is both a risk and an opportunity. The risk is that companies can't meet customer demand in this area, or that they become uncompetitive compared to their peers who offer these valued-added services. The opportunity is to build new business and generate new revenues.
Engineering & Construction Services	Environmental & Climate Change Services	Materiality?	Public Interest	Yes	There is growing demand for engineering and construction companies to possess a greater understanding of conditions that are impacted by environmental and climate events. The lack of capacity can impact sales, revenues and profitability
Engineering & Construction Services	Exposure to Shifting Energy Markets	Materiality?	Corporate Professional	Maybe	Depending on portfolio mix and diversification.
Engineering & Construction Services	Exposure to Shifting Energy Markets	Materiality?	Corporate Professional	Maybe	There are many construction and engineering firms that do not have significant business in the power or energy market. I am not sure they can easily disclose the impact. I do think under MD&A, management should take a view on impact on industry as well as their business.
Engineering & Construction Services	Exposure to Shifting Energy Markets	Materiality?	Corporate Professional	Maybe	http://www.euractiv.com/special-report-building-way-cris/wider-view-shifting-paradigms-bu-news-528867

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Engineering & Construction Services	Exposure to Shifting Energy Markets	Materiality?	Corporate Professional	No	Energy is not a significant portion of our business portfolio. For the foreseable future, energy supply will not be a limiting factor in providing construction services in the US.
Engineering & Construction Services	Exposure to Shifting Energy Markets	Materiality?	Corporate Professional	No	This issue as described is not "Pertinent and relevant across and industry." It only applies directly to Engineering & Construction firms who serve the energy industry. There are many firms (traditional real estate developers) who don't serve this industry. The sampling of firms you list in the brief may serve this industry, but there are many others who don't.
Engineering & Construction Services	Exposure to Shifting Energy Markets	Materiality?	Corporate Professional	Yes	This topic really matters and may result on a cost rising if it is not analyzed previously to the start of a project
Engineering & Construction Services	Exposure to Shifting Energy Markets	Materiality?	Public Interest	Maybe	I am not sure that engineering and construction activities shift all that much depending on shifting energy markets exposure. Usually, engineering and construction activities are non-innovative for the most part, depending on the sector. Good practice and best practice in these activities has much more to do with proper planning than it does to exposure to any market.
Engineering & Construction Services	Exposure to Shifting Energy Markets	Materiality?	Public Interest	Maybe	this is not unimportant, but other issues seem much more pressing
Engineering & Construction Services	Exposure to Shifting Energy Markets	Materiality?	Public Interest	Yes	Engineering and construction activities can be energy intensive so shifts in the market could impact operational performance.
Engineering &	Exposure to Shifting	Materiality?	Public Interest	Yes	As access to fossil fuels diminishes, companies not invested in renewable s will face lost opportunities costs.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Construction Services	Energy Markets				
Engineering & Construction Services	Exposure to Shifting Energy Markets	Materiality?	Public Interest	Yes	Building energy use/efficiency is a critical factor in addressing climate change; significant changes in energy prices in inefficient buildings would impact their appeal/marketability; and an ability to show the use of leading technologies and practices that minimize resource use could result in "best in class" recognition - i.e., winning new, high margin work, overall financial performance
Engineering & Construction Services	Industry insights	Comment on Brief	Corporate Professional	DNA - Comment on Brief	The information was too limited to public companies which are heavily in power sector.
Engineering & Construction Services	Industry insights	Innacuracy	Corporate Professional	DNA - Innacuracy	The companies the brief uses as a sampling were skewed towards large organizations and not fully representative of the industry.
Engineering & Construction Services	Industry insights	Other Comment	Corporate Professional	DNA - Other Comment	We have not seen much interest from investors in sustainability. Customer requirements at this time have a much greater influence over corporate practices. If the customer asks for it, engineers and contractors will offer it. The tie between investors and corporate sustainability practices is very subjective
Engineering & Construction Services	Industry insights	Other Comment	Corporate Professional	DNA - Other Comment	The challenge here with the metrics is that the ultimate user (developer or owner) control the funds and influence the final outcome of the building or facility. The engineers and construction companies are the input in the process. However, this does not prevent engineers to not influence the outcome and perhaps by requiring disclosure this will impact the outcome as well.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Engineering & Construction Services	Industry insights	Add Issue	Corporate Professional	Management and operating systems	The processes through which an organization manages its operations are critical to the reliability of the business in meeting its responsibilities and customers needs. An organizations management systems can be evaluated against standards such as ISO 14001, ISO 9001, OHSAS 18001, and ISO 19600. Evaluating an organizations managment systems answers the question "are they good or are they just lucky?"
Engineering & Construction Services	Industry insights	Add Issue	Corporate Professional	Risk Management	Due to the considerable international presence of a large Company, developing its activities in a number of sectors, social and economic environments and regulatory frameworks. Consequently, the Company is exposed to various types of risks. A Company must establish a sound policy to efficiently identify, evaluate and manage risks in order to reasonably guarantee the efficiency and effectiveness of operations, reliability of information and compliance with legislation.
Engineering & Construction Services	Industry insights	Add Issue	Corporate Professional	Sustainability planning process	Does the organization have a planning process related to its sustainability practices and how is sustainability governed? Is there a publically available sustainability plan as evidence of a planning process? This is an important topic as it shows the organization is using foresight to improve its sustainability practices. Disclosing information on the other topics is all well and good, but how is the organizationing managing itself to address sustainability? Is it monitoring emerging trends related to sustainability to stay competitive in a changing business environment.
Engineering & Construction Services	Industry insights	Add Issue	Public Interest	Public Private Partnerships (P3) both financial profitability risks and sub contractor risks	World Bank Review Material A key motivation for governments considering public-private partnerships (PPPs) is the possibility of bringing in new sources of financing for funding public infrastructure and service needs. Corporate or On-Balance Sheet Finance

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					The private operator may accept to finance some of the capital investment for the project and decide to fund the project through corporate financing – which would involve getting finance for the project based on the balance sheet of the private operator rather than the project itself. This is typically the mechanism used in lower value projects where the cost of the financing is not significant enough to warrant a project financing mechanism or where the operator is so large that it chooses to fund the project from its own balance sheet. The benefit of corporate finance is that the cost of funding will be the cost of funding of the private operator itself and so it is typically lower than the cost of funding of project finance. It is also less complicated than project finance. However, there is an opportunity cost attached to corporate financing because the company will only be able to raise a limited level of finance against its equity (debt to equity ratio) and the more it invests in one project the less it will be available to fund or invest in other projects. Project Finance One of the most common - and often most efficient - financing arrangements for PPP projects is “project financing”, also known as “limited recourse” or “non-recourse” financing. Project financing normally takes the form of limited recourse lending to a specially created project vehicle (special purpose vehicle or “SPV”) which has the right to carry out the construction and operation of the project. It is typically used in a new build or extensive refurbishment situation and so the SPV has no existing business. The SPV

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					will be dependent on revenue streams from the contractual arrangements and/or from tariffs from end users which will only commence once construction has been completed and the project is in operation. It is therefore a risky enterprise and before they agree to provide financing to the project the lenders will want to carry out an extensive due diligence on the potential viability of the project and a detailed review of whether the project risk allocation protects the project company sufficiently. This is known commonly as verifying the project's "bankability". Risk - http://ppp.worldbank.org/public-private-partnership/financing/risk-allocation-mitigation
Engineering & Construction Services	Industry insights	Add Issue	Public Interest	Sustainability governance	Nature of board oversight of the sustainability performance, including evidence of a board ESG committee, board ESG education sessions, number and % of board members with ESG competency; social and environmental risks included in the company ERM risk framework and how they are managed; ESG incentive pay for executives; $ value of professional development ESG training and number and % of professional staff with ESG credentials
Engineering & Construction Services	Industry insights	Add Issue	Public Interest	Value of public benefit (financial, social and environmental costs and benefits) associated with engineering and construction activity	Engineering and construction projects have implications that can last for decades or even generations. The financial, social and environmental performance of projects can and is measured via Benefit-Cost and Risk Analysis. The availability of valuation data can be helpful on addressing stakeholder concerns through project development and to measure and report performance of facilities as they are operated over time. The engineers and constructors are expected to deliver solutions that perform to contract prescribed levels. Failure to perform can lead to claims and penalties that are material to future company performance.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Engineering & Construction Services	Lifecycle Impact of Buildings	Add Issue	Corporate Professional	Impacts on local watershed	This may be included in your definition of "Lifecycle Impacts of Buildings" but since both energy and climate were called out and water was not, it is important to include explicit reference to water. Too many engineering and construction firms fail to pay heed to local water conditions when designing, constructing, or commissioning a project.
Engineering & Construction Services	Lifecycle Impact of Buildings	Materiality?	Corporate Professional	Maybe	I am not sure the engineering firm gets the value in fees or profit relating to energy efficient building. The owner or tenant captures this value. So I am having a hard time to see if this is a information an investor could use for investment purposes. Also, our firm has a very big sustainability practice but we are finding this type of service to be very "commoditized" in the market place.
Engineering & Construction Services	Lifecycle Impact of Buildings	Materiality?	Corporate Professional	No	This all depends on what the customer is looking for. We are not involved in this market segment.
Engineering & Construction Services	Lifecycle Impact of Buildings	Materiality?	Corporate Professional	Yes	http://www.emeraldinsight.com/doi/abs/10.1108/SASBE-03-2013-0010
Engineering & Construction Services	Lifecycle Impact of Buildings	Materiality?	Corporate Professional	Yes	Consumers are getting more educated on the benefits of efficient and healthy buildings at a personal level and in business. As clients demand continues - so will the growth of the market http://www.worldgbc.org/files/8613/6295/6420/World_Green_Building_Trends_SmartMarket_Report_2013.pdf

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Engineering & Construction Services	Lifecycle Impact of Buildings	Materiality?	Corporate Professional	Yes	This topic is material for a construction company, especially a corporation like ours where we also offer maintenance and conservation of buildings and built infrastructures. At Sacyr, we strongly believe in sustainable building, a new concept which combines economic, social and environmental criteria throughout its lifecycle
Engineering & Construction Services	Lifecycle Impact of Buildings	Materiality?	Public Interest	Yes	Engineering and construction decisions lead to long lasting facilities that may or may not lead to positive long term implications. Owners have the right to demand solutions that meet certain performance expectations that can be measured of a facility's useful life.
Engineering & Construction Services	Lifecycle Impact of Buildings	Materiality?	Public Interest	Yes	http://www.pe-international.com/america/topics/life-cycle-assessment-lca-methodology/ http://www.athenasmi.org/resources/about-lca/lca-in-construction-practice/ I think LCA should take into consideration much more than just energy and water
Engineering & Construction Services	Lifecycle Impact of Buildings	Materiality?	Public Interest	Yes	See earlier comments
Engineering & Construction Services	Metric comment	Other Comment	Corporate Professional	DNA - Other Comment	My opinion on the revised qualitative standards, in general, is that they are difficult to compare between companies and difficult to measure their progression over time. We should try to define quantitative metrics as possible. Finally, some metrics are beyond the real control of companies and are not effective measures to compare or qualify them.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Engineering & Construction Services	New Angle	Other Comment	Public Interest	DNA - Other Comment [COMMUNITY REALTIONS + OTHER STAKEHOLDER ENAGAGEMENT]	I like inclusion of blended value/shared value disclosure as infrastructure projects in future will be successful on the basis to which they create "shared prosperity" for stakeholders.
Engineering & Construction Services	New Angle	Add Issue	Public Interest	Stakeholder engagement [COMMUNITY REALTIONS + OTHER STAKEHOLDER ENAGAGEMENT]	Recommend that "stakeholder engagement" be elevated as an overall disclosure topic, beyond community relations. There are many "stakeholders" which could affect the viability of the firm and project, including suppliers, customers, governments, ENGOs, civil society organizations and others.
Engineering & Construction Services	New Issue	Add Issue	Public Interest	Sustainable communities [ENVIRONMENTAL AND SOCIAL CONSIDERATIONS IN SITE SELECTION]	as many companies do not only construct single buildings, but entire communities, issues such as integration of sustainable mobility (e.g. encouraging public transport), supporting inclusiveness and accessibility (e.g. affordable homes, mixed-use communities) as well as ensuring the maintainability and flexibility of buildings, are important aspects as well
Engineering & Constructi	New Issue	Add Issue	Public Interest	Waste management, circular economy and	Access to natural resources will become a constraint in future and governments will increasingly regulate waste diversion. Infrastructure projects will need to anticipate these trends and address them in their business models.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
on Services				zero waste [WASTE MANAGEMENT FOR CONSTRUCTION MATERIALS]	
Engineering & Construction Services	Structural Integrity & Safety	Materiality?	Corporate Professional	Maybe	This again relates to the fact that codes and laws are in place regarding structural integrity and safety. Unless a company is in lawsuit for not properly following these codes then it should be disclosed under litigation. I think international projects that comply with local codes but not up to standard of United States should be disclosed
Engineering & Construction Services	Structural Integrity & Safety	Materiality?	Corporate Professional	Yes	At Sacyr we have conducted a materiality study to help us define our CSR and sustainability strategy, as well as the kind of material information that our stakeholder demand. Safety is the most material aspects of a list of 26 identified materials issues
Engineering & Construction Services	Structural Integrity & Safety	Materiality?	Corporate Professional	Yes	There are material financial risks associated with structural failures and related safety issues.
Engineering & Construction Services	Structural Integrity & Safety	Materiality?	Corporate Professional	Yes	http://www.hse.gov.uk/offshore/integritymanagement.htm http://www.safeworkaustralia.gov.au/sites/swa/model-whs-laws/ris/pages/ris
Engineering & Construction Services	Structural Integrity & Safety	Materiality?	Public Interest	Yes	damage or losses due to structural incidents can be significant

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Engineering & Construction Services	Structural Integrity & Safety	Materiality?	Public Interest	Yes	This seems fairly self evident
Engineering & Construction Services	Structural Integrity & Safety	Materiality?	Public Interest	Yes	This demonstrates fundamental capabilities of companies in this sector, and gaps in these areas could result in significant risks
Engineering & Construction Services	Survey comment	Comment on Brief	Corporate Professional	DNA - Comment on Brief	Sorry, I ran out of time to review the research brief in depth.
Engineering & Construction Services	Workforce Diversity & Inclusion	Materiality?	Corporate Professional	Maybe	The construction industry is predominantly a male dominated industry. The talent pool of women in this industry is generally low small and might be difficult to meet targets set in the standard.
Engineering & Construction Services	Workforce Diversity & Inclusion	Materiality?	Corporate Professional	Maybe	Diversity and social inclusion are material factors for our stakeholders; particularly, this aspect is ranked 15th on our list of material issues and we firmly believe in the enriching aspect of having a multicultural workforce. Having said this, we also believe it is not a prerequisite for the achievement and success of a project.
Engineering & Construction Services	Workforce Diversity & Inclusion	Materiality?	Corporate Professional	Maybe	We get asked about it on some contract prequal documents; however, not to the extent that it has a material impact on the business. Although it is important from the stand point of company culture, most customers, including public entities, are not concerned about it.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Engineering & Construction Services	Workforce Diversity & Inclusion	Materiality?	Corporate Professional	No	The challenge in engineering industry is not diversity but lack of getting these bright people to work in E/C industry when they can make more money in banking or tech industry. Most of the global engineering firms meet the diversity test by the fact that they operate around the globe and have significant presence. I am a big supporter of Diversity and Inclusion and believe it is important but struggle to see the value of disclosure to an investor. Again, the value impact has no quantifiable substance for an investor or potential investor.
Engineering & Construction Services	Workforce Diversity & Inclusion	Materiality?	Corporate Professional	No	This is not a sustainability topic, but rather an EEO issue (and one that is poorly supported by empirical research as to the actual business benefits of workforce diversity).
Engineering & Construction Services	Workforce Diversity & Inclusion	Materiality?	Corporate Professional	Yes	A diverse workforce can be critical dealing with a global client or working in a global stage http://www.cummins.com/global-impact/diversity/business-case-diversity http://www.praxent.com/blog/21st-century-workforce-guide-global-workforce-diversity-trends-infographic
Engineering & Construction Services	Workforce Diversity & Inclusion	Materiality?	Corporate Professional	Yes	I believe this issue is material to all industries - not certain whether issues such as this and corporate governance should be included or excluded as a result of their widespread applicability.
Engineering & Construction Services	Workforce Diversity & Inclusion	Materiality?	Corporate Professional	Yes	https://www.citb.co.uk/documents/about-us/how-we-work/strategic-equality-plan%202012-2014-english.pdf

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Engineering & Construction Services	Workforce Diversity & Inclusion	Materiality?	Public Interest	Maybe	this is not unimportant, but other issues seem much more pressing
Engineering & Construction Services	Workforce Diversity & Inclusion	Materiality?	Public Interest	Maybe	This is far too complex and not directional as it relates to data specific for the investor community. This will also be influenced greatly by the union based trades represented in the building segments which is not influenced by the companies investors are associated.
Engineering & Construction Services	Workforce Diversity & Inclusion	Materiality?	Public Interest	Maybe	I think this is hard to measure
Engineering & Construction Services	Workforce Diversity & Inclusion	Materiality?	Public Interest	Maybe	Diversity may be important but it is challenging to tie this to financial impact
Engineering & Construction Services	Workforce Diversity & Inclusion	Materiality?	Public Interest	Yes	Many engineering and construction companies have customers who establish diversity requirements in order to qualify for contracts OR fulfill term so contracts.
Engineering & Construction Services	Workforce Health & Safety	Materiality?	Corporate Professional	Yes	The number of fatalities and permanent disabilities as a result of injuries is very high in the construction sector. Yet, it appears that some companies choose not to disclose such information fearing that this would put them in a bad light. There are also speculations of under reporting of accidents at the workplace.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Engineering & Construction Services	Workforce Health & Safety	Materiality?	Corporate Professional	Yes	Decreasing the accident rate is the most important goal for our company. At Sacyr, employees are the main asset of the company. We deliver our activities through management systems certified by OHSAS, systems that are helping us reduce this ratio.
Engineering & Construction Services	Workforce Health & Safety	Materiality?	Corporate Professional	Yes	It drives civil and criminal liability as well as insurance costs. It is also a moral duty and a reflection on the sophistication of management.
Engineering & Construction Services	Workforce Health & Safety	Materiality?	Corporate Professional	Yes	http://www.insht.es/InshtWeb/Contenidos/Documentacion/FICHAS%20DE%20PUBLICACIONES/EN%20CATALOGO/SEGURIDAD/riesgos%20emergentes%20sector%20construccion%202013/DT%2081-1-13%20riesgos%20emergentes%20meta.pdf
Engineering & Construction Services	Workforce Health & Safety	Materiality?	Public Interest	Maybe	While OSHA and other forms of industry, government and municipality regulations govern the recording of workforce health and safety I believe current reporting requirements adequately address these issues rather than adding more disclosures for investors.
Engineering & Construction Services	Workforce Health & Safety	Materiality?	Public Interest	Yes	Engineering and construction workers can be exposed to dangerous working environments that can lead to health impacts and injuries.
Engineering & Construction Services	Workforce Health & Safety	Materiality?	Public Interest	Yes	Poor workplace safety results in costs and bad publicity http://hrbdf.org/dilemmas/health-and-safety/#.VXsvlflViko

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Engineering & Construction Services	Workforce Health & Safety	Materiality?	Public Interest	Yes	This is a fundamental aspect of this sector, and if there is an indication of skill/experience/policy/management practice gaps then risks could be significant.
Gas Utilities	Distribution Network Resiliency	Materiality?	Corporate Professional	No	While protection of our systems and data is paramount to our businesses and while accidents, terrorism, and cyber attacks can occur, the fact remains that regulation over the safety of our systems have been, in recent years, been implemented and enforced by the DOT, PHMSA itself, other federal agencies and by state regulators. Additionally, with regard to data, Red Flag laws have been implemented, and due to notably cases of cyber attacks (notably on retail establishments with heavy credit card information available to the white collar criminal), company's have been more focused on protecting fire walls, implementing measures to monitor "hits" to their systems, etc. Also, due to compliance with section 404 of the Sarbanes-Oxley Act 11 years ago, companies have implemented robust ITGC controls, for instance attack and penetration studies and tests, monitoring, etc. to help ensure their data and systems are reasonably protected. While terrorism can occur, companies are expected to help the investor understand the most significant risks to their investment, the most probable, the most likely, the most material. I believe that significant measures have been implemented historically, and investors are most interested in material information with regard to whether a company is prone to attacks. Through measures historically implemented, companies are more protected than in decades past, even if by force of regulation and compliance. It seems more helpful to the investor to explain, not what you have in place, or have historically had in place, nor to provide disclosure overload, which has been a complaint by investors, but rather to disclose areas for which significant risks remain, to the extent not commercially sensitive, so that an investor can discern the prospects for cash flows and the value of their investment going forward.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Gas Utilities	Distribution Network Resiliency	Materiality?	Corporate Professional	Yes	The reliability of the pipeline is important for operational business continuity of gas based power plants
Gas Utilities	Distribution Network Resiliency	Materiality?	Market Participant	Maybe	I just think that comparing this data is hard, especially as some utilities may be at different points in their replacement cycle etc
Gas Utilities	Distribution Network Resiliency	Materiality?	Market Participant	Yes	Distribution network is at risk from cyber attack - this article shows the risk to electrcity grid and there is probably read accross for pipeline networks too http://www.utilitydive.com/news/could-terrorists-really-black-out-the-power-grid/241192/
Gas Utilities	Distribution Network Resiliency	Materiality?	Public Interest	Yes	Similar to (but to a lesser degree than) electric grid resiliency, gas distribution networks are critical to functioning of our daily lives both personally and professionally. Successful cyber or physical attacks on the infrastructure would have a significant impact on our daily routine, as well as risk overall social anxiety regarding security and general societal safety.
Gas Utilities	Distribution Network Resiliency	Materiality?	Public Interest	Yes	extreme events (either natural or man made when mixed with gas related systems can not only cause disruptions in service but damage that can be far reaching. Gas companies need to plan for resiliency while balancing their investments in redundant systems
Gas Utilities	Downstream Emissions Management	Materiality?	Corporate Professional	Maybe	We have concerns with how leak volume is calculated, since there is no reference to how it would be calculated? Is this limited to just pipelines or all leaks in the system? If quantification is based on LUAF (Loss and Unaccounted For) metric: the use of LUAF should not be a measure as this is an accounting reference and does not accurately reflect leaks in the system. We may need to consider that there are various methods of calculations and this will need to be normalized if gas utilities are compared other companies (especially considering the size of SoCalGas territory). Another important consideration is that there are discussions about leak quantification as result of implementation of SB1371 in California right now and SB1371 will require the California PUC to adopt rules and procedures governing the operation, maintenance, repair and replacement of Commission-regulated gas pipeline facilities. SB1371 proposes to minimize

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					leaks as a hazard to be mitigated pursuant to the Natural Gas Pipeline Safety Act of 2011 and to reduce emissions of natural gas from those facilities to the maximum extent feasible. The CPUC initiated R.15-01-008 in January, as required by the statute, to implement SB 1371's requirements. SASB should inform itself on this process and consider its provisions.
Gas Utilities	Downstream Emissions Management	Materiality?	Corporate Professional	Maybe	I don't have reservations with the topic in general. My reservation is with one of the proposed disclosure standards.
Gas Utilities	Downstream Emissions Management	Materiality?	Corporate Professional	No	While this could be material for older pipes of particular materials in certain parts of the country, due to regulations that have been instituted by PHMSA, many important measures have been put in place around leak survey (inclusive of new techniques for surveillance), MAOP monitoring, etc. that help not only with safety but also with leak detection in general and emissions management. There also can be some truth that customers can be emitters but by the natural course of regulation and pressure on the gas-specific utility industry, I do not consider this one of the most significant risks to our financial position and investor value.
Gas Utilities	Downstream Emissions Management	Materiality?	Corporate Professional	Yes	Emission regulations, taxes
Gas Utilities	Downstream Emissions Management	Materiality?	Market Participant	Yes	Gas could be next in line after coal and oil in the divestment campain's cross-hairs. Emission management will be a key metric for understanding the carbon risk for a company.
Gas Utilities	Downstream Emissions Management	Materiality?	Public Interest	Maybe	Not clear where those

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					emissions are coming from and whether they are within the control of the gas company
Gas Utilities	Downstream Emissions Management	Materiality?	Public Interest	Yes	I think this one is adequately reasoned. This is really the only topic of the four that directly connects the operations to their environmental impact, via GHG emissions. I can't imagine there will be much resistance to this topic. My only question would be the scope of this topic. I'm sure I'll have a better place to discuss this later, but I would think investors would still be concerned with where their utility is sourcing their gas supply, and specifically the means in which that gas was retrieve (fracking, or not).
Gas Utilities	Health, Safety & Emergency Management	Add Issue	Public Interest	Natural resources management and disaster risk [WATER MANAGEMENT] + [HEALTH, SAFETY & EMERGENCY MANAGEMENT]	Natural gas extraction and transportation (via pipeline) depends on water, in various ways. Transport by pipeline requires water for hydraulic testing, in order to test for fissures or cracks. Depending on the length of the pipeline network, copious amounts of water may be needed. Sourcing the water therefore becomes a material risk in terms of what watershed the water comes from, who depends on it and the legal regime of that water, and also then wastewater products management, in terms of how the hydraulic testing water is disposed of, treatment, and where this occurs. (e.g. is it dumped back into the watershed, at what quality, and does that cause any effects on local fauna and flora). Disaster risk is also of material concern, since seismic areas can cause interruptions in gas pipeline networks, and hurricanes and other dangerous precipitation events can cause disruptions in gas transport by barge, for example in the Caribbean.
Gas Utilities	Health, Safety & Emergency Management	Materiality?	Corporate Professional	Maybe	Corrective action may include administrative requests and could be interpreted falsely
Gas Utilities	Health, Safety & Emergency Management	Materiality?	Corporate Professional	Maybe	I don't have reservations with the topic in general. My reservation is with one of the proposed disclosure standards.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Gas Utilities	Health, Safety & Emergency Management	Materiality?	Corporate Professional	Maybe	I think this is an issue of timing. Due to PHMSA requirements in recent years, the PIPES Act, etc, most utilities already disclose impacts from pipe safety in their risk factors due to the financial impacts of compliance with TRIMP and DIMP programs, the necessary measures to identify and track maximum allowable operating pressure (MAOP), the requirements bestowed upon utilities by their state regulators, etc. In addition, significant expenditures and programs with regard to gas infrastructure replacement programs have been incurred and implemented. It is not to say that this is not still ongoing; however, significant impacts to O&M and cash flow and related cost risks have been part of disclosures. Additionally, measures taken to receive regulated rates, protections between rate cases, etc. have been part of MD&A discussions. Further, regulatory assets, their recovery, return, etc. associated with these and other programs already provide the investor with valuable information regarding the impacts of these programs. Further, the FASB and SEC rules related to disclosure expect investors to understand the industry of the companies they are investing in. With all of the publicly available information on gas infrastructure programs, news events for incidents, etc., investors understand and are expected to understand the overall environment with regard to safety and emergency programs. I think that naturally companies have done a fair job of describing impacts to liquidity and future prospects for the same with regard to what the investor can expect from safety programs and compliance related thereto.
Gas Utilities	Health, Safety & Emergency Management	Materiality?	Corporate Professional	Yes	Proactive management that supports reduction in human and property casualty
Gas Utilities	Health, Safety & Emergency Management	Materiality?	Corporate Professional	Yes	Environmental concerns favor Gas utilities

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Gas Utilities	Health, Safety & Emergency Management	Materiality?	Public Interest	Yes	Beyond the obvious social concerns, the reputational risk associated with failures in this area only serve to make this area even more essential to the relevant stakeholders (customer base, shareholders, regulators, etc.).
Gas Utilities	Health, Safety & Emergency Management	Materiality?	Public Interest	Yes	Companies engaged in the process and conveyance of natural gas face significant risks to health, safety and emergency responses.
Gas Utilities	Ind. Brief comment	Innacuracy	Public Interest	DNA - Innacuracy	Just what I think is a typo on page 6, "a legal priory". I couldn't find a definition for this, and I'm assuming it's meant to be a legal priority. I was thoroughly impressed with the quality of this briefing though. Very well done!
Gas Utilities	Industry insights	Other Comment	Corporate Professional	DNA - Other Comment	While it is understood that some companies should disclose more, generally, I believe that companies have generally done a good job of helping the investor understand their investment, impact to each company's financial position and potential impacts in the near term. Investors are expected to understand the industry in which their target company operates. Additionally, armed with research tools available to them, for instance internet research on the industry, on pipe safety, on environmentally friendly fuel form, and not-so environmentally friendly fuel forms, as well as availability of information on DOT regulation and the PIPES Act, on rate proceedings, and utility tariffs, in concert with company filings describing the business, risks, financial impacts, etc., we do not typically receive requests or calls because investors or would-be investors do no understand our business or cannot compare us to another similarly situated gas utility target investment. Regulation (safety, leak survey, GHG reporting to the EPA, etc.) and its influence is comparable across the industry and generally known by the investing public. Details of cyber security programs can be sensitive and invite bad actors; however, major pitfalls must be disclosed and protections,

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					monitoring, attack and penetration studies, etc. are subject to companies' business continuity and ITGC security programs. This is not to say that certain companies couldn't improve, or that they could not enhance their disclosures, but generally, existing disclosures around the business, the product, the risks, and controls are reasonable in light of investor needs in understanding the value of their investment and expected changes thereto.
Gas Utilities	Management of the Legal & Regulatory Environment	Materiality?	Corporate Professional	Maybe	Public natural gas utility companies do participate in a robust legal & regulatory environment - from a safety perspective, a ratemaking perspective, from a perspective that a regulator has final say on what costs are recoverable and which are subject to disallowance, etc. And, as responded to earlier, investors are expected by the SEC and the FASB to understand the industry in which their targeted investment participates. I believe companies have done a reasonable job explaining the nature of their operations, the risks of their environment, the impacts of their regulation, the impacts of regulatory lag and the actions of the regulator, and cautioning on future actions. While the impacts of overriding regulation is pervasive in our industry's operations, I am not aware of a significant number of cases where investors felt there was material information missing from public filings, or from the public view in general, preventing them from understanding the environment with respect to target companies in our industry.
Gas Utilities	Management of the Legal & Regulatory Environment	Materiality?	Corporate Professional	Yes	Regulatory requirements are consistently evolving to meet the public expectations
Gas Utilities	Management of the Legal & Regulatory Environment	Materiality?	Market Participant	Maybe	Given the state by state differences in regulators, and that some companies operate in many states I just think comparing this information is challenging.
Gas Utilities	Management of the Legal & Regulatory Environment	Materiality?	Public Interest	No	In reviewing the relevant points associated with this topic included within the gas utilities brief, I am still not confident that I recognize the value proposition of this topic. While I concur that how a gas utility manages its

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					legal and regulatory environment is critical to its future success, I am concerned regarding the applicability and relevance of the metrics.
Gas Utilities	Management of the Legal & Regulatory Environment	Materiality?	Public Interest	Yes	The regulatory environment is the most primary factor in a utility's financial and operational performance, yet I struggle with how to effectively and objectively measure this relationship. I think the current KPI is not an accurate reflection of the relationship at all. The research brief details the reality of how a changing PUC's board composition can have a significant and immediate change on the operating environment.
Gas Utilities	Metric comment	Other Comment	Public Interest	DNA - Other Comment	Similar to the comment in the electric utility survey, the one challenge that SASB will be faced is the comparability associated with the sector participants. Specifically, the relevancy of information for one gas utility (based on population served, urbanization, etc) could be very different from another utility. It is hard to have objective metrics to evaluate some of these points for a gas utility in New York City versus another utility in relative newer, less dense geography.
Gas Utilities	New Issue	Add Issue	Corporate Professional	An environmental disclosure topic should be considered in gas utilities. [GHG EMISSIONS]	It should be similar to electric utilities (e.g., GHG emissions) and be comparable across utilities.
Gas Utilities	New Issue	Other Comment	Corporate Professional	DNA - Other Comment [NATURAL GAS SOURCING] + [SUPPLY	Climate change concerns are already driving the metrics conversation involving GHG emissions, air quallity, water and biodiversity, SASB may wish to consider some of these issues as well, including the topic of hydraulic fracking upstream (in the supply chain of gas utilities).

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
				CHAIN MGMT] + OTHER DIRECT ENVIRONMENTAL ISSUES	SASB's survey forces answers not always accurate for us: answer options are “no”, “yes”, “yes with reservations.” What about “no with reservations”, or “don’t know? It was hard to answer some questions without knowing how information would be normalized. Last, despite having a U.S. focus, SASB has selected for metrics to be reported in International System of Units (e.g. kilograms) which is not the method of measurement used in the U.S.
Gas Utilities	New Issue	Add Issue	Public Interest	gas sources and fracking implications [NATURAL GAS SOURCING] + [SUPPLY CHAIN MGMT]	more and more natural gas comes from fracking operations that are subject to regulatory changes as well as conflicts assopciated with resource consumption (especially water). In addition, waste byproducts could lead to material implications for the companies.
Gas Utilities	New Issue	Add Issue	Public Interest	Sourcing of NG [NATURAL GAS SOURCING] + [SUPPLY CHAIN MGMT]	There is a growing trend in investors' concerns over the supply chain of their investments. I understand that the determining the origin of purchased NG is difficult because it is processed by other parties before entering the distribution networks, however I am of the opinion that the percentage of NG sourced from conventional vs nonconventional means could influence their investing decisions. Again though, this information would be difficult to receive. What would be possible to disclose, and relevant to investors decisions, would be the geographical source of the natural gas. Specifically what their sourcing mix was, by percent, by state.
Home Builders	Ecological Impacts of Construction	Materiality?	Corporate Professional	Maybe	Depth in understanding and ability to truly define the ecological impacts of construction is likely well beyond most builders and would constitute a value-less topic without very specific criteria for discussion and disclosure. The

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					amount of detail to make this disclosure valuable may well be cost prohibitive for most projects.
Home Builders	Ecological Impacts of Construction	Materiality?	Corporate Professional	Yes	If the project has impact on ecology and biodiversity, this could be material to the company and should be identified as materiality to business
Home Builders	Ecological Impacts of Construction	Materiality?	Market Participant	Yes	Ecological Impacts of construction are part of the homebuilder's direct responsibility. Well managed impacts could indicate well managed risks and thorough measures in place to prevent legal non-compliance.
Home Builders	Ecological Impacts of Construction	Materiality?	Market Participant	Yes	This could be interpreted as a site selection or an operational risk/performance issue. The topic is increasingly in focus for regulators and planners with the emphasis on the total environmental footprint of housing, including smart growth/location-efficiency, carbon minimization/mitigation, climate adaptation, energy efficiency and water efficiency. This interest is being driven by pressure on urban transport infrastructure and resources for municipal administration as a result of urban sprawl, mobilization and protest from environmental groups against greenfield development, concern about energy costs/carbon emissions, and extreme water stress conditions in the US and overseas (e.g. California, Arizona, Mexico, India, etc.). US DOE, USGBC, IMT and other organizations are pointing to this issue. There are demand drivers as well. Millenials and young professionals have migrated to downtown areas in recent years, and the cultural emphasis on walkable, livable city centers is driving revenue growth and new product development opportunities, while also delivering dramatically diminished environmental footprints.
Home Builders	Ecological Impacts of Construction	Materiality?	Market Participant	Yes	Drainage needs to be explicitly considered as part of design. This means not simply directing gutters away from the house but perhaps, for example onto ground surfaces as opposed to driveway to municipal drainage. Also native plants especially old growth trees (old growth defined as old relative to local area standards), maximum preservation of existing vegetation even if it creates more expensive building costs. This more adequately values land resources.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Home Builders	Ecological Impacts of Construction	Materiality?	Public Interest	Yes	Fine avoidance etc. notwithstanding, investors may find this information of interest for the potential upsides for those businesses choosing to select and improve sites more sustainably. Financial incentives and non-financial incentives like density bonuses and permit "fast tracks" may significantly and positively impact income statements as much as fines and other disincentives might impact them aversely.
Home Builders	Ecological Impacts of Construction	Materiality?	Public Interest	Yes	Any impacts will affect the design construction. The earlier in the process that design impacts are learned and accounted for by the Builder/financier will have the greatest impact until the Builder/Financier is able to educate (typically self-educated through experience) to understand how to incorporate into their process.
Home Builders	Ecological Impacts of Construction	Materiality?	Public Interest	Yes	Adverse ecological impacts could expose the company to significant legal and financial liability, and reputational harm.
Home Builders	Ecological Impacts of Construction	Materiality?	Public Interest	Yes	As our focus on ecological impacts grows, the industry will need to address several key areas related to construction. (i) Sourcing of materials and reducing the impact of waste resource created during construction. For onsite builders, there is a disadvantage in waste resource management compared with modular home manufacturing. Many municipalities have or will enact waste stream diversion programs that will impact onsite builders schedule and cost compared with modular home construction in a controlled environment. As public perception changes, modular home construction may have some longer term competitive impacts on current leading builders. Second, the storm water management and site management issues related to construction are increasingly monitored and enforced. This is a difficult process to manage in a production environment and adds cost to the product. On a brighter note, the industry needs to take the lead on raising the minimum standards related to ecological impacts and efficient design. This effort should be collaboratively managed with discussions related to reducing impact fee and permit costs - Zero net energy and water reuse

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					strategies will lower ecological impacts of construction and should therefor reduce the materiality of the costs for impact fees charged by local agencies. Lastly, the industry is now faced with (i) a significant risk of building in drought stressed environments in one major market area and flood prone environments in other major market areas and (ii) a increased risk that agricultural lands may be limited for development due to food shortages and the need to preserve our best top soil properties for food production instead of more buildings. Both conditions may impact the availability of land for development and construction. In deep drought areas in particular, it is conceivable permit issuance may be minimized as water will be needed to serve existing community needs - such an exposure will have material impact on project schedule and property valuation if meter availability is impacted.
Home Builders	Environmental & Social Considerations in Site Selection	Materiality?	Corporate Professional	Yes	While multi-family buildings do reduce environmental footprint (land use, building materials, O&M) they also potentially increase crime rates and the added burden on local services (traffic pattern changes, policing, waste and water management). Again, if specific criteria can be well-defined within this scope, this could prove valuable to investors.
Home Builders	Environmental & Social Considerations in Site Selection	Materiality?	Market Participant	Maybe	Site selection is often highly influenced by other factors including land-type, timing of land being sold and standing zoning regulations. I see this as further from the purview of ESG consideration in assessing a company, which may over validate companies with this development style as opposed to indicating homebuilding (across styles) that demonstrates strong management. As a forward looking indicator for the firm's role is playing in structuring a community, it is more relevant to disclose to community stakeholders, but not necessarily investors, unless there is evidence for opportunities like premiums.
Home Builders	Environmental & Social Consideratio	Materiality?	Market Participant	Yes	My earlier comments on ecological considerations largely address this. I think these two categories overlap too much to be clearly distinct.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
	ns in Site Selection				
Home Builders	Environmental & Social Considerations in Site Selection	Materiality?	Market Participant	Yes	There has to be a higher standard/measurement/disclosure of habitat preservation in all areas not simply at risk areas. Likewise, the amount of road surface in a development must be disclosed/measured. Too often, safety, for example emergency vehicle access, is prioritized disproportionately over land use, habitat preservation.
Home Builders	Environmental & Social Considerations in Site Selection	Materiality?	Public Interest	Maybe	I do agree that site selection is a relevent to Sustainability and of material interest, but I'm concerned that there is no Heat Map indication of Interest in the topic.
Home Builders	Environmental & Social Considerations in Site Selection	Materiality?	Public Interest	Yes	Same as above
Home Builders	Environmental & Social Considerations in Site Selection	Materiality?	Public Interest	Yes	Choosing where to build is more important than ever. The emerging consumer base does not want long commutes, expenses, etc. associated with suburban communities. They also don't want to find themselves over-extended in debt related to larger home purchases further out. This dynamic will surely impact the viability of site selection going forward. Given the long time frames for development of projects, this creates a risk for builders that are perpetuating a code minimum strategy for construction and relying on lower land costs further from urban environments. I believe it is important for builders to properly disclose the risk they have in "B" and "C" market locations that have significant infrastructure and environmental challenges and are the most sensitive to market swings. As with the prior cycles, these locations became the fallow ground on which many a company's financial liquidity was restricted. Control of property without ownership is key. Once the market risk shifts to the balance sheet, market cycle changes can make a 2-3 year project a 5-7 year build out in a hurry. The market from 2006 -

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					2013 clearly has plenty examples of this outcome. At the top of the cycle, production volumes eek their way into the underwriting mindset of builders under pressure to maximize profit and growth from investors - pressure the is brought to bear due to a lack of investor understanding of the cyclical and environmental challenges that face the industry. This is why I clearly recommend a metric that is not limited to disclosure of the number of lots controlled. An investor must be able to understand how many projects and homes are owned/on balance sheet, the assessed location metric (A, B or C market) of those properties and the number of years production the represent at current market volumes. A further, meaningful metric is the current % basis of property to market value. A well positioned builder with low land cost compared to market, strong market positions, building high efficiency product and controlling but not owning a substantial portion of its pipeline has a clear advantage over a minimum code builder relying on B and C locations and owning most of its pipeline for future production. These metrics provide greater insight to executive leadership's commitment to a sustainable business strategy that is more resilient to risks inherent in the market.
Home Builders	Environmental Considerations in Design	Add Issue	Corporate Professional	Product Responsbility	Lots of new home development needs to be green compliant and companies need to take that responsibility. Likewise, project which are green has to be actually green in actual performance.
Home Builders	Environmental Considerations in Design	Add Issue	Corporate Professional	Resource Efficiency	Every building will consume resource during construction as well as during occupany. Urbanisation is a larger issue and buildings globally consume more than 40% of global resources. Thus this should be one of the material issue
Home Builders	Environmental Considerations in Design	Materiality?	Corporate Professional	Yes	I did not see in the Research Brief (in my admittedly quick read through), any reference to modular building or off-site building preparations which significantly reduce the potential for injuries and waste. Having said that, this element does lend itself to proactively reduce environmental burden of the home building project with the appropriate parameters included in the

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					section and thus has the most potential to demonstrate the company's commitment.
Home Builders	Environmental Considerations in Design	Materiality?	Market Participant	Yes	Design practices and materials used to optimize health of occupants and increase energy efficiency may depend on regional climate considerations.
Home Builders	Environmental Considerations in Design	Materiality?	Market Participant	Yes	This section is comprised of both risks and opportunities. Please see section above related to energy and water efficiency. These considerations are being integrated into homebuilding from equipment to technology as a value driver. This innovation is also affecting the manufacture of materials for the homebuilding industry that are enabling homebuilders to leverage higher quality and higher performance materials and equipment, so the broader effects go beyond the homebuilding industry and into materials (e.g. structured insulated panels) and technology (e.g. smart thermostats, digital/connected/smart home), as well as energy (e.g. fuel switching in large residential buildings, demand for gas) and utilities (energy efficiency programs at utilities, remote net metering on residential solar, etc). The risks are non-negligible as well. Poor quality materials have effects on human health that are being recognized. Note the current lawsuits against Lumber Liquidators for Chinese-manufactured flooring high in formaldehyde. In Louisiana a few years ago, there were hundreds of complaints about drywall made in China that caused health problems, corroded metal and triggered equipment failures because of poor materials. With the increasing incidence of extreme weather events, like hurricanes and floods, the capacity of materials to withstand water and moisture can also be an important issue for consumers. Whether this poses a risk to homebuilders is uncertain.
Home Builders	Environmental	Materiality?	Public Interest	Yes	In addition to the potential for incentives, the potential for a company to distinguish itself through voluntary application of an above-code

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
	Considerations in Design				performance/sustainability program in the marketplace is important, particularly given the expected market trajectory predicted for "green" homes (i.e. those featuring the efficiency, durability, indoor environmental quality and other benefits this topic encompasses) shown in studies like the McGraw Hill's regular green-focused survey of home builders: http://analyticsstore.construction.com/2014GreenHomesSMR?sourcekey=PRESREL
Home Builders	Environmental Considerations in Design	Materiality?	Public Interest	Yes	Same as above: the impact is greater at the beginning of the learning curve
Home Builders	Environmental Considerations in Design	Materiality?	Public Interest	Yes	To the extent the company makes representations about environmental considerations in design, it is materially important that those representations can be backed up by real practice. Additionaly, failure to consider environmental factors, and environmental law and regulations, can expose the company to significant legal and financial liability, and reputational harm.
Home Builders	Environmental Considerations in Design	Materiality?	Public Interest	Yes	Design considerations are significant and increasingly require integrated project delivery thought process. Efficiency in energy, water and waste resource management will be key to receiving project approvals and consumer acceptance. While there have been numerous efforts to incorporate resource use costs into the underwriting process for loan approvals, such attempts have yet to be successfully approved (e.g. Home Star). Should the underwriting guidelines be enhanced to include these costs in qualifying for financing, this may the effect of (i) reducing the buying power of some consumers, (ii) impact builders choosing to build at code minimums verses high performance design and (iii) provide an additional, meaningful difference between new homes and resale homes available in the market. The net effect of this change is difficult to assess. It will require continued leadership at the top levels of the industry to "raise the bar" on design to make this a positive transition for the industry.
Home Builders	Ind. Brief comment	Innacuracy	Corporate Professional	DNA - Innacuracy	There is no discussion of the CARB Composite Wood standard and its extension into all markets.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					There is no discussion of the CARB Composite Wood standard and its adoption effort at the US Federal level. There is no discussion of the stabilization of the US engineered wood panel market emissions at or well below CARB levels (as in EPA indoor airPLUS). Environmental for Living is first actually Environments for Living and second NOT a standard. It is a marketing scheme which references numerous other standards, and specific products that will gain the builder points which are then give the builder the opportunity to have the building 'guaranteed' for some years by a third-party. Product offerings may be in conflict with innovation and free-market. This is no different than a 'green' home buyers warranty and a sales pitch. NAHB home innovation green products and ICC eSaves are not mentioned either as certifying green building products. IgCC and ICC-700 voluntary standards should be significantly elevated in the guidance document as they are true ANSI/consensus (voluntary) standards developed by builders, regulators, and industry. Latest building requirements for energy requirements (2012) pose undue cost considerations with minimum ROI for the builder or homeowner, unlike (2009) which are well received and adopted across the country.
Home Builders	Ind. Brief comment	Comment on Brief	Market Participant	DNA - Comment on Brief	It may have been helpful to include how these indicators are related to the company's cost of capital.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Home Builders	Ind. Brief comment	Comment on Brief	Public Interest	DNA - Comment on Brief	fact-based examples
Home Builders	Industry insights	Comment on Brief	Corporate Professional	DNA - Comment on Brief	The research brief does not truly reflect the entire industry and its dynamics: union/non-union sites and companies, English-as-a-second language workers; young workers; unskilled labourers; large builders (which are not nearly as prevalent as the incredible number of small builders with limited access to expertise and resources. I do understand this is focused for investors on those companies that are publically traded, but the standard once published will impact all builders and either needs a caveat or those additional considerations included in the evaluation.
Home Builders	Industry insights	Comment on Brief	Market Participant	DNA - Comment on Brief	I still have lingering concerns about the comparability of the issues and metrics addressed, primarily because of the potential heterogeneity of the products, the geographic dispersion of the activities of the companies in question and uncertainty about the sizes of the companies, not just in terms of numbers of homes but the average actual size in sq ft/m of the homes. So it was difficult to get a sense of the overall topography of the market participants. Also, given that certain parts of the country suffer from extreme heat and water stress while others may be vulnerable to flooding while others to extreme cold and storms and with overlaps in between, would it make sense to ask for more specific information about whether the company operates in vulnerable areas and their response to that challenge. Finally, homebuilders may be building for high end or moderate income segments. This seems like it could have an important effect on company performance, commitment and communications.
Home Builders	Industry insights	Innacuracy	Market Participant	DNA - Innacuracy	Not necessarily inaccurate, but a discussion on varying styles of homebuilding and regional/geographical specificity (sub-urban, rural etc.) is missing and play a contextual role for understanding the relevance of these indicators. I would be wary to evaluate companies on their employment of a

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					particular development style that may only make sense in some circumstances - not all.
Home Builders	Industry insights	Other Comment	Market Participant	DNA - Other Comment	I own a low income housing company in Peru. The efficiency of building materials - local sourcing and compatibility with the local environment far surpass US standards, with substantially less regulation.
Home Builders	Industry insights	Innacuracy	Public Interest	DNA - Innacuracy	Some references about trends toward bigger homes and increased subrban development seem outdated or inconsistent with others I've seen more recently that new home sizes may be decreasing and there is a shift toward more urbanization. Sorry, I don't have references presently, but will try to locate some.
Home Builders	Industry insights	Other Comment	Public Interest	DNA - Other Comment	Hope my comments are helpful. The brief was excellent and I understand its limitation to public company inclusion. There are a number of privately held builders that could provide meaningful insight to risk, risk management and environmental sensitivity that may provide a broader context for what is possible in these important areas. They also are highly competitive and well managed - so, any comparative metrics among the public groups will need to be represented in perspective with the privately held peer group. In this regard, have you engaged with NAHB to discuss metrics, risk and disclosure practices for both segments of the industry and is there support for providing metric information from the private sector for comparative resilience and relevance?
Home Builders	Industry insights	Add Issue	Public Interest	Risk to community, agency and regulatory environment challenges	The four paramount disclosures above address the choices builders have with respect to their respective strategies within the community, agency and regulatory environment. But a fair portion of risk falls outside of these considerations. Code changes, community concerns related to existing infrastructure and environmental impacts, governors decrees in a state of emergency due to drought or flood can create significant time and design impacts on the feasibility of owned projects. Disclosure specific to how owned projects were underwritten and potential impacts related to these challenges is critical to understanding the risk tolerance and positioning of a given builder.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Home Builders	New Angle	Add Issue	Corporate Professional	Average tenture of employees [WORKFORCE HEALTH AND SAFETY]	This is similar but different from additional topic 1, but in combination provide a window into how sustainable the organization may be overall. In the home building industry, many worker injuries occur in the first year of employment. Employers have the potential to move from employer to employer which may have implications for the injury rate and training effectiveness.
Home Builders	New angle	Add Issue	Corporate Professional	Turn-over rate [WORKFORCE HEALTH AND SAFETY]	Home building industry is a very dynamic sector. Maintain consistent business relationships and employees is an indicator of trust and reputation of the builder and with a consistent rather than transient workforce the potential for consistent safe work practices and training exists. This would apply to individual employees and subcontractor companies.
Home Builders	New Issue	Add Issue	Market Participant	Disposal of building materials - percent reused/recycled versus to landfills/standard disposal. [WASTE MANAGEMENT FOR CONSTRUCTION MATERIALS + RESOURCE EFFICIENCY]	For example, excess building materials could be shipped to less developed nations instead of being put into landfills. Generally, you could build a small house with the materials left in containers and sent to landfills. THERE IS NO ACCOUNTABILITY FOR RESOURCE USE.
Home Builders	New Issue	Add Issue	Market Participant	Efficient use of building materials - how much is	This could be tracked by containers full of waste which already must be disposed of in a specific manner. Standard material weights could be used for both purchased materials and container weights of disposed materials.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
				purchased/percent used - percent disposed of [WASTE MANAGEMENT FOR CONSTRUCTION MATERIALS + RESOURCE EFFICIENCY]	
Home Builders	New Issue	Add Issue	Market Participant	Supply chain control [SUPPLY CHAIN MANAGEMENT]	The homebuilders' supply chain can be highly dispersed and not completely within the control and oversight of the homebuilder. Whether that means sourcing building materials, finishes and equipment or deployment of subcontracted labor, this lack of control of the supply chain can lead to risks in itself. It's difficult to instill sustainability, quality and safety cultures when oversight of operating segments of businesses may not be completely visible. In fairness, I'm not sure how easy it would be to develop metrics for this. If you want to embed sustainability, quality and safety in the culture of homebuilders, training and education has to be rolled out across contractors and subcontractors and risks have to be understood on site, in sourcing and in operations.
Home Builders	New Issue	Add Issue	Public Interest	Sourcing Practices and Materials [SUPPLY CHAIN MANAGEMENT]	Information about where the building materials come from may be materially important to investors. With increased consumer focus on supply chain transparency, a reasonable investor may be significantly concerned with understanding

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Home Builders	No action needed	Add Issue	Corporate Professional	Financial Value associated with	(blank)
Home Builders	No action needed	Comment on Brief	Public Interest	DNA - Comment on Brief	The Brief was comprehensive and informative but was not the sole resource for my inputs. Much of which were formed from my experience in the industry and working with and shaping policy for all the issues presented.
Home Builders	SASB Approach	Other Comment	Public Interest	DNA - Other Comment	The largest hurdle for success in this program (or any, especially "above minimum code" programs is education of all the stakeholders, many of which are too preoccupied (or assign a lower priority) to education of these same issues. Formulating and deploying a program, that will be utilized by, and to educate these stakeholders is key
Home Builders	Workforce Health & Safety	Materiality?	Corporate Professional	Maybe	The home building industry has an exceedingly fluid workforce. While the big 5 publically traded companies may have permanent sub-contractor/employee relationships, this is certainly not reflective of the industry. Disclosing the injury rate is a lagging indicator and provides little value of the true risk a company's safety practices pose. Lagging indicators need to be combined with leading indicators and trend analysis (dollars of fines, injury costs, and program elements (training hours, refresher training) to provide visibility into the workforce health and safety.
Home Builders	Workforce Health & Safety	Materiality?	Corporate Professional	Yes	Workforce HSE is amongst the key issue for operations.
Home Builders	Workforce Health & Safety	Materiality?	Market Participant	Yes	The seasonality of contracted and subcontracted labor is not mentioned, but also poses heath and safety risks when workers are overbooked or overworked due to the seasonal nature of homebuilding in varying climates. If homebuilder company insurance was required to cover contracted (or subcontracted labor), the company may offer financial discounts to historically safe contractors/subcontractors.
Home Builders	Workforce Health & Safety	Materiality?	Market Participant	Yes	Realistically, this seems most important from the perspective of potential fines and litigation. It's difficult to evaluate this risk in the context of reputational risk. Construction is a dangerous business, and the vast majority of consumers/homebuyers ignore that. However, substantial and

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					substandard health and safety issues with low-skilled or semi-skilled labor can be a substantial business risk driven by health care costs, benefits and litigation risk. Also because of subcontractor use, homebuilders may not have total control or oversight on site. This would be the homebuilder industry's equivalent of supply chain challenges. Note especially that there are emerging markets companies who may be reporting in the US and, therefore, must report to the SEC but who have substantially less rigorous and less transparent health and safety requirements and track records. It's relatively common from my experience for workers to not wear appropriate safety gear or observe basic protocols, for example. On the other hand, the benefits of having improved safety may only appear on operating costs and extraordinary items, so industry may be able to implement improvements up to a point with limited incentive to fully execute.
Home Builders	Workforce Health & Safety	Materiality?	Public Interest	Yes	Same as above.
Home Builders	Workforce Health & Safety	Materiality?	Public Interest	Yes	Workplace health and safety issues can expose the company to significant legal and financial liability, and reputational harm.
Home Builders	Workforce Health & Safety	Materiality?	Public Interest	Yes	Work force training and safety implementation is critical for the industry. Skilled workers have significant exposure on production sites and the insurance costs for builders are very sensitive to loss history. In addition, as the supply of skilled workers falls short of the increased demand in a favorable market, the likelihood of a less skilled laborer being employed for more advanced skill work increases - this is a risk filled path if not managed well from the general contractor and trade leadership perspective.
Real Estate Owners, Developers &	Climate Change Risk Exposure	Materiality?	Corporate Professional	Maybe	A climate change event such as a tornado or flood can affect our properties, and although a degree of readiness is to be expected among corporations, these events are beyond our control. If we report on it, I think there is a leap that we will be expected to take extraordinary measures to counter the risks

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Investment Trusts					
Real Estate Owners, Developers & Investment Trusts	Climate Change Risk Exposure	Materiality?	Corporate Professional	Maybe	While climate change risk exposure is important, this is in large part not a topic that meets the SASB standard of 'Actionable by companies.' While acquisition and disposition activity can potentially be impacted by climate change risk, whether or not a particular property is in a floodplain is not something that landlords can control for their existing portfolios, so without exiting or entering particular geographic markets via acquisitions or dispositions, this topic is not very actionable. Further, investors can easily see the locations in which a company owns property, and therefore if climate change risk as defined by flooding is important to an investor, a separate disclosure does not seem necessary.
Real Estate Owners, Developers & Investment Trusts	Climate Change Risk Exposure	Materiality?	Corporate Professional	Maybe	It can be hard to directly tie climate change risk exposure to materiality in a business. My reservations are not because I do not think it could be a disclosure topic, but rather that it should be scoped in a way that deals more with specific risks. I think two are where we build (e.g., coastal exposure, etc.) and severe weather impacts to operating costs (e.g., harsh Northeast winter - higher snow removal costs).
Real Estate Owners, Developers & Investment Trusts	Climate Change Risk Exposure	Materiality?	Corporate Professional	Maybe	I think this disclosure can be addressed in the Risk Factors section of any 10-K or registration statement.
Real Estate Owners, Developers &	Climate Change Risk Exposure	Materiality?	Corporate Professional	Maybe	Reference to consider: Resilient Cities - Grosvenor: https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&cad=rja&uact=8&ved=0CCkQFjABahUKEwj67vLG6IjGAhUPDJIKHeKQAIE&url=http%3A%2F%2Fwww.grosvenor.com%2Fgetattachment%2F194bb2f9-

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Investment Trusts					d778-4701-a0ed-5cb451044ab1%2FResilientCitiesResearchReport.pdf&ei=uhx6VfqpHo-YyATioYKICA&usg=AFQjCNHwPdUY7KZCg3D4As1MMLGGClVrfA&sig2=_4aDbBGajljMuGOsS39I9w&bvm=bv.95277229,d.aWw Resilient Strategies for Communities at Risk - http://uli.org/wp-content/uploads/ULI-Documents/Resilience-Strategies-for-Communities-at-Risk.pdf Building Resilience in Boston - http://www.massport.com/media/266311/2013-July_Building-Resilience-in-Boston.pdf Deloitte 2015 Property and Casualty Insurance Outlook -> Climate Change - http://www2.deloitte.com/us/en/pages/financial-services/articles/2015-property-and-casualty-insurance-outlook.html
Real Estate Owners, Developers & Investment Trusts	Climate Change Risk Exposure	Materiality?	Corporate Professional	Maybe	In general if utility prices are going to surge or if the great commercial sites such as Miami might not be present in the future, investors will consider that before investing. However, there is still much debate about climate change and many investors will care more about the money aspect than the climate aspect.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Real Estate Owners, Developers & Investment Trusts	Climate Change Risk Exposure	Materiality?	Corporate Professional	Yes	Catastrophic weather events will continue to be more frequent in the future. The companies in this industry have a great opportunity to start shaping future discussions about thid topic.
Real Estate Owners, Developers & Investment Trusts	Climate Change Risk Exposure	Materiality?	Corporate Professional	Yes	Climate change risk exposure is very material to our industry as we are faced with potential risk of extreme weather events, sea level rise, etc - particularly on our properties in coastal areas. Climate change risk can also relate to energy and water reliability which is extremely important to our industry. There may be a better measure of reporting information. More useful questions around exposure to climate risk might be, 'has your company performed sustainability risk assessments of its standing investments during the last three years?', 'if so, did those assessments include risk to extreme weather events, sea level rise, etc?' Or 'does your company have a policy on resiliency, adaptation or climate change? if so, please provide a copy or link.'
Real Estate Owners, Developers & Investment Trusts	Climate Change Risk Exposure	Materiality?	Corporate Professional	Yes	Risks of climate change go well beyond traditional sea level rise and flooding potential (e.g., FEMA flood hazard areas). Perhaps a better focus is on natural hazard risks including climate change impacts as a subset of that. Earthquakes, hurricanes, severe weather, changing climates come to mind. I would also include changing resource availability in this topic, e.g., water scarcity, energy availability, etc.
Real Estate Owners, Developers & Investment Trusts	Climate Change Risk Exposure	Materiality?	Corporate Professional	Yes	While I agree that companies' disclosing whether or not any of their properties are located in FEMA Special Flood Hazard Areas of the foreign equivalent is material information for investors, I would caution against labelling this risk as "Climate Change." My reason is two fold. First, the science used to evidence Climate Change is not yet proven, and therefore the existience of any such phenomena is contested, often hotly. Many people feel that weather will be weather, and nothing they can do will

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					change it. Which bring me to the second reason I would not use the Climate Change label: you don't want to "lose you audience." Anyone who does not agree that Climate Change is real will be "turned off" and therefore less reluctant to comply unless compelled to do so. Perhaps using a less politically charged label would better serve SASB's purpose. I offer the following alternative labels: 'Outsized Risk for Natural Disasters'; 'Disproportionate Risk for Natural Disasters'
Real Estate Owners, Developers & Investment Trusts	Climate Change Risk Exposure	Materiality?	Corporate Professional	Yes	Climate change exposure is certainly a material risk that real estate investors face at all levels. The question in the case of real estate portfolios is, what additional information could be disclosed beyond asset location that would be material to the interpretation of climate change risk? Different managers will hold different positions on the exposure different markets face from climate change, and as such they should have clear information regarding the exposure of each portfolio, fundamentally the location of the portfolios assets.
Real Estate Owners, Developers & Investment Trusts	Climate Change Risk Exposure	Materiality?	Corporate Professional	Yes	Climate change risk disclosure is standard throughout the developed world. Even if you only operate in one state that is not regulating this topic, given the ongoing and lively debate about carbon disclosure for a company, to ignore this issue and not quanitfy the risk to investors would be irresposible because investors would not be able to judge the danger of future regulation for the entity.
Real Estate Owners, Developers & Investment Trusts	Climate Change Risk Exposure	Materiality?	Corporate Professional	Yes	Climate change includes a set of a risks that need to be recognized and when appropriate, mitigated.
Real Estate Owners,	Climate Change Risk Exposure	Materiality?	Market Participant	Maybe	I don't feel that climate change risk may be as readily evident to the RE industry - yet.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Developers & Investment Trusts					
Real Estate Owners, Developers & Investment Trusts	Climate Change Risk Exposure	Materiality?	Market Participant	Maybe	The lack of definitive information concerning timeframes for potential events, and indeed the lack of universal acceptance of probabilities for potential events makes it difficult to assess, much less, evaluate the risk of climate change. Risk mitigation carries with it its own costs and an investor must weigh the price of insurance vs. the cost for self-insuring. Absent government regulations mandating specific actions, any externally imposed standards can be viewed as arbitrary and creating an economic burden with no guarantee of effectiveness. There isn't a resource available that is positioned to offer a definitive assessment, so an investor's level of risk tolerance is subjective and not easily ranked without extensive analysis of many other factors.
Real Estate Owners, Developers & Investment Trusts	Climate Change Risk Exposure	Materiality?	Public Interest	Maybe	Same answer as above. Also, see comments submitted by The Real Estate Roundtable to US-EPA, regarding the proposed EPA Clean Power Plan to limit GHG emissions from existing coal fired power plants: http://www.rer.org/2014/ENERGY___ENVIRONMENTAL_POLICY_-_December_5,_2014_Roundtable_Weekly.aspx?terms=power.
Real Estate Owners, Developers & Investment Trusts	Climate Change Risk Exposure	Materiality?	Public Interest	Maybe	This is important but is much more difficult for owners to manage - even around pure disclosure but certainly around ways to mitigate climate change risk. The concern here is that the SASB should be careful to not set standards of disclosure that inherently make investments in coastal markets, for example, dis-proportionally "risky". Fundamentally for this section would recommend that the criteria be: energy, water, waste, GHG, tax, regulatory risk/exposure. Further definition of climate change in this context will need to be made - is it merely a resiliency issue?

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Real Estate Owners, Developers & Investment Trusts	Climate Change Risk Exposure	Materiality?	Public Interest	Yes	Especially in coastal areas, erosion costs, flooding, and other severe climate-related costs could impact the industry significantly. Insurance costs could also increase significantly.
Real Estate Owners, Developers & Investment Trusts	Climate Change Risk Exposure	Materiality?	Public Interest	Yes	The report on Global Europe 2050 supports this as well. A closer look at this report shows that it will trigger future innovation and competitive advantage in the Real Estate industry in future.
Real Estate Owners, Developers & Investment Trusts	Climate Change Risk Exposure	Materiality?	Public Interest	Yes	Again, water availability should be specifically called out in this category. In water constrained markets, both the availability and cost of water supplies is increasingly impacting operating costs and the ability to develop or redevelop properties at all. In some markets, water permits or hookups may limit competing supply and have material impact on REODITs already in that market. Similarly, increasing requirements to retrofit buildings for water efficiency due to limited supply as a result of climate change (such as the arid Southwest US) have a direct impact on capex and other financial performance metrics of REODITs.
Real Estate Owners, Developers & Investment Trusts	Congratulations	Other Comment	Corporate Professional	DNA - Other Comment	I am excited to participate in this process and firmly believe that companies can improve their operations and future value for shareholders by adhereing to the standards SASB has outlined.
Real Estate	Congratulations	Other Comment	Corporate Professional	DNA - Other Comment	The SASB Real Estate Owners, Developers & Investment Trusts Industry Survey has been a well-thought out process and we are proud to participate.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Owners, Developers & Investment Trusts					
Real Estate Owners, Developers & Investment Trusts	Congratulations	Other Comment	Market Participant	DNA - Other Comment	It is my expectation that this process will be open and accepting of varied opinions, and not a pre-determined effort seeking to obtain validation for it.
Real Estate Owners, Developers & Investment Trusts	Congratulations	Other Comment	Public Interest	DNA - Other Comment	Very thorough research brief. Gave me a lot of the context I needed to complete the survey. Thanks for making this a smooth process!
Real Estate Owners, Developers & Investment Trusts	Congratulations	Other Comment	Public Interest	DNA - Other Comment	The IWG process is excellent especially starting with the research brief. Although SASB is meant for US market, the global market will eventually learn a lot from its standard setting process on sustainability reporting. I will suggest that research should expand to include evidence of interest and financial implication by including research conducted in EU since these are advanced countries whose activities and legislation are similar to US in terms of climate change, carbon emission and social and environmental impact of corporate operations generally. I am particularly impressed with determining evidence of interest using the five data-driven tests:

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					Financial disclosure Legal drivers Industry norms Stakeholder concerns Innovation opportunity and evidence of financial impact using issue impact on three business value drivers such as : Revenue and costs Assets and liabilities Risk profile (cost of capital)
Real Estate Owners, Developers & Investment Trusts	Energy Efficiency of Buildings	Innacuracy	Corporate Professional	DNA - Innacuracy [ENERGY EFFICIENCY OF BUILDINGS]	The brief oversimplifies and misrepresents the impact of energy efficiency on investors in the REODIT sectors. See my comments earlier for more detail, but in short, building energy efficiency is not as substantial or positively correlated with capital efficiency as the brief indicates in theory or practice.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Real Estate Owners, Developers & Investment Trusts	Energy Efficiency of Buildings	Materiality?	Corporate Professional	Maybe	The reservations are based on my experience with third party rating systems and the applicability to all asset types. EPA's removal of medical office buildings as an asset that can be certified is an example of concern. If certification models are important, they need to be stable and companies must be able to rely upon them in the long term.
Real Estate Owners, Developers & Investment Trusts	Energy Efficiency of Buildings	Materiality?	Corporate Professional	Maybe	Any measure of Energy Efficiency will need to be thoroughly vetted. In addition, service providers who might provide this information or assist registrants with the aggregation of this data will need SSAE 16 attestations with respect to their internal controls and required user considerations.
Real Estate Owners, Developers & Investment Trusts	Energy Efficiency of Buildings	Materiality?	Corporate Professional	Maybe	SASB's research and questioning are selective. The bibliography of the Research Briefs is filled with cites from specific perspectives, and fails to meaningfully reflect more recent trends and developments in sustainability platforms of importance to the U.S. real estate industry. For example, while the Research Briefs make only passing reference to the "Tenant Star" bill that passed Congress this spring, they are devoid of substantive analysis on the programs that real estate ownership and services companies increasingly implement to engage with their tenants. The importance of tenant engagement is driving sustainability programs in the real estate sector (and policy in Congress and the Administration), so we are disappointed this issue did not receive significant attention in SASB's research to date. Green leasing metric is too vague and should be referenced against an industry standard, such as the IMT "Green Lease Leader" designation. References: GRESB 2014 Report - https://gresb-public.s3.amazonaws.com/content/2014-GRESB-Report.pdf

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					- Institute for Market Transformation, Green Lease Leaders - http://www.greenleaselibrary.com/green-lease-leaders.html
Real Estate Owners, Developers & Investment Trusts	Energy Efficiency of Buildings	Materiality?	Corporate Professional	Maybe	While energy efficiency of buildings certainly represents a material disclosure topic, the ability to measure and manage energy efficiency initiatives varies significantly based on what constitutes organizational control, specifically the extent to which the owner or tenant is paying and controlling energy usage and the differences associated with various property types, such as single-family homes, etc. For example, in the case of single family homes across multiple markets, the ability to actively realize energy efficiency scale economies differs from multi-tenant commercial and residential properties.
Real Estate Owners, Developers & Investment Trusts	Energy Efficiency of Buildings	Materiality?	Corporate Professional	No	An investor's exposure to the energy efficiency of a portfolio's properties is a function of net energy expense, not gross. As such energy efficiency of a portfolio is not a reliable or material indicator of capital efficiency because often much of a portfolio's energy efficiency or inefficiency's exposure is mitigated by the structure of its leases (e.g. triple net lease.) As such the particular efficiency of a portfolio is not correlated with the properties economic performance. Although in some cases the benefits of a more efficient property will accrue to the owner, those efficiencies are not necessarily accretive to the property, meaning a more efficient building is not necessarily an indication of capital efficiency. Similarly, a savvy operator may have a preference to acquire inefficient buildings where the option to improve efficiency is accretive to the property. In such scenarios, inefficient buildings can be a positive indicator of capital efficiency. In either case efficiency is not a generally reliable proxy for the performance of deployed capital. Similarly, because energy efficiency does not necessarily accrue to NOI based on lease structure, efficiency is not a reliable indicator of a portfolio's exposure to energy price volatility. In short, energy efficiency is not investable data because it would need to be combined with too many additional factors beyond the underlying

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					efficiency of the buildings to interpret its impact on the performance of an investment.
Real Estate Owners, Developers & Investment Trusts	Energy Efficiency of Buildings	Materiality?	Corporate Professional	No	Investors focus on the value of a building and although energy efficiency can create value - it is typically viewed as a standard expense to run a building.
Real Estate Owners, Developers & Investment Trusts	Energy Efficiency of Buildings	Materiality?	Corporate Professional	Yes	Energy efficiency of buildings are very importanthowever what about other enviornmental topics specifically GHG emissions, Water or Waste managament.
Real Estate Owners, Developers & Investment Trusts	Energy Efficiency of Buildings	Materiality?	Corporate Professional	Yes	Building efficiency directly affects NOI and profitability of the portfolio.
Real Estate Owners, Developers & Investment Trusts	Energy Efficiency of Buildings	Materiality?	Corporate Professional	Yes	Companies in this industry have the greatest opportunity to improve the energy efficiency of buildings.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Real Estate Owners, Developers & Investment Trusts	Energy Efficiency of Buildings	Materiality?	Corporate Professional	Yes	The topic of energy efficiency in buildings is one of the most important sustainability areas of focus for our industry. Lighting is often the largest electrical load in our facilities, responsible for up to two-thirds of the electricity consumption in a typical distribution center. High-efficiency lighting is a proven way to conserve energy and reduce the environmental impact of our buildings. The more our industry can do to design buildings that minimize energy consumption, or retrofit existing buildings with energy efficient lighting and equipment, the greater benefits to our customers. Our industry is constantly discussing the business case for energy efficiency in that it lowers the operating costs of our facilities, which in turn is a benefit to our customers and leads to higher customer satisfaction and lease renewals. In addition, by reducing the demand for energy, we are contributing to a societal benefit of reduced demand on our utilities.
Real Estate Owners, Developers & Investment Trusts	Energy Efficiency of Buildings	Materiality?	Corporate Professional	Yes	A building's energy consumption is something that landlords have direct control over, and thus sustained evidence of conscientious energy management is indicative of overall management quality, an important consideration for investors.
Real Estate Owners, Developers & Investment Trusts	Energy Efficiency of Buildings	Materiality?	Corporate Professional	Yes	In a given year only 1-2% of the building stock is newly constructed. The rest is operating, and addressing energy performance is one of the biggest opportunities to reduce the environmental footprint of the world's existing stock of real estate.
Real Estate Owners, Developers &	Energy Efficiency of Buildings	Materiality?	Corporate Professional	Yes	Energy efficiency can be an indicator of responsible property management and investment in technology/equipment that reduces operating costs.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Investment Trusts					
Real Estate Owners, Developers & Investment Trusts	Energy Efficiency of Buildings	Materiality?	Corporate Professional	Yes	Energy efficiency directly affects operational costs and the value of the buildings. It is also in some respects a proxy for how a particular REIT is responding to and approaching climate change and environmental sustainability. Well run REIT's will drive efficiency for two reasons: it's good for the environment and it's good for the building value and operating costs.
Real Estate Owners, Developers & Investment Trusts	Energy Efficiency of Buildings	Materiality?	Corporate Professional	Yes	Commercial buildings are the largest constituent user of energy and electricity in the US. This becomes an issue of managing natural resources as well as climate change and national security. Investing in Energy efficiency in buildings delivers measurable ROI and is a wise economic decision as well as a responsible environmental decision. This is supported by numerous studies, including my work at the Empire State Building. See esbsustainability.com.
Real Estate Owners, Developers & Investment Trusts	Energy Efficiency of Buildings	Materiality?	Corporate Professional	Yes	The energy efficiency of buildings is material because it effects the revenue, profit and loss of the building or buildings in question.
Real Estate Owners, Developers & Investment Trusts	Energy Efficiency of Buildings	Materiality?	Corporate Professional	Yes	Energy consumption can directly impact the value of buildings.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Real Estate Owners, Developers & Investment Trusts	Energy Efficiency of Buildings	Other Comment	Market Participant	DNA - Other Comment [ENERGY EFFICIENCY OF BUILDINGS]	Energy and sustainability are key focus areas for all major REITs and have major impact on overall operating costs. Also, regulations and mandates are now requiring REITS to focus on energy and sustainability. Tenants occupying these spaces are also looking at reducing their operating costs making energy efficiency and sustainability key drivers in their decision making process.
Real Estate Owners, Developers & Investment Trusts	Energy Efficiency of Buildings	Materiality?	Market Participant	Maybe	This has to be done, but its not as easy as you imply, particularly in multi tenant buildings, Tennant Star will help.
Real Estate Owners, Developers & Investment Trusts	Energy Efficiency of Buildings	Materiality?	Market Participant	Yes	The Document "Sustainabilty Metrics for property investments" gives a good overview. http://www.unepfi.org/fileadmin/documents/UNEPFI_SustainabilityMetrics_Web.pdf
Real Estate Owners, Developers & Investment Trusts	Energy Efficiency of Buildings	Materiality?	Market Participant	Yes	Energy efficiency is a part of the operational and design context of each individual building, regardless of ownership type, management approach (ie direct or thru contracted services) and occupant. There is a relativeness associated with energy efficiency that must be considered whenever making comparisons of effectiveness. A vacant building should use the least energy, but its efficiency is the worst as no value is being generated. Similarly, a building used 24/7 may consume large quantities of energy but otherwise be considered much more efficient based on the extreme use of the building.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Real Estate Owners, Developers & Investment Trusts	Energy Efficiency of Buildings	Materiality?	Market Participant	Yes	Utilize Energy Star Portfolio Manager as collection tool for consistency with current practices and most legislative requirements.
Real Estate Owners, Developers & Investment Trusts	Energy Efficiency of Buildings	Materiality?	Market Participant	Yes	More energy efficient buildings are likely to realize higher tenant demand, which should result in higher occupancies and potentially higher rental rates and higher profits. In addition, this information will be helpful in comparing the company's buildings to their market peers as an increasing number of cities benchmark commercial energy use. Finally, the reporting of metrics related to energy efficiency performance, such as % of total portfolio square footage that is Energy Star rated or LEED certified will help gauge the company's commitment.
Real Estate Owners, Developers & Investment Trusts	Energy Efficiency of Buildings	Materiality?	Market Participant	Yes	Enterprise Energy Management
Real Estate Owners, Developers & Investment Trusts	Energy Efficiency of Buildings	Materiality?	Public Interest	Maybe	The Letter sent by The Real Estate Roundtable will go into more detail. In a nutshell, investors are interested in whether companies have made the "business case" for building energy efficiency projects. What is the cost of such projects? What performance metrics are being used? What is the return on investment? No questions in either Survey ask about costs, cost-effectiveness, or cost payback relevant to the disclosure topics assessed by SASB. Nowhere does SASB inquire about the processes and calculations that corporate sustainability officers routinely undertake to prioritize projects among competing demands on limited budgets. Moreover, investors will want to understand what is in the province of building owners to control in

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					this arena -- and what building owners cannot control. To this end, SASB should conduct more research and survey the industry on real estate companies' tenant engagement programs, to coordinate both tenants and owners on ESG programs.
Real Estate Owners, Developers & Investment Trusts	Energy Efficiency of Buildings	Materiality?	Public Interest	Yes	Energy costs represent a high fraction of tenant's costs, and buildings with energy efficiency measures will likely attract and retain more tenets.
Real Estate Owners, Developers & Investment Trusts	Energy Efficiency of Buildings	Materiality?	Public Interest	Yes	http://ec.europa.eu/clima/policies/roadmap/index_en.htm http://ec.europa.eu/research/social-sciences/pdf/policy_reviews/global-europe-2050-report_en.pdf
Real Estate Owners, Developers & Investment Trusts	Energy Efficiency of Buildings	Materiality?	Public Interest	Yes	Both energy and water efficiency are critical disclosure topics. Water efficiency should be added to the list of topics. In some geographies, water costs are rising faster than energy costs and water availability is increasingly constrained. Commercial and residential buildings are large water consumers for domestic supply, heating and air conditioning and landscaping. Therefore, water efficiency should be reported equally with energy efficiency.
Real Estate Owners, Developers & Investment Trusts	Energy Efficiency of Buildings	Materiality?	Public Interest	Yes	EE is material as it affects operating costs of property(ies), thus affecting occupancy costs and competitiveness (occupiers consider the total cost of occupancy which in most cases includes operating costs). Further the Appraisal Institute and the Appraisal Foundation are working to set standards for our to incorporate green building attributes into valuation - given the financial and environmental impact of energy in particular, it is thus

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					material. SASB should also consider the impact of tenants (or non-owner controlled) use of energy.
Real Estate Owners, Developers & Investment Trusts	Ind. Brief comment	Innacuracy	Corporate Professional	DNA - Innacuracy	there were several small typos and formatting issues, which can be corrected with spell and grammar check. Tenant Star is referred to as Tenant Start (this will not come up with spell or grammar check, so listing it here). Other data seems to be accurate based on my knowledge of said subject matter.
Real Estate Owners, Developers & Investment Trusts	Ind. Brief comment	Innacuracy	Corporate Professional	DNA - Innacuracy	It's unclear why only certain REODIT companies are named as the largest - seems like they've been selected arbitrarily. What does naming a handful of random large REODIT companies accomplish? Energy use on page 8 should include tenant equipment (CPUs, servers, printers, etc.)
Real Estate Owners, Developers & Investment Trusts	Ind. Brief comment	Innacuracy	Market Participant	DNA - Innacuracy	There were many generalizations made throughout the brief, and conclusions made which were presented as potentially possible, but the implicit flow of the discussion was that the conclusion was definitive. I came away from reading the brief feeling that the writers were positioning their arguments/conclusion to be accepted at face value. I would have presented a more generic discussion on the overall aspects that a sustainable real estate investor should be considering.
Real Estate Owners, Developers & Investment Trusts	Industry insights	Comment on Brief	Corporate Professional	DNA - Comment on Brief	The brief was helpful, but again, each asset type has its own set of challenges. As SWAY is a SFR REIT, the brief's focus on commercial/multi-family is at times not relevant to our specific business conditions.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Real Estate Owners, Developers & Investment Trusts	Industry insights	Comment on Brief	Corporate Professional	DNA - Comment on Brief	The research brief comes across as incomplete, and the underlying research and questioning appear biased and selective. The focus on TOD, number of certified buildings, and the oversimplification of many of the questions demonstrates that SASB does not yet fully understand our industry. In our industry we have many productive and useful platforms to discuss sustainability - RER, NAREIT, NAIOP, Better Buildings Challenge and others. We have been discussing the benefits of sustainability reporting for years, as well as the challenges around various aspects of sustainability reporting. I recommend SASB engage in discussions with some of these groups and review more recent publications to update the research brief.
Real Estate Owners, Developers & Investment Trusts	Industry insights	Innacuracy	Corporate Professional	DNA - Innacuracy	The "Industry Summary" contained so many errors -- really big ones -- that I have a call set up with your research team on June 11th to go over suggested remedies and perhaps some new/better source materials (if they would like them). Although not everyone will read this introductiory section, there is no harm in having an accurate description of the industry. In the rest of the document, I found a few typos that I will also convey to the research team on the June 11th call. All in all, and excluding the Industry Summary, I found it to be a helpful document.
Real Estate Owners, Developers & Investment Trusts	Industry insights	Innacuracy	Corporate Professional	DNA - Innacuracy	General comments abt brief: • General note , it is important that SASB's Research Briefs and Surveys include considerations the "business case" that real estate companies must make to their boards and investors to justify ESG commitments. • Brief or survey do not discuss barriers beyond the control of real estate owners, developers, and service providers that frequently inhibit greater uptake in sustainability projects

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					o Tenants consume majority of energy in retail real estate so behaviors of tenants, policies of utilities and public service commissions, and overall market forces vastly shape the environmental footprint of commercial and residential assets – but and are frequently outside of the control of real estate companies o Just some example of barriers include: state law privacy and related concerns, owners and managers of multi-tenant buildings often face obstacles in gathering energy usage data to enable “whole-building” benchmarking, also Varying policies of utilities and public service commissions may – or may not – assist in capturing such data. • Extreme focus around LEED seems somewhat unbalanced view
Real Estate Owners, Developers & Investment Trusts	Industry insights	Innacuracy	Corporate Professional	DNA - Innacuracy	The priority disclosure topics identified for the industry seem to be fairly narrow and limited. All utilities, waste management, and engineering & construction services are all priority sustainability topics within the industry.
Real Estate Owners, Developers & Investment Trusts	Industry insights	Innacuracy	Corporate Professional	DNA - Innacuracy	I appreciate the effort SASB took to develop the research brief, however more in-depth analysis should be conducted and more analysis conducted throughout. For example, the section on legislation and in particular Tenant Star does not give proper attention to the work that went in to passing Tenant Star legislation and the overall purpose to engage tenants which is necessary in

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					a triple net lease situation. The research brief focuses on 'points' earned in sustainable building certification or simply number of buildings certified. There are much more complex conversations taking place around the business case considerations of sustainability investments, including how much of that rate of return is economic and quantifiable, and how much is less tangible impact reduction. In addition, given the focus of the investor community on ESG risks and opportunities, the metrics selected are overly simple and incomplete. In the 'E' category, the focus on energy efficiency is fine, however there is no mention of other important aspects of building design that impact the environment (water, waste, materials). In addition. there is a lack of attention to the 'S' and 'G' of ESG. The section on socioeconomic issues is geared towards TOD or access to public transportation, rather than looking at broader risks and benefits to society from a social perspective such as upgrading transportation and utility infrastructure, job creation, installation of renewable energy as a broader community benefit (minimizing GHG emissions, helping support state RPS, or utility programs). Finally there is really no mention of the 'G' aspect of ESG, whereby ethics and governance is commonly addressed in other surveys our industry responds to (GRESB, CDB, DJSI).
Real Estate Owners, Developers & Investment Trusts	Industry insights	Other Comment	Corporate Professional	DNA - Other Comment	Have difficulties with the seperation of REODIT and Real Estate Services - renatl income is primary activity however however revenues are often in major reits aslo generated from managing own properties and providing services to tennants . Lack of integration of already identified material topics within the industry e.g. through existing rating/ranking agencies and reporting guidelines such as GRESB, CDP, RobeccoSam, GRI. They already cover much of the same ground as SASB's Research Briefs and Surveys (and beyond).

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Real Estate Owners, Developers & Investment Trusts	Industry insights	Other Comment	Corporate Professional	DNA - Other Comment	One final comment is that it was difficult to rank the disclosure topics based on their likely materiality. All of the disclosure topics mentioned are material to our industry and they are interconnected and overlapping. It is not realistic to rank them as most material to least material. There are also some important disclosure topics missing from the list, as detailed earlier in the survey. Overall, by taking part in this survey, we want to express our interest in the SASB process and that we want to help to develop the most appropriate sustainably reporting principles and disclosure topics. We appreciate the opportunity to express concern on a number of items as discussed throughout my survey response. Our industry has been having discussions on sustainability together for many years outside of the SASB process, and we understand the importance of disclosing ESG risks, benefits and opportunities. Prologis for example has been reporting transparent, verified data and information to a number of reporting entities for many years. Our involvement in this process demonstrates that we understand the importance of credible ESG reporting and that it is important to work closely with SASB to ensure the appropriate path forward.
Real Estate Owners, Developers & Investment Trusts	Industry insights	Other Comment	Corporate Professional	DNA - Other Comment	While I am generally supportive of the SASB's mission, I am concerned that adding disclosure requirements to an already burdensome disclosure regime will drive up overhead and audit fees. In addition, I would expect that SASB's eagerness to change behavior by encouraging such disclosure requirements will be tempered by an understanding that only well vetted, specifically defined and auditable metrics should be required. I would also expect SASB to encourage the US Green Building Council, Energy Star and other third party certification firms to have their systems of internal control reviewed and provide comprehensive attestation reports from registered independent accounting firms to lessen the burden of verifying their certifications.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					I appreciate the opportunity to provide my input.
Real Estate Owners, Developers & Investment Trusts	Industry insights	Other Comment	Corporate Professional	DNA - Other Comment	We fail to understand why SASB has decided to separate REODIT from Real Estate Services. As the largest pure office REIT in the United States, we own and actively manage property and believe that there should by a singular accounting framework that serves our organization.
Real Estate Owners, Developers & Investment Trusts	Industry insights	Innacuracy	Market Participant	DNA - Innacuracy	I feel you have over simplified our industry. You use a lot of industry buzzwords that are really only applicable to a fraction of our industry. Not everyone can get LEED certification, not everyone can build a TOD, not everybody wants a micro apartment. Though these are wonderful sustainable initiatives, they cannot and/or should not be universally applied. Sustainable efforts in real estate cost money, and they must provide a return in order to be implemented. A patchwork of state and local incentives for these efforts makes comparability impossible. Please incorporate some of the existing tools to measure real estate that are currently out there!
Real Estate Owners, Developers &	Industry insights	Innacuracy	Public Interest	DNA - Innacuracy [HUMAN HEALTH]	The Real Estate Owners, Developers & Investment Trusts (REODIT) Brief represents a useful summary of the global impact and importance of the property industry. However, it has significant limitations.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Investment Trusts					- The brief does not capture the breadth of material issues for investors. - The brief does not provide an adequate justification for the subset of issues that it emphasizes. - The brief does address the essential issue of alignment with prevailing standards for portfolio- and asset-level assessment. Overall, the brief creates the risk of overemphasizing selected issues, while excluding important issues from consideration. Since 2009, GRESB has evolved to reflect the interests of institutional investors with respect to the material attributes and performance of environmental, social, and governance attributes and performance of real estate portfolios. The indicators used in GRESB balance qualitative indicators of leadership, policy, and management practice with quantitative measures of performance with respect to energy, water, waste, and other factors. The balance between qualitative and quantitative attributes and performance is essential to provide investors with actionable transparency. It may be tempting to emphasize operational performance alone. However, this is shortsighted, as performance is the product of clear policies and effective management. Consequently, investors require information about goals, processes, and performance. This perspective is entirely inline with ISO 14001 guidance and essential for SASB's success in ensuring that investors have access to material information to guide decision making. The absence of issues from the draft brief also raises significant concerns.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					For example, the issue of health and wellness is rapidly emerging as a significant business opportunity and risk for real estate portfolios. Over time, the marginal value of investment in energy and emissions-related activity will gradually decline as these strategies become embraced as standard parts of business. This is entirely positive for the environment; however, it will erode the ability for these attributes of property to provide "green premiums". The absence of these attributes will constitute a risk, but not an opportunity for above market pricing and returns. Consequently, market participants are looking for new ways to differentiate their properties and companies. Health and wellness represent a compelling opportunity. In the US, health care-related expenses represent a significantly larger expense than energy, and these expenses are growing more rapidly than energy. This means that properties that can provide a superior platform for the promotion of health have the opportunity to command premiums. Conversely, properties without health-promoting attributes are likely to be discounted and face business risks. These are material issues for investors that are not considered in the REODIT Brief. Their absence from SASB leaves equity investors with an inadequate picture of material issues facing real estate owners, developers, and investors. See Trowbridge et al. (2014) Building Healthy Communities: Establishing Health and Wellness Metrics for Use Within the Real Estate Industry. Health Affairs 33(11):1923-1929

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					Similar gaps exist for emerging issues such as water resource management, resilience, and supply chain management. SASB does not provide an explicit rationale for the exclusion of these material issues.
Real Estate Owners, Developers & Investment Trusts	Industry insights	Other Comment	Public Interest	DNA - Other Comment	Were there any considerations for grouping them as “Real Estate Owners & Investment Trusts” and “Real Estate Developers and Property Managers”? The reason I say this is that the delineation of sustainability issues when grouped this way creates that boundary of investment decision-making (for Owners/Investors) and on-the-ground environmental and community issues (for Developers/Managers) that are usually more arm’s length to Owner/Investors.
Real Estate Owners, Developers & Investment Trusts	Managing Environmental & Socioeconomic Impacts of Properties	Materiality?	Corporate Professional	Maybe	• SASB’s treatment of how real estate firms manage “environmental and socioeconomic impacts of properties” is overly simple and less relevant for retail real estate firms, some thoughts that came to my mind that were not discussed: o Challenges posed by redeveloping and financing infill properties that may have prior contamination and require remediation pursuant to complex brownfields laws and state voluntary clean-up programs; o The costs and availability of urban land sites, especially in areas with designated urban growth boundaries, and difficulties in assembling parcels for infill development in light of eminent domain requirements
Real Estate Owners, Developers & Investment Trusts	Managing Environmental & Socioeconomic Impacts of Properties	Materiality?	Corporate Professional	Maybe	TOD Zones are not developed nationwide. Additionally, some properties (e.g. warehouses with a limited empoyee population) may not be the best use of a property located in a TOD Zone. Lastly, access to public transportation does not necessarily mean access to "good" public transportation.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Real Estate Owners, Developers & Investment Trusts	Managing Environmental & Socioeconomic Impacts of Properties	Materiality?	Corporate Professional	Maybe	Most of the subtopics within this disclosure seem fine, but 'Discussion of incorporation of transportation and access to services into real estate investment decisions' seems like a subtopic that will be too vague to generate material information about real estate companies.
Real Estate Owners, Developers & Investment Trusts	Managing Environmental & Socioeconomic Impacts of Properties	Materiality?	Corporate Professional	Maybe	1. The description for this disclosure was very focused on urban sites, housing, and traditional "core urban property types that wold be part of a TOD scheme. Many property types are not typically included in TOD schemes. 2. Some property types may in fact be more sustainable when located outside dense urban areas (e.g., industrial properties which are more sustainable when located to optimize efficient movement of goods through the supply chain. This can apply to other property types as well such as data centers, self storage, etc. 3. Access to public transportation may be outside the control of the property owner (and may be of limited value for certain property types as mentioned above).
Real Estate Owners, Developers & Investment Trusts	Managing Environmental & Socioeconomic Impacts of Properties	Materiality?	Corporate Professional	Maybe	The question is too vague.
Real Estate Owners, Developers & Investment Trusts	Managing Environmental & Socioeconomic Impacts of Properties	Materiality?	Corporate Professional	Maybe	TOD zones and access to public transportation is not relevant for industrial REITs, whose buildings are generally in industrial zones outside of central business districts and on the edges of cities, near highways and airports.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Real Estate Owners, Developers & Investment Trusts	Managing Environmental & Socioeconomic Impacts of Properties	Materiality?	Corporate Professional	Maybe	Managing the Environmental impacts of a property could provide helpful information to investors, particularly if those impacts are related to water usage and landfill space used, as the costs of these impacts are likely to rise. Socioeconomic impacts are difficult to measure and are not likely material to any user of the financial statements.
Real Estate Owners, Developers & Investment Trusts	Managing Environmental & Socioeconomic Impacts of Properties	Materiality?	Corporate Professional	Maybe	Too much emphasis on transportation. Indicators aren't measurable. Indicators do not provide an accurate representation of the sustainability performance of a given asset. With respect, SASB's treatment of how real estate firms manage "environmental and socioeconomic impacts of properties" is overly simple. It ignores key considerations as follows: ü The challenges posed by redeveloping and financing infill properties that may have prior contamination and require remediation pursuant to complex brownfields laws and state voluntary clean-up programs; ü The costs and availability of urban land sites, especially in areas with designated urban growth boundaries, and difficulties in assembling parcels for infill development in light of eminent domain requirements and constitutional interpretations under Supreme Court case law; ü Whether state and local laws have systems in place to encourage higher density developments appropriate in urban environments (such as transferrable development rights programs), and the costs to participate in such programs; ü Trends of middle class families that seek suburban lifestyles in light of higher housing and education costs in cities; ü Trends of single professionals, families without children, and "empty

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					nesters" that have higher incomes to support city living; ü The dire status of infrastructure financing in the United States, where the federal fund to support surface transportation programs – including mass transit – is perpetually on the brink of insolvency due to political infighting in Congress Other Environmental and Socio-Economic issues to consider: - Water efficiency - Waste management - Tenant engagement/occupant satisfaction - Employee engagement/satisfaction - GHG emissions intensity and management strategies References: GRESB 2014 Report - https://gresb-public.s3.amazonaws.com/content/2014-GRESB-Report.pdf GRI G4 Commercial Real Estate Sector Supplement - https://www.globalreporting.org/resourcelibrary/GRI-G4-Construction-and-Real-Estate-Sector-Disclosures.pdf
Real Estate Owners, Developers &	Managing Environmental & Socioeconomic Impacts of Properties	Materiality?	Corporate Professional	Maybe	These issues are generally handled by federal or local laws and regulations. Therefore to the extent that the government mandates that you care about the community or the environment you should care. But if it is a question of examining these issues beyond currently in place regulations then you are getting into a slipperty slope of what one should care about as opposed to

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Investment Trusts					has to care about. These are important issues but they are not material in the US context today.
Real Estate Owners, Developers & Investment Trusts	Managing Environmental & Socioeconomic Impacts of Properties	Materiality?	Corporate Professional	No	Although the concept of maximizing alternative transportation modes is credible in some cases - metro areas, asset types like residential, office, not all sectors of the real estate market are focused on the urbanization trends. Medical is not consolidating around metro areas, but are moving assets beyond the normal means of public transportation. This subject is relevant to only certain asset types.
Real Estate Owners, Developers & Investment Trusts	Managing Environmental & Socioeconomic Impacts of Properties	Materiality?	Corporate Professional	No	There are social, cultural, regulatory and municipal incentives in place for an owner to manage their environmental and socioeconomic impacts on an ongoing basis. Direct investors in real estate take a particular interest in the environmental and socioeconomic risks that a property represents. Much of this interest is evidenced by the nature of direct real estate due diligence. Those familiar with the process understand that each particular acquisition has its own unique risks and opportunities. However the ability to aggregate the various and sundry risks to a reliable indicator related to these issues makes practical disclosure impossible. Even given reliable indicators it seems that the probability of these elements having a material impact on the long term value of underlying real estate is low as evidenced by the nearly complete absence of interest in the topic by real estate securities analyst and portfolio managers.
Real Estate Owners, Developers & Investment Trusts	Managing Environmental & Socioeconomic Impacts of Properties	Materiality?	Corporate Professional	Yes	Services that we provide and the affects of our decision on the community as a whole is part of our risk management process
Real Estate Owners,	Managing Environmental &	Materiality?	Corporate Professional	Yes	Managing environmental and socioeconomic impacts of properties is critical from and ESG perspective, however it is much more complex than is portrayed in the research brief. It is not relevant to simply count the number

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Developers & Investment Trusts	Socioeconomic Impacts of Properties				of TOD projects or access to public transportation. it would be better to look at a broader set of risks and benefits to society from a socioeconomic perspective such as upgrading transportation and utility infrastructure, job creation, installation of renewable energy as a broader community benefit (minimizing GHG emissions, helping support state RPS, or utility programs).
Real Estate Owners, Developers & Investment Trusts	Managing Environmental & Socioeconomic Impacts of Properties	Materiality?	Corporate Professional	Yes	If energy efficiency is material then in my mind managing environmental impacts must be there, too. I'm less sure about socioeconomic impacts and think it would need to be very specific.
Real Estate Owners, Developers & Investment Trusts	Managing Environmental & Socioeconomic Impacts of Properties	Materiality?	Corporate Professional	Yes	I think you could bolster the argument by highlighting the difficulty owners may have in exiting/monetizing non-compliant properties. Ultimately, there has to be a "last owner," and listed companies need to make sure they do not get stuck with buidings they cannot sell, literally, at any price.
Real Estate Owners, Developers & Investment Trusts	Managing Environmental & Socioeconomic Impacts of Properties	Materiality?	Corporate Professional	Yes	Investors may be worried how reputation risk could affect the value. Bad press can negatively affect value, so investors want to make sure the investment is in good standing.
Real Estate Owners, Developers &	Managing Environmental & Socioeconomic Impacts of Properties	Materiality?	Corporate Professional	Yes	Environmental and socioeconomic issues can directly, or indirectly, impact the value of buildings and how the community (including tenants) perceives the building.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Investment Trusts					
Real Estate Owners, Developers & Investment Trusts	Managing Environmental & Socioeconomic Impacts of Properties	Materiality?	Market Participant	Maybe	Compliance with laws, regulations and building codes, establish baseline obligations especially of socioeconomic impacts. Establishing standards more stringent could be deemed to be efforts in social engineering, imposing the expectations of one group over the rights of other groups. The thorny topic of affordable housing represents one such arena: the costs to develop property are so high due to regulatory burdens alongside market risk, developers naturally seek to build in the upper-income range to mitigate those costs/risks. Imposing affordable housing mandates represents a hidden tax, equivalent to a public taking, from the developer. In a free-market environment, economic choices dictate the attainable residential choices. Absent discriminatory practices, which are rightly prohibited by law, a developer should be free to determine the pricing level of the property to be developed.
Real Estate Owners, Developers & Investment Trusts	Managing Environmental & Socioeconomic Impacts of Properties	Materiality?	Market Participant	Maybe	Socioeconomic impacts are difficult to measure.
Real Estate Owners, Developers & Investment Trusts	Managing Environmental & Socioeconomic Impacts of Properties	Materiality?	Market Participant	Yes	Urbanization, Green and connected cities, Resilience, Rural Growth
Real Estate Owners,	Managing Environmental &	Materiality?	Public Interest	Maybe	Same answer as above.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Developers & Investment Trusts	Socioeconomic Impacts of Properties				
Real Estate Owners, Developers & Investment Trusts	Managing Environmental & Socioeconomic Impacts of Properties	Materiality?	Public Interest	Maybe	The standards for measuring environmental and socioeconomic impact of buildings are variable and often prescribed by local regulators as much as federal regulators. REODITs with higher or lower concentrations of assets in certain geographies where these impacts are disclosed or measured face more scrutiny than competitors in other markets. Therefore, the availability or requirement of strong local impact information may skew data for or against certain REODITs compared to the broad market.
Real Estate Owners, Developers & Investment Trusts	Managing Environmental & Socioeconomic Impacts of Properties	Materiality?	Public Interest	Maybe	Topic should address more than just access to public transportation. Environmental and Socioeconomic impacts can be so broad and not sure public transportation is the biggest value added consideration for REIT.
Real Estate Owners, Developers & Investment Trusts	Managing Environmental & Socioeconomic Impacts of Properties	Materiality?	Public Interest	Yes	Ensuring that the industry is paying attention to socioeconomic trends, like more single person dwellings in rural areas and more freelancers needing shared office space...also, transit-oriented development.
Real Estate Owners, Developers & Investment Trusts	Managing Environmental & Socioeconomic Impacts of Properties	Materiality?	Public Interest	Yes	Environmental aspects should be defined at the highest level - in addition to energy, would include water, waste and GHG emissions.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Real Estate Owners, Developers & Investment Trusts	Metric comment	Innacuracy	Corporate Professional	DNA - Innacuracy	I don't know if it is "inaccurate" but the focus on number of properties instead of leaseable area of properties is confusing and generally unhelpful.
Real Estate Owners, Developers & Investment Trusts	Metric comment	Other Comment	Corporate Professional	DNA - Other Comment	This should tie into industry leading practices and measures of sustainability performance. Energy Star scores, LEED certification levels, targets for energy and water use reduction or achievements of energy and water usage reduction may be items for inclusion. Programs for mandatory submetering and payment for energy based on usage. Requiring design and construction of super efficient structures following disaster recovery (such as flooding or hurricane - i.e. Sandy and Katrina) could be a metric. Building for resiliency could also be considered. See the New York City Plan: http://www.nyc.gov/html/sirr/html/report/report.shtml
Real Estate Owners, Developers & Investment Trusts	Metric comment	Other Comment	Market Participant	DNA - Other Comment	I recommend matching data collection to the current GRESB questions and KPIs whenever possible, as GRESB is currently the global standard for sustainability reporting and benchmarking.
Real Estate Owners, Developers &	Metric comment	Other Comment	Market Participant	DNA - Other Comment	Don't focus too much on LEED, remember the built environment is where most impact can be made. Use existing standards don't reinvent the wheel.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Investment Trusts					If you do try to reinvent the wheel, at least make sure what you want to measure is really cost effective to measure.
Real Estate Owners, Developers & Investment Trusts	Metric comment	Other Comment	Public Interest	DNA - Other Comment	The proposed indicators are material and useful. However, they are inadequate even for the most basic assessment of real estate sustainability. Critically, they are not aligned with prevailing metrics for portfolio- or asset-level assessment, notably including GRESB for portfolios and systems such as LEED, BREEAM, Green Star, and others for assets. These systems are widely used by public companies, and SASB has not established a rationale for the lack of alignment with these systems. SASB should pursue alignment at multiple levels, including fundamental principles, categories of indicators, and specific metrics. This recognizes and leverages market experience, while reducing reporting burden. In other words, firms are already using GRESB and combinations of asset-level rating systems. In considering these comments, SASB should recognize that real estate companies are more than an aggregation of assets. Investors need information about critical attributes of policy, governance, and management processes, along with data on asset attributes and performance. These elements can be aligned with a variety of standards, such as ISO 14001(2004): • Policy, e.g., a publicly available expression of priorities and values • Planning, e.g., objectives, targets, programs

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					• Implementation, e.g., resources, roles, responsibility, and authority • Checking/corrective-action, e.g., monitoring and measurement • Management review, e.g., acting to review and revise policy based on observed outcomes Each of these aggregated elements can be associated with additional indicators and specific metrics: • Management, e.g., designated leadership • Policy and disclosure, e.g., a published sustainability policy • Risk management, e.g., risk assessments for new development and standing investments • Monitoring, e.g., the use of Environmental Management Systems • Performance indicators, e.g., asset-level data coverage for energy, water, and waste. • Building certifications, e.g., use of multi-criteria, third party-verified rating systems addressing energy, water, land use, transportation, indoor environmental quality, and material supply chain • Stakeholder engagement, e.g., tenant surveys

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					This is the level of detail needed begin to capture the material dimensions of the companies in this industry.
Real Estate Owners, Developers & Investment Trusts	New Angle	Add Issue	Corporate Professional	GHG emissions intensity and management strategies [ENERGY EFFICIENCY OF BUILDINGS]	GHG emissions are the underlying environmental impact driving SASB's treatment of energy efficiency as a performance metric. EPA ENERGY STAR Portfolio Manager provides a cost-effective, reliable method for U.S. assets to measure greenhouse gas emissions. An indicator should be included in SASB's guidelines for this sector.
Real Estate Owners, Developers & Investment Trusts	New Angle	Add Issue	Corporate Professional	Renewable energy [ENERGY EFFICIENCY OF BUILDINGS]	Powering properties with clean renewable energy is emerging in real estate sectors as a key driver of reduced operational environmental impacts. This is increasingly common in the data center real estate industry (see activities by Apple, Google, Facebook, etc), and many leading retail companies (e.g., Wal-Mart, Ikea, Target, Walgreens, etc) are pursuing on-site renewable energy as well as contracting for clean power from wind and solar farms. The WWF, WRI, BSR and RMI recently partnered with numerous corporations to advocate for greater access to renewable energy.
Real Estate Owners, Developers & Investment Trusts	New Angle	Add Issue	Public Interest	Tax and regulator impacts [ENERGY EFFICIENCY OF BUILDINGS]	Carbon cap and trade as well as carbon taxation are on the rise both in the US and globally. Further regulatory requirements regarding disclosure of energy performance (as one example) are also on the rise. These are risks to financial performance of real estate and thus should be disclosed or addressed.
Real Estate Owners, Developers &	New Issue	Add Issue	Corporate Professional	Community Relations [COMMUNITY RELATIONS]	As we work in existing residential areas with community stakeholders/actors, it may make sense to include Community Relations (Social Capital) as a separate category.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Investment Trusts					
Real Estate Owners, Developers & Investment Trusts	New Issue	Add Issue	Corporate Professional	Resource Utilization Efficiency [RESOURCE EFFICIENCY OF BUILDINGS] or standalone [WATER EFFIENCY IN BUILDINGS] or [WASTE MANAGEMENT IN BUILDINGS]	I would expand beyond just energy efficiency of buildings to include all major facets of resource efficiency. This includes energy (electricity, gas, other fossil fuels, renewable energy, etc), water, and waste. Examples of materiality: The drought in California is exposing properties to water scarcity and possible fines and higher water costs. Availability of energy to property sites: If diesel fuel to power generators is not available to support buildings in major emergencies (e.g., Hurricane Sandy) the value of the buildings could be impaired in addition to seeing much higher operating costs .
Real Estate Owners, Developers & Investment Trusts	New Issue	Add Issue	Corporate Professional	Responsible supply chain [SUSTY IMPACTS OF SUPPLY CHAIN]	For REIT's that also build there is an important component to how we source materials, from where, and with whom that could be included. I think the entire topic of supply chain risk is important for all industries, frankly.
Real Estate Owners, Developers & Investment Trusts	New Issue	Add Issue	Corporate Professional	Stakeholder engagement (customers, investors, employees, suppliers) [TENANT ENGAGEMENT	Communication on ESG risks, opportunities and benefits is a critical component of our sustainability program. For example, it is important to raise awareness of and engage tenants (e.g., on behavior change to reduce impacts, Tenant Star, and other initiatives) to work together to reduce consumption. We often do not know what our tenants are doing within their leased space, so we should encourage effective communication, particularly in terms of quantifying the long term benefits to our tenants and to society of minimizing impacts.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
				ON RESOURCE EFFICIENCY]	Investors are asking more questions about ESG risks, opportunities and benefits of sustainability investments. Other stakeholders -employees, contractors, suppliers - all play a role in helping us meet our sustainability goals. The more we can engage and communicate, the more we can make a positive impact.
Real Estate Owners, Developers & Investment Trusts	New Issue	Add Issue	Corporate Professional	Sustainable Building Development [SEVERAL TOPICS]	Construction and retrofit to achieve sustainable buildings is a common measure of how real estate firms are proactively working to reduce their environmental impact. This should be captured in the disclosure topics.
Real Estate Owners, Developers & Investment Trusts	New Issue	Add Issue	Corporate Professional	Tenant engagement/occupant satisfaction [TENANT ENGAGEMENT ON RESOURCE EFFICIENCY] Or a new angle to [ENERGY EFFICIENCY OF BUILDINGS]	Tenants consume more than 50% of all energy in office buildings, and a greater majority in retail and residential properties. As a result, the "Tenant Star" legislation addresses a gap in the current ENERGY STAR building labeling program – which currently places the entire performance burden on ownership – and would instead recognize tenants as they design, construct, and operate within their leased spaces. The importance of tenant engagement is driving sustainability programs in the real estate sector (and policy in Congress and the Administration)
Real Estate Owners, Developers &	New Issue	Add Issue	Corporate Professional	Waste prevention & recycling [RESOURCE EFFICIENCY	Our industry has also placed high importance on waste prevention and recycling during the construction phase. In addition, many organizations are focusing more on waste prevention and recycling for internal operations, and are setting diversion goals and targets. Strategies to reduce waste are becoming an increasingly common sustainability objective, and there is an increased effort to track waste reduction throughout our corporate

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Investment Trusts				OF BUILDINGS] or a standalone [WASTE MANAGEMENT IN BUILDINGS]	operations. As data becomes more available, it is likely waste will be tracked throughout our facilities.
Real Estate Owners, Developers & Investment Trusts	New Issue	Add Issue	Corporate Professional	Water efficiency and access to safe sustainable potable water sources. [RESOURCE EFFICIENCY OF BUILDINGS] or a standalone [WATER EFFICIENCY OF BUILDINGS]	Water is less costly at this time than energy, but sustainable use of water in and for buildings (commercial, residential, industrial, manufacturing, health care, etc.) is critical in today's climate. I believe water regulation and shortage will lead to risk and opportunity for the real estate industry in the near future.
Real Estate Owners, Developers & Investment Trusts	New Issue	Add Issue	Corporate Professional	Water Efficiency of Buildings [RESOURCE EFFICIENCY OF BUILDINGS] or a standalone [WATER EFFICIENCY OF BUILDINGS]	The commercial and institutional sector is the second largest consumer of publicly supplied water in the United States, accounting for 17 percent of the withdrawals from public water supplies. Further, similar to energy efficiency, landlords have broad ability to control the water consumption in their buildings. Also, because of the energy-water nexus, water efficiency directly impacts energy efficiency. Broad regulation impacts water use in many markets. Therefore, water efficiency is material to real estate and should be included in the SASB.
Real Estate Owners, Developer	New Issue	Add Issue	Corporate Professional	Water Efficiency of Buildings [RESOURCE	Due to the ever increasing importance of water conservation, this should be added to the list of material disclosures - it is a precious resource.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
s & Investment Trusts				EFFICIENCY OF BUILDINGS] or a standalone [WATER EFFICIENCY OF BUILDINGS]	
Real Estate Owners, Developers & Investment Trusts	New Issue	Add Issue	Corporate Professional	Water Efficiency of Buildings [RESOURCE EFFICIENCY OF BUILDINGS] or a standalone [WATER EFFICIENCY OF BUILDINGS]	Water is a critical utility for hospitality and the second highest utility cost after electricity.
Real Estate Owners, Developers & Investment Trusts	New Issue	Add Issue	Corporate Professional	Water efficiency of Bulidings [RESOURCE EFFICIENCY OF BUILDINGS] or a standalone [WATER EFFICIENCY OF BUILDINGS]	Water efficiency is increasingly becoming as important as energy efficiency. Our industry long has focused on the use of design solutions and technological advancements that help to minimize not only energy consumption but also materials and water consumption. Water efficiency technologies are critical in drought-prone locations such as Sao Paulo or California. Some of the design features we include in our facilities include low-water (drought-resistant) landscaping, motion-activated faucets, low-flow toilets, waterless urinals and rainwater capture for irrigation.
Real Estate Owners, Developers &	New Issue	Add Issue	Corporate Professional	Water Efficiency [RESOURCE EFFICIENCY OF BUILDINGS] or a standalone	Water is an increasingly valuable resource and object of growing tenant and investor interest in real estate sustainability

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Investment Trusts				[WATER EFFICIENCY OF BUILDINGS]	
Real Estate Owners, Developers & Investment Trusts	New Issue	Add Issue	Corporate Professional	Water: consumption or water intensity. [RESOURCE EFFICIENCY OF BUILDINGS] or a standalone [WATER EFFICIENCY OF BUILDINGS]	Some property types in some locations need to address the topic as it materially impacts the value of the property. Example: A golf course in the desert: no water, no golf course, no value.
Real Estate Owners, Developers & Investment Trusts	New Issue	Add Issue	Market Participant	Environmental impacts [RESOURCE EFFICIENCY OF BUILDINGS] or standalone [WATER EFFIENCY IN BUILDINGS] or [WASTE MANAGEMENT IN BUILDINGS]	Environmental impacts are easier to quantify, things like water, waste, building material waste, I hate to see it lumped with socioeconomic issues which are much harder to measure.
Real Estate Owners, Developers &	New Issue	Add Issue	Market Participant	Resource conservation - specifically water and waste	As with energy, water is a valuable natural resource that is essential for a building to operate. While not as expensive a cost as energy, there are larger issues with availability than currently experienced in the energy space.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Investment Trusts				[RESOURCE EFFICIENCY OF BUILDINGS] or standalone [WATER EFFIENCY IN BUILDINGS] or [WASTE MANAGEMENT IN BUILDINGS]	Waste reduction, in the form of recycling, composting, essentially diverting waste from landfills, is an important consideration given the rapidly depleting capacity to abosrb such waste. The lost value from dumping the outflow from our buildings is a hidden drag on the long-term value of the investment. A building can seek to influence the composition of its maintenance products in terms of reducing packaging, or using alternatives that have less unusable product that must be disposed of. This will have economic benefits as well as environmental benefits; the value is maximized when the community itself participates in the process to develop and manage resources to assist in processes such as recycling and composting.
Real Estate Owners, Developers & Investment Trusts	New Issue	Comment on Brief	Public Interest	DNA - Comment on Brief [BUILDING MATERIALS AND HUMAN HEALTH]	Was surprised that there was no mention of health and safety, and building materials. Not sure if it was a matter of scope where the analyst preparing the brief considered them to be relevant for another sector as defined by GICS/SICS, but if so, would still have expected it to be mentioned. Am aware of the "pure-play" approach SASB adopted (mentioned in brief pg 1), but still thought it is a material issue that will affect the Real Estate Owner and Developer's profitability (if there were any stop-work orders) and reputation.
Real Estate Owners, Developers & Investment Trusts	New Issue	Other Comment	Public Interest	DNA - Other Comment [WATER MANAGEMENT] + [CLIMATE CHANGE RISK EXPOSURE]	Reporting and metrics for REODIT should, generally, focus on consumption of resources that impact operating costs, capex and operating risk such as flood zones. However, availability of certain critical resources, such as water, are also important disclosure items. Given increasing climate events related to water availability, this issue should receive greater attention by SASB in the REODIT and overall infrastructure categories.
Real Estate Owners, Developers &	New Issue	Add Issue	Public Interest	Environmental accidents and remediation [LAND USE &	Land contamination can significantly impact financial value of property investments. Investors acquiring an asset without undertaking appropriate environmental due diligence can expose the trust to up to millions of dollars in remediation liabilities that can impact the entire investment and its returns. Developers that do not appropriately manage contamination issues can find

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Investment Trusts				ECOLOGICAL IMPACTS - DUE DILLIGENCE]	themselves directly liable for non compliance with environmental legislation and impaired assets that require significant funds to remediate.
Real Estate Owners, Developers & Investment Trusts	New Issue	Add Issue	Public Interest	Health and safety [SUSTY IMPACTS OF SUPPLY CHAIN] + [CONTRACTOR MANAGEMENT]	Real estate owners and developers have a significant influence for supply chain safety, of injuries during construction phase. Expectation will be for REODITs to screen contractors. This is in line with GRI's Construction and Real Estate Sector Disclosure (link 1) and GRESB (link 2), and a material issue by many international real estate reporters such as Stockland. Same goes for injuries arising from construction work and daily operations for existing buildings. In terms of indicators, suggest the following: - % of contractors used with OHSAS 18001 or equivalent - Injury rate (should include both employees and contractors working on site)
Real Estate Owners, Developers & Investment Trusts	New Issue	Add Issue	Public Interest	Lobbying and political donations [CORRUPTION AND BRIBERY] + [LOBBYING AND POLITICAL CONTRIBUTIONS]	To effectivley grow their business and investments, developers need to engage with regulators and government representatives and bodies at a renage of levels. Developers therefore typically lobby government and provide political donations to various parties. However, some have been found to engage in unethical conduct, with bribery and corruption being a material issue. If perceived or real risks are not managed by the REIT this can result in litigation and delays in developments such that investments are not realised in a timely and optimised manner.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Real Estate Owners, Developers & Investment Trusts	New Issue	Add Issue	Public Interest	Please see the letter to be submitted by The Real Estate Roundtable to SASB. [SEVERAL ISSUES, PLEASE SEE COMMENT TO THE RIGHT FOR FULL DESCRIPTION.. . Some include:] [RESOURE EFFICENCY IN BUILDINGS] or standalone topics + [LAND USE AND ECOLOGICAL IMPACTS]	I believe you missed a lot. E.g.: ➢ Does your company have a waste management policy? Do you recycle tenant waste, tenant construction debris, and/or electronics? Do you work with your vendors to benchmark and track wastes? What kinds of wastes? Does your company utilize recycled content for paper products, carpeting, and/or building materials? Do you specify low off-gassing paints, wall coverings, and/or adhesives for tenant work? Do you use green cleaning and pest control products? ➢ Does your company measure water use in buildings? For indoor use, outdoor use, or both? Do you landscape with native plants? ➢ If your company develops property, what sustainable site management techniques are implemented? How does your company mitigate impacts to natural resources affected by the land development and entitlement process? What amenities may your company provide to the community attendant to the project development approval process? Consider the Sustainabilty sections of The Real Estate Roundtable's Annual Report and annual Policy Agenda, available at: http://www.rer.org/About_Us/Publications.aspx
Real Estate Owners, Developers &	New Issue	Add Issue	Public Interest	Supply chain standards and selection [SUSTY	Developers are significantly exposed to the standards applied by their key suppliers such as building contractors. Builders are exposed to significant labor and work conditions issues and if they are not managed well, this can impact a REIT's investment and can also manifets into a reputation issue. Overall as a sector, there is a significant amount of work performed on

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Investment Trusts				IMPACTS OF SUPPLY CHAIN] + [CONTRACTOR MANAGEMENT]	behalf of the REIT by suppliers. Therefore, supplier standards in terms of quality, coduct and conflict of interest need to be managed well so as to protect the financial investments of REITs.
Real Estate Owners, Developers & Investment Trusts	New Issue	Add Issue	Public Interest	Tenants interactions [TENANT ENGAGEMENT ON RESOURCE EFFICIENCY]	Cover tenants satisfaction but also how the REIT interact with tenants to maintain/enhance the value of the properties with initiatives related to the environment and social impact of the property, including health and safety of tenants/occupants.
Real Estate Owners, Developers & Investment Trusts	New Issue	Add Issue	Public Interest	The suggested disclosure topics represent a subset of material issues for real estate investors. A more comprehensive approach would include indicators of management, policy, risk assessment, monitoring, performance, and stakeholder engagement.	These recommend topics include aspects of the Global Real Estate Sustainability Benchmark (GRESB) assessment, including: (1) Management: Assessment of the scope and quality of management addresses on how an organization addresses sustainability implementation in the context of its overall business strategy. (2) Policy & Disclosure: Disclosure of sustainability performance allows participants to show how sustainability policies and management practices are being implemented and their impact on the business. (3) Risks Assessment: Sustainability risk assessments help to reduce exposure to long-term risks.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
				[SEVERAL ISSUES, PLEASE SEE COMMENT TO THE RIGHT FOR FULL DESCRIPTION.. . Some include:] [RESOURE EFFICENCY IN BUILDINGS] or standalone topics + [SUPLY CHAIN MANAGEMENT] + [BUILDING MATERIALS AND HUMAN HEALTH]	(4) Monitoring & EMS: A data management system enables organizations to monitor environmental performance in an efficient and effective way. (5) Performance Indicators: Collecting and measuring key environmental performance data enables property companies to assess their aggregate consumption and footprint, and to set clear targets for reducing the portfolio's operational cost and environmental impact. Critically, performance indicators should be aligned with high-quality green building rating systems to address: • Human health: minimally including indoor air quality and essential elements of indoor environmental quality • Energy and emissions: demand, efficiency, and supply • Water conservation: demand, efficiency, and supply • Land use, transportation, and site design: neighborhood diversity and connectivity, accessibility, public transportation, stormwater management, and other critical factors • Materials and supply chain: minimally including transparency (e.g., requirements for health product declarations and environmental performance disclosures) and risk management (e.g., exposure to conflict minerals)

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					(6) Building Certifications: Green building certificates are a measure of the intrinsic quality of the asset and its design to meet the requirements of environmental standards. (7) Stakeholder Engagement: Improving the sustainability performance of a real estate portfolio requires not only dedicated resources, a commitment from senior management and tools for measurement/management of resource consumption, but also requires the cooperation of other stakeholders, including tenants, suppliers, a participant's workforce and the local community.
Real Estate Owners, Developers & Investment Trusts	New Issue	Add Issue	Public Interest	Waste [RESOURCE EFFICIENCY OF BUILDINGS] or a standalone [WASTE MANAGEMENT IN BUILDINGS]	Waste has an impact on landfills, transportion of the waste ergo energy, etc. Many cities today require recycling and diversion (from landfills) rates is an increasingly common metric that is tracked and measured.
Real Estate Owners, Developers &	New Issue	Add Issue	Public Interest	Water efficiency of buildings and related landscaping	Water availability and costs in certain geographies is increasingly uncertain, variable and risky for existing building owners as well as those seeking to expand, renovate and redevelop properties.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Investment Trusts				[RESOURCE EFFICIENCY OF BUILDINGS] or a standalone [WATER EFFICIENCY OF BUILDINGS]	
Real Estate Owners, Developers & Investment Trusts	New Issue	Add Issue	Public Interest	Water [RESOURCE EFFICIENCY OF BUILDINGS] or a standalone [WATER EFFICIENCY OF BUILDINGS]	Water is increasingly a limited resource that will impact operations, costs and access.
Real Estate Owners, Developers & Investment Trusts	No action needed	Innacuracy	Corporate Professional	DNA - Innacuracy	There was no mention of water in the research brief, though this topic is as important as energy to the overall sustainability performance of many real estate companies.
Real Estate Owners, Developers & Investment Trusts	No action needed	Innacuracy	Corporate Professional	DNA - Innacuracy	Please see industry letter addressed to Jean Rogers from Duane J. Desiderio, Senior Vice President and Counsel of The Real Estate Roundtable (ddesiderio@rer.org). Shorenstein is a signatory to this letter.
Real Estate	No action needed	Comment on Brief	Market Participant	DNA - Comment on Brief	See comments below

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Owners, Developers & Investment Trusts					
Real Estate Owners, Developers & Investment Trusts	No action needed	Comment on Brief	Public Interest	DNA - Comment on Brief	Seemed to be missing some key material issues for the sector.
Real Estate Owners, Developers & Investment Trusts	No action needed	Innacuracy	Public Interest	DNA - Innacuracy	Please see the forthcoming letter from The Real Estate Roundtable.
Real Estate Owners, Developers & Investment Trusts	No action needed	Innacuracy	Public Interest	DNA - Innacuracy	See Real Estate Roundtable letter - this was generated based on a collective discussion at the RER June meeting and reflects the broader industry.
Real Estate Owners, Developers &	No action needed	Other Comment	Public Interest	DNA - Other Comment	Please see the forthcoming letter from The Real Estate Roundtable.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Investment Trusts					
Real Estate Owners, Developers & Investment Trusts	No action needed	Other Comment	Public Interest	DNA - Other Comment	Again, my strong recommendation is to focus on high level (largest common denominator) - energy, water, waste, GHG, tax and regulatory aspects.
Real Estate Owners, Developers & Investment Trusts	Survey comment	Comment on Brief	Corporate Professional	DNA - Comment on Brief	Please see industry letter addressed to Jean Rogers from Duane J. Desiderio, Senior Vice President and Counsel of The Real Estate Roundtable (ddesiderio@rer.org). Shorenstein is a signatory to this letter.
Real Estate Owners, Developers & Investment Trusts	Survey comment	Comment on Brief	Public Interest	DNA - Comment on Brief	Please see the forthcoming letter from The Real Estate Roundtable.
Real Estate Owners, Developers & Investment Trusts	Survey comment	Comment on Brief	Public Interest	DNA - Comment on Brief	See Real Estate Roundtable letter - this was generated based on a collective discussion at the RER June meeting and reflects the broader industry.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Real Estate Services	Congratulations	Other Comment	Corporate Professional	DNA - Other Comment	You did an extremely thorough job in preparation for the survey - including development of the sector briefs, excellent detailed communication with working group members and explanations provided in the live webinar.
Real Estate Services	Industry insights	Comment on Brief	Public Interest	DNA - Comment on Brief	Again, my strong recommendation is to focus on high level (largest common denominator) - energy, water, waste, GHG, tax and regulatory aspects and service providers ability to manage, report on and address within the normal course of services provided. Further please see Real Estate Roundtable letter.
Real Estate Services	Industry insights	Other Comment	Public Interest	DNA - Other Comment	Were there any considerations for grouping them as “Real Estate Owners & Investment Trusts” and “Real Estate Developers and Property Managers”? The reason I say this is that the delineation of sustainability issues when grouped this way creates that boundary of investment decision-making (for Owners/Investors) and on-the-ground environmental and community issues (for Developers/Managers) that are usually more arm’s length to Owner/Investors.
Real Estate Services	Industry insights	Add Issue	Public Interest	Regulatory compliance	RE Services firms are often the most knowledgeable and certainly in capacity as acting as an agent on behalf of ownership much provide training, monitoricing and ensure compliance to regulatory aspect of real estate operations.
Real Estate Services	Metric comment	Other Comment	Market Participant	DNA - Other Comment	I recommend matching data collection to the current GRESB questions and KPIs whenever possible, as GRESB is currently the global standard for sustainability reporting and benchmarking.
Real Estate Services	New Issue	Add Issue	Corporate Professional	Climate change risk (energy, location strategy, extreme weather, legislative risk, natural disasters,	energy intensity creates normalization, climate risk is essential, water is increasingly material

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
				[CLIMATE CHANGE ADAPTATION]	
Real Estate Services	New Issue	Add Issue	Public Interest	Customer health and safety [CUSTOMER HEALTH AND SAFETY]	Customer health and safety is very important in the real estate industry due to the large amount of patrons and visitors working, living, socialising, and shopping within properties. This is also increasingly important as instances of public unrest or demonstrations and unfortunately, criminal or terrorist activities can occur within property assets. There is a lack of clear, relevant and comparable metrics in relation to measuring customer health and safety performance across the real estate sector.
Real Estate Services	New Issue	Add Issue	Public Interest	Labor relations and union practices [LABOR REALTIONS] + [CONTRATOR MANAGEMENT]	Labor relations and union practices are important issues for certain industries involved in the provision of real estate services. For example, cleaning and security industries across different jurisdictions can be subject to significant workplace and union issues. Even in jurisdictions where legislation and industry standards exist, it is important for real estate service providers to undertake their own regular due diligence and enquiries to ensure ongoing management of potential workplace issues.
Real Estate Services	New Issue	Add Issue	Public Interest	Supply chain standards and selection [CONTRACTOR MANAGEMENT]	It is not uncommon for service providers to contract out certain real estate services to other providers. In doing so, they need to ensure that those suppliers of goods and services are meeting their own and the property owner's standards. In instances where service standards are not being met, this can siginificantly impact the cost of performing real estate services resulting in reduced profitability and returns for owners.
Real Estate Services	No action needed	Comment on Brief	Public Interest	DNA - Comment on Brief	See my comments to REODIT survey and forthcoming RER letter.
Real Estate Services	No action needed	Comment on Brief	Public Interest	DNA - Comment on Brief	Seemed to be missing some key material issues for the sector.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Real Estate Services	No action needed	Innacuracy	Public Interest	DNA - Innacuracy	See my comments to REODIT survey and forthcoming RER letter.
Real Estate Services	Performance on Sustainability Services	Add Issue	Corporate Professional	energy intensity	energy intensity creates normalization, climate risk is essential, water is increasingly material
Real Estate Services	Performance on Sustainability Services	Add Issue	Corporate Professional	List of Sustainability Services.	I would want to understand the scope of the services provided, as well as how many clients its impacts. For example, are they just selling those services to clients who ask or are they being proactive and bringing on more and more clients for these services.
Real Estate Services	Performance on Sustainability Services	Materiality?	Corporate Professional	Maybe	Companies may perceive clients/revenue generated from energy and sustainability services as confidential information.
Real Estate Services	Performance on Sustainability Services	Add Issue	Corporate Professional	Water	energy intensity creates normalization, climate risk is essential, water is increasingly material
Real Estate Services	Performance on Sustainability Services	Materiality?	Corporate Professional	Yes	As an investor, I would want to know that the Real Estate Service organization is utilizing & implementing best management practices for their clients, which today includes incorporating sustainability and active engagement around the reduction of GHGs.
Real Estate Services	Performance on Sustainability Services	Materiality?	Market Participant	Yes	Most of our potential clients include sustainability related questins in the ir RFPs.
Real Estate Services	Performance on Sustainability Services	Materiality?	Public Interest	Maybe	As indicated in my response to the REODIT Survey, performance on sustainability services will hinge on factors regarding cost effectiveness, and barriers to implementation. Please also see forthcoming letter from The Real Estate Roundtable for more detail.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Real Estate Services	Performance on Sustainability Services	Materiality?	Public Interest	Yes	Think consideration should be made to the context here. Specifically, rather than looking at "Sustainability Services" as something "separate" or "additional service" rather increasingly sustainability services should be ingrained into the way properties are managed, leased and represented for sale/purchase.
Real Estate Services	Survey comment	Innacuracy	Public Interest	DNA - Innacuracy	Please see Real Estate Roundtable letter - this was generated based on a collective discussion at the RER June meeting and reflects the broader industry.
Real Estate Services	Survey comment	Add Issue	Public Interest	Please see long list of topics as referenced in the forthcoming letter from The Real Estate Roundtable.	As discussed in my responses to the REODIT survey, and forthcoming RER letter.
Real Estate Services	Transparent Information & Avoidance of Conflict of Interest	Materiality?	Corporate Professional	Maybe	Companies may perceive revenue broken out into these categories as confidential information.
Real Estate Services	Transparent Information & Avoidance of Conflict of Interest	Materiality?	Corporate Professional	Yes	Transparency is key to understanding one's full scope of risks - this empowers the investor to have a comprehensive view of the company's actions.
Real Estate Services	Transparent Information & Avoidance of Conflict of Interest	Materiality?	Public Interest	Yes	It would seem self evident that avoidance of conflict of interest -- and transparency of information -- would be material to investors in any industry sector -- not simply real estate services. Unclear of what the import of this question is.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Waste Management	Community Relations	Materiality?	Corporate Professional	Maybe	Please see Sue Briggum's comments on not understanding why SASB would create a separate surrogate based on urban presence when a standard methodology and an on-line mechanism to provide the information is available from EPA?
Waste Management	Community Relations	Materiality?	Corporate Professional	Maybe	Environment justice analysis relies upon a standard methodology used by environmental justice advocates, US EPA, state and local government and some members of the waste management sector. Why would SASB create a separate surrogate based on urban presence when a standard methodology and an on-line mechanism to provide the information is available from EPA? Environmental justice advocates' focus, pursuant to the Civil Rights Act and Executive Order 12898 on Environmental Justice, on disproportionate impact on minorities and low income communities. See http://www.epa.gov/environmentaljustice/mapping.html (EJ View mapping tool, to be replaced by EJ SCREEN by July); http://www.epa.gov/environmentaljustice/resources/policy/ej2020/draft-framework.pdf (describing the use of EJ SCREEN). For an example of a waste management company using the EPA EJ SCREEN framework to disclose demographic footprint, see Waste Management 2014 Sustainability Report pp. 94-95, http://www.wm.com/sustainability/index.jsp. Note also that the RSEI data relied upon for fixing on location near dense populations is derived exclusively from TRI, which as indicated above, is not an accurate measurement for the breadth of companies covered by this sector. Nor is it appropriate to use RSEI to "conclude that a particular chemical release is causing harm to a specific population or location; draw conclusions or make decisions about the risk posed by any particular facility; draw conclusions about individual risk or generate quantitative risk estimates. See U.S. EPA, http://www.epa.gov/opptintr/rsei/pubs/using_rsei.html

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Waste Management	Community Relations	Materiality?	Corporate Professional	Maybe	This topic goes beyond the metrics listed here. Should be more aligned around healthy communities/social aspects too - employment, philanthropy, etc
Waste Management	Community Relations	Materiality?	Corporate Professional	No	proposed metrics just don't seem material - problems will be disclosed as they occur in the context of larger public image impacts
Waste Management	Community Relations	Materiality?	Corporate Professional	No	See first topic comment on previous page. Clearly being good neighbors is crucial to a waste industry facility whether that be a landfill, transfer station, recycling facility or composting facility. But why is the obvious "material"?
Waste Management	Community Relations	Materiality?	Corporate Professional	Yes	Landfill expansions, ordors, truck traffic, and operations typically attract the attention of the local community.
Waste Management	Community Relations	Materiality?	Corporate Professional	Yes	Agree and again, this is one of the pillars of our sustainability initiative. However, we don't agree with the metrics. They are too narrow and prescriptive.
Waste Management	Community Relations	Materiality?	Market Participant	Maybe	Community relations are important, but seem to be of a lower level or reporting need than other items.
Waste Management	Community Relations	Materiality?	Market Participant	Yes	Especially for the hazardous waste managers, with highly toxic emissions can have very negative effects on local communities. A recent and on-going case is Stericycle and its incineration plant in Utah, which in the end had to move (at a very high cost), due to local community outrage. http://www.law360.com/articles/600572/stericycle-will-move-incinerator-pay-1-2m-in-utah-deq-deal
Waste Management	Community Relations	Materiality?	Public Interest	Maybe	I see CR as having affect on social license to operate but do not see social license in this area to be sufficiently quantifiable to effect stock price
Waste Management	Community Relations	Materiality?	Public Interest	Maybe	It is an important topic but difficult to assess in political context

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Waste Management	Community Relations	Materiality?	Public Interest	Maybe	While community relations are important, they do not carry the same level of materiality as the other topics sited. Although community opposition may delay expansions and zoning requests, companies tend to prevail in court and the government climate currently leans to business over citizen. Furthermore with a large percentage of facilities are located in poorer neighborhoods, activism is less likely in general.
Waste Management	Community Relations	Materiality?	Public Interest	No	Community relations are somewhat secondary to actual sustainability measures and really arguably don't impact the benefits of sustainability.
Waste Management	Community Relations	Materiality?	Public Interest	Yes	Millennials are savvy. They will make purchasing decisions based on sustainability. They are the next generation and waste management companies need to be paying attention. With social media, any misstep is immediately published and can't be pulled back. Brands are decimated by mistakes.
Waste Management	Community Relations	Materiality?	Public Interest	Yes	Odor complaints from landfill neighbors is a common issue faced by many waste management companies, that can sometimes have legal and/or financial ramifications.
Waste Management	Ind. Brief comment	Comment on Brief	Corporate Professional	DNA - Comment on Brief	Fixing the inaccuracies will provide the information needed.
Waste Management	Ind. Brief comment	Innacuracy	Corporate Professional	DNA - Innacuracy	This is a minor point, but it would be helpful to capitalize “Waste Management” only when referring to the company of that name, and use lower case for the generic descriptor. p. 4 right column last paragraph: Sites must be maintained and monitored for 30 years or “as necessary to protect human health and the environment.” It is important not to imply monitoring ceases without governmental approval of safety. p. 5 left column, top of page: Financial assurance to assure assets to close

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					and to perform monitoring must be provided. This is additional obligation is important to mention because these protections appear for both hazardous (RCRA Subtitle C) and municipal solid waste (MSW) (RCRA Subtitle D), and provide assurance to the public. p. 5 left column, first full paragraph: "CERCLA required cleanup of priority contaminated sites, those included on the National Priorities List." Liabilities are imposed upon "the current and past owners and operators of a site, parties who generated the wastes that were sent to the site, and waste transporters who selected the site." It is important to characterize the scope of CERCLA liability correctly because much of the liability attached to the companies cited in the brief derive from their acquisition of companies that conducted the hauling or disposal operations years before the companies listed had any involvement. p. 5 right column, second full paragraph: The recent movement is toward municipalities attempting to "flow control" waste generated in their jurisdictions toward a facility they choose rather than allowing the market to dictate waste services. States are not permitted to restrict the interstate flow of wastes and recyclables. See https://supreme.justia.com/cases/federal/us/511/383/ (the Carbone interstate case). The flow control case is http://www.supremecourt.gov/opinions/06pdf/05-1345.pdf (Oneida-Herkimer). Flow control keeps waste in; interstate keeps other states' wastes out. The former is constitutional (under certain conditions); the later not. International transport of hazardous waste is regulated by US EPA and is limited to consenting foreign companies under the Basel treaty. http://www.epa.gov/osw/hazard/international/basel.htm. p. 5 right column, last paragraph: Current federal laws regulate the recycling

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					of hazardous waste and non-hazardous “special wastes” like electronics, batteries, CFLs, used oil and coal combustion residuals. State and local law regulate municipal solid waste recycling. Zoning restrictions control the properties available for such activities (note that cities don’t select one particular property – they just limit the parcels from which to choose). States sometimes provide other location restrictions. Most cities perform or contract for services to perform residential recycling, but commercial and industrial recycling is usually done with private contractors. p. 8 left column and p. 9 left column: LFG has been regulated under RCRA since 1980. In 1996, EPA promulgated regulations under the Clean Air Act imposing more extensive LFG controls. States implement these national programs. By law, new source performance standards and revised standards for existing landfills are updated and made more stringent incrementally over time. Revised LFG standards are expected in 2015. States like California have particularly stringent standards, going beyond the baseline federal program. States must require monitoring and control of LFG pursuant to RCRA and the Clean Air Act, but conversion of LFG into renewable energy and fuel is voluntary on the landfill operator’s part. See http://www.epa.gov/lmop/. p. 8 right column, final bullets: Although disclosing landfill gas generated, flared and used for energy can be tabulated, auditing it would be very difficult (and expensive) for a third party to audit because the numbers involve so many individual sources. US EPA’s GHG inventory rule rejected the idea of independent auditing as less reliable than the EPA system. See EPA-HQ-OAR-2008-0508: FRL-RIN 2060-A079, Section II. N.- Summary of Comments and Responses on Emissions Verification Approach, 74 Fed. Reg. at 56282.

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					p. 11 right column, top bullets: Estimating the percentage of renewable energy consumed would be next to impossible. Few states have energy service providers that can be selected based on renewable energy service, so at best the disclosure would simply track utility service area and the utilities' energy source ratios. In contrast, since RINs can be claimed for use of CNG trucks, and RINs are also available for LNG from LFG, so the percentage of renewable fleet fuel used can be calculated. p. 12 right column and p. 31 right column: Note that Waste Management is a founding member of the Heavy Duty Fuel Efficiency Leadership Group, which advocates for more stringent fuel efficiency and GHG emissions standards for medium and heavy-duty trucks. See Waste Management 2014 Sustainability Report p. 63, http://www.wm.com/sustainability/index.jsp. See also Waste Management 2014 Sustainability Report Appendix, pp. 21-22. See also http://catercommunications.com/wp-content/uploads/2014/02/Leadership-Group-SOP.pdf. p. 13 left column, last paragraph: It is not correct to assume the "main ecological impacts from waste operations "can originate" from MSW landfills and hazardous waste recycling and disposal. CERCLA sites include a broad range of facilities and activities -- hazardous waste cyclers, industrial landfills, manufacturing sites, wide-spread multisource contamination of sediments from small and large businesses, etc. See the most recent list of Superfund sites (chemical company, creosote site, rubber and plastic manufacturer, aluminum mining, contamination from multiple sources, grain handling facility, steel plant). http://www.epa.gov/superfund/sites/npl/current.htm Moreover, nearly all municipal waste landfills on the NPL involved dumping under conditions no longer allowed RCRA standards. It's fair to say past history shows the dangers of waste handling with insufficient regulation, but not to say that modern RCRA Subtitle C or D landfills are main sources of ecological

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					damage. p. 13 right column, first full paragraph: EPA has not opined that it is “best” to recycle hazardous waste. It is best to conserve the materials in hazardous waste, but only under conditions that provide environmental protection equivalent to those required under RCRA for disposal facilities. In fact, EPA requires off-site hazardous waste recyclers to demonstrate they provide the level of protection RCRA requires for hazardous waste facilities. See http://www.epa.gov/waste/hazard/dsw/dsw_fs_fnl_rl_120814.pdf. p. 13 right column, first full paragraph: To avoid the risk of groundwater contamination from underground injection wells, facilities are required to demonstrate in a RCRA permit that no migration will occur from the wells. p. 13 right column, last paragraph: Companies operating MSW and hazardous waste landfills are required to manage all associated ecological impacts. The regulatory obligations listed in the brief (control of gas, control of fires, odor, landfill settlement, groundwater pollution) are not required for waste facilities other than RCRA Subtitle D MSW and RCRA Subtitle C hazardous waste landfills. It would be fair to say that companies operating MSW and hazardous waste landfills are required by RCRA to manage all the factors listed here. Then it would informative to indicate states regulate landfilling of other manufacturing, mining and industrial wastes, with standards varying by state. p. 14 left column and right column: The discussion of TRI should be more precise. TRI covers releases to air, waste and land and transfers off-site for facilities of a certain size in enumerated sectors, including RCRA Subtitle C facilities. MSW landfills and incinerators are not subject to TRI unless the

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					facility is adjacent to a RCRA Subtitle C facility under common ownership. Only 4% of TRI releases come from RCRA Subtitle C facilities, and 96% are from other -waste sectors (chemicals, mining, utilities, metals, etc.). Because of the statutory structure of the TRI system, only waste companies that operate RCRA Subtitle C landfills will report TRI releases to air, water or land and thus be captured by this proposed indicator. Non-Subtitle C landfills may report transfers of TRI substances, but only because they transfer hazardous materials like used oil or electronics to the appropriate RCRA Subtitle C disposal sites. Moreover, EPA continues to reiterate its view that increased quantities of TRI materials in RCRA Subtitle C containment represent "a generally positive environmental trend because these facilities are in the business of managing hazardous waste and do so under strict controls." www.epa.gov/tri/tridata/tri06/pdr/key_findings_v12a.pdf. See also www.epa.gov/tri/ tridata/tri08/national_analysis/pdr/TRI_key_findings_2008.pdf For example, in explaining what TRI data mean to a community, the EPA, in its most recent commentary about the TRI inventory, prioritized sites by subtracting emissions to land reported by RCRA Subtitle C regulated units because those units were considered to be physically controlling toxic releases rather than emitting them. http://www2.epa.gov/sites/production/files/2013-09/documents/tri_factors_to_consider_2013.pdf. Given EPA's distinction between RCRA Subtitle C containment of TRI materials and other "releases," using TRI as a surrogate to characterize the ecological impact of "waste management" doesn't convey useful information. It's merely another way of saying "do you operate a RCRA Subtitle C facility?" Moreover, it means the company is heavily regulated -- which says nothing about whether a waste sector facility has impacted the environment.

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					p. 15 right column: Harris County filed suit against Waste Management of Texas on the basis of its acquisition of McGinnis Industrial Maintenance Corp., which had disposed of paper mill waste at a landfill adjacent to the San Jacinto River pursuant to a permit issued by Harris County. All disposal pre-dated the McGinnis acquisition. Remediation efforts by Waste Management of Texas, McGinnis and International Paper are being implemented under CERCLA authority and overseen by US EPA. p. 16 left column: Volume and percentage of leachate treated will not tell the public very much. The volume of leachate depends upon climatic conditions (a wet environment will result in wetter waste disposed and some rainfall during the day when waste is placed in the landfill), the type of on-site cover (clay vs. sand), the slope of the landfill surface, landfill design, and types of wastes accepted. All leachate disposal is subject to water quality standards – both in terms of permission to send leachate to a Publicly Owned Treatment Works, ability to discharge into a water body because the leachate meets all applicable water quality standards for such discharge, or ability to operate a treatment facility on-site. Leachate volume is independent of leachate quality, and the only issue of relevance to the environment is whether all leachate is disposed according to applicable water discharge standards. The issue of whether a facility has violated its water discharge permits is meaningful, but leachate volume and manner of handling is not. p. 17 left column: Both public and private sector landfills have been the subject of concern for environmental justice advocates. In fact municipalities control the zoning process that determines what land is available for waste management purposes. Communities sometimes seek the closure of local landfills but not the takeover of ownership by the public sector.

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					p. 17 left column: Environment justice analysis relies upon a standard methodology used by environmental justice advocates, US EPA, state and local government and some members of the waste management sector. Why would SASB create a separate surrogate based on urban presence when a standard methodology and an on-line mechanism to provide the information is available from EPA? Environmental justice advocates' focus, pursuant to the Civil Rights Act and Executive Order 12898 on Environmental Justice, on disproportionate impact on minorities and low income communities. See http://www.epa.gov/environmentaljustice/mapping.html (EJ View mapping tool, to be replaced by EJ SCREEN by July); http://www.epa.gov/environmentaljustice/resources/policy/ej2020/draft-framework.pdf (describing the use of EJ SCREEN). For an example of a waste management company using the EPA EJ SCREEN framework to disclose demographic footprint, see Waste Management 2014 Sustainability Report pp. 94-95, http://www.wm.com/sustainability/index.jsp. Note also that the RSEI data relied upon for fixing on location near dense populations is derived exclusively from TRI, which as indicated above, is not an accurate measurement for the breadth of companies covered by this sector. Nor is it appropriate to use RSEI to "conclude that a particular chemical release is causing harm to a specific population or location; draw conclusions or make decisions about the risk posed by any particular facility; draw conclusions about individual risk or generate quantitative risk estimates. See U.S. EPA, http://www.epa.gov/opptintr/rsei/pubs/using_rsei.html p. 18 left column: If the allegations regarding the Kettleman Hills facility are retained in the research brief, the results of the extensive studies of potential health impacts should be cited as well to give a balanced picture. See http://kettlemanhillslandfill.wm.com/index.jsp.

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					p. 20 right column: This is the first time the brief refers to remediation service companies. If remediation services (conducted on property the service company does not own or operate) are included in this sector, additional work will need to be done to assure comparable reporting. For example, remediation service companies do not have GHG emissions attributable to them (as opposed to their clients). pp. 20-21: One of the challenges with requiring a simple fatality rate in the waste management sector is that the majority of fatalities involve a "civilian" running into a waste company's vehicle. This would be a good opportunity to clarify that risk, and ask what the company is doing to prevent accidents where the company itself is not in control of the risk (e.g., a car runs into a garbage truck). The industry trade association is leading a safety initiative that is worth mentioning because it is relevant to all sectors with extensive fleets. See https://wasterecycling.org/our-work/safety (Slow Down to Get Around). It would also make sense to ask for a discussion of the company's internal safety program – its training, certifications, etc. pp. 22-24: Unionization rates are assumed to be a surrogate for good treatment of employees. The more direct and appropriate consideration is how all employees are treated in terms of training, benefits and career development. p. 26 left column: Given the brief's recognition that waste reduction is highest on the sustainability "waste hierarchy," it makes sense to ask about what the company does to help customers avoid waste generation – either in terms of percentage of total revenue, number of waste reduction projects or customers served, or a qualitative discussion of the range of services

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					rendered. The number of customers served through recycling or composting will be difficult to interpret. Is a municipal contract for recycling one customer – or is the population served the number of customers? Does the volume of material matter? How do you allocate between collection for recycling and operating the Material Recovery Facility that processes the materials for recycling? It would make more sense simply to ask the company to disclose the percentage of its revenue made from recycling and composting and from waste reduction consulting contracts. p. 27-28: It would be useful to cite the relevant e-cycling certification programs: eStewards (Basel Action Network), R2/RIOS, and ISO 9001 and 14001. p. 30 right column last bullet: It makes sense to ask companies to disclose the major topics on which they provide public advocacy and the link to their business and to ask about the processes by which they assure that their advocacy is coordinated and reviewed by senior leadership. The phrasing is confusing, however. "Public relations" strategies focus on selling the service, not on taking political positions. The sensible questions are "what are your most important policy positions on which you lobby" and "what processes are used to assure political contributions are lawful and consistent with your public positions on policy." p. 31 left column first paragraph: In other sector briefs, convictions for bribery are cited as evidence of the need to evaluate governance. In those briefs, lawful and appropriately disclosed political contributions like those cited in the waste brief go unmentioned. The implication is the Waste Management's relatively modest political contributions somehow indicate "undue influence." That misimpression should be corrected, and a materiality threshold established that judges contributions across all the

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					sectors. Moreover, by naming some companies in the brief and later including topics likes like secret contributions to Super PACs, the discussion implies that these companies contribute to Super PACs. At least for Waste Management, that is not the case. p. 31 left column second paragraph: Unique among the briefs, the waste brief quotes from one mid-level employee taking a position inconsistent with the company's views, which are stated public in many forums. Waste Management's public policy positions include public support for reasonable climate change regulations, support for renewable energy, support for recycling and composting, and support for stringent e-waste standards. See Waste Management 2014 Sustainability Report, pp. 43-46 and Appendix at p. 20, http://www.wm.com/sustainability/index.jsp. See also "Participation in the Political Process," http://investors.wm.com/phoenix.zhtml?c=119743&p=irol-govhighlights.
Waste Management	Ind. Brief comment	Innacuracy	Corporate Professional	DNA - Innacuracy	Page 5, first full paragraph. "CERCLA requires cleanup of contaminated sites when there is a release of hazardous substances..." CERCLA also authorizes response to pollutants or contaminants that are not regulated as hazardous. Page 5, last full paragraph. "There are currently no federal laws that directly concern recycling." RCRA (federal law) is directly applicable with respect to the definition of recycling as it pertains to solid waste and how it is managed. Page 6, 2nd to last full paragraph. "Specifically, recent trends suggest a regulatory emphasis on environmental protection which will serve..." The meaning of this sentence is not clear, nevertheless, the regulatory emphasis on environmental protection in the Waste Industry is historic, not a recent trend. SWDA was passed in 1965 and RCRA was passed in 1976.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					Page 8, 1st (incomplete) paragraph. "ensure that harmful substances do not leach into the environment." Since leaching is only one of several routes for harmful substances to enter the environment, I suggest a more comprehensive verb, such as "migrate." Page 13, 2nd to last full paragraph. "...underground wells are the most common method of disposing of liquid hazardous waste." I see that this was lifted directly from EPA's web page, but I think it deserves additional detail/research (some EPA web pages are notoriously out of date). While underground wells may be the most common method, I don't believe they currently treat or dispose of the largest volume of liquid hazardous waste. Page 14, 1st paragraph in "Evidence". "This isolation is accomplished with a bottom clay or synthetic liner and daily covering of soil, which prevent rodents from reaching it." You may want to edit this sentence. I assume the "it" referred to is the waste inside the landfill. In general, the bottom clay or synthetic liner's primary design purpose is to prevent leachate migration from the landfill. The daily cover is used for rodent (and bird) control as well as to prevent waste from blowing off the landfill. Page 16, Value Impact paragraph. "The quantity of releases and leachate in comparison to the amount treated gives insight into the likelihood of regulatory fines and remedial action ..." The Evidence section does not provide examples that illustrate this correlation between the number (quantity) of releases and "the amount treated" (which I assume refers to waste). If this is true, the prior cited Evidence does not support this assertion.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Waste Management	Ind. Brief comment	Innacuracy	Corporate Professional	DNA - Innacuracy	One page 8, the document references the methane global warming potential of 25. The most recent IPCC document, the 5th Assessment Report, reported that the scientific consensus on the GWP of methane is now 28-34.
Waste Management	Ind. Brief comment	Other Comment	Market Participant	DNA - Other Comment	Brief should be laid out in a way that is more aligned with the flow of survey questions...
Waste Management	Ind. Brief comment	Other Comment	Public Interest	DNA - Other Comment	Well researched and presented materials. In an effort to remain sustainable, I do not print out these reports. They are difficult to read with two columns as one page does not fit on a laptop screen. Please don't put this version in columns! I know it looks good, but it's only for review,
Waste Management	Industry insights	Comment on Brief	Corporate Professional	DNA - Comment on Brief	It would be helpful to be clearer about the bounds of the sector. Does it include public and private sector service providers? If it includes consultants, do the answers reflect their internal metrics (primarily people and an office building) or the impacts of what they do for customers? Is the remediation sector included? How are commercial vs. captive waste facilities captured? This probably reflects the fact that service industries are harder to characterize.
Waste Management	Industry insights	Other Comment	Corporate Professional	DNA - Other Comment	Since SASB is intended to some extent to reflect the participation of its participating companies, the research briefs should take care to lead with some positive, and not primarily negative, case examples where they are available. Particularly with the waste management brief, the tone of the company examples is most often negative. The SASB effort is likely to attract more participation if companies are encouraged to follow examples of stewardship rather than fear criticism. Company sustainability reports contain many examples of good practices, and evaluations by rating agencies like Dow Jones, CDP, Vigeo, Ethisphere, etc. can serve as a cross check that the companies describing their leadership are authentic and have been reviewed by independent sources. In the next phase of refining the research briefs, it will be important to consider how to normalize the approach across sectors. For example, in

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					some sectors, governance is highlighted by reference to convictions for bribes. In other sectors where there appears to be no evidence for that kind of corruption, companies making lawful, FEC-disclosed political contributions are cited in a general discussion of "undue influence." The two standards are radically different. Moreover, there should be some determination across sectors the level of political contribution considered worth mentioning. One sector shouldn't be characterized as justifying a SASB standard for a level of contribution dramatically less than those that don't even warrant mention in other sectors. In addition, generic areas of governance concern should not be written in a way that implies undue influence without evidence it occurs. SuperPACs are of concern, but if there is no evidence of these contributions within the sector considered. Formatting might help refine the accuracy and balance of the research briefs. It might make sense to have generic descriptions of the issue presented – for example, the ways in which bribes and hidden contributions to SuperPACS can subvert the political process along with other topics like disclosure of public positions and of political giving management procedures. Then if there are examples of good practices (a strong and independently reviewed Code of Conduct specifically banning bribes) and examples of where problems can arise (a case example of bribery in the sector), the companies mentioned won't appear to be examples of all bad practices listed for consideration. This kind of format also will make it easier to make sure examples are comparable. Efforts are necessary to assure that company examples are accurate and that the entire sector covered is represented – not just large publicly traded companies because they tend to attract more press coverage. It would be useful at the beginning of the waste management brief to

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					describe what waste is being covered. The brief actually focuses on the handling of hazardous waste at commercial facilities (as opposed to "captive" hazardous waste handling on-site by manufacturing and industrial facilities) and on municipal solid waste (and largely as handled by the private sector). These are subsets of the larger universe of solid waste – which by volume dwarfs RCRA Subtitle C hazardous waste handled by commercial vendors and RCRA Subtitle D municipal solid waste. It would be useful to clarify that wastes handled on site are covered within the generating sector (e.g., coal ash disposal is handled in the utility sector brief), and that this section focuses on third-party, commercial vendors. If off-site remediation service providers are included, that should be distinguished as well. Environmental justice considerations are by no means unique to the waste industry, and this factor would be material for other sectors as well. See http://www.epa.gov/environmentaljustice/resources/publications/nejac/2012-preventing-chemical-plant-disasters.pdf , http://www.epa.gov/environmentaljustice/resources/publications/nejac/ej-in-permitting-report-2011.pdf, http://www.epa.gov/environmentaljustice/resources/publications/nejac/ej-screening-approaches-rpt-2010.pdf
Waste Management	Labor Relations	Materiality?	Corporate Professional	Maybe	If possible, Labor Relations should incorporate how companies provide additional opportunities for development and training for potential career progression.
Waste Management	Labor Relations	Materiality?	Corporate Professional	Maybe	Unionization rates are assumed to be a surrogate for good treatment of employees. The more direct and appropriate consideration is how all employees are treated in terms of training, benefits and career development. Moreover, the unions represented in the waste industry maximize their impact by concentrating for some period on a particular company. Thus the number and duration of strikes and lockouts will reflect their focus, but not a balanced reflection of working conditions across the sector. By focusing on

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					this topic rather than more specific aspects of employee treatment, the survey misses the opportunity to perform a valuable function in incentivizing good benefits, career development and training.
Waste Management	Labor Relations	Materiality?	Corporate Professional	No	Don't believe that this is frequent enough to be material. We get more questions on corruption/Code of Conduct enforcement. In addition, as a service company, employee engagment, attraction, and retention are more material to our business.
Waste Management	Labor Relations	Materiality?	Corporate Professional	No	See first topic comment on previous page.
Waste Management	Labor Relations	Materiality?	Public Interest	Yes	Strike activity and cost to manage that activity will affect sales
Waste Management	Labor Relations	Materiality?	Public Interest	Yes	Again, social media will reveal any missteps. Why have a contentious relationship, when a working relationship makes everyone happier and less stressed?
Waste Management	Land Use & Ecological Impacts	Materiality?	Corporate Professional	Maybe	TRI covers releases to air, waste and land and transfers off-site for facilities of a certain size in enumerated sectors, including RCRA Subtitle C facilities. MSW landfills and incinerators are not subject to TRI unless the facility is adjacent to a RCRA Subtitle C facility under common ownership. Only 4% of TRI releases come from RCRA Subtitle C facilities, and 96% are from other -waste sectors (chemicals, mining, utilities, metals, etc.). Because of the statutory structure of the TRI system, only waste companies that operate RCRA Subtitle C landfills will report TRI releases to air, water or land and thus be captured by this proposed indicator. Non-Subtitle C landfills may report transfers of TRI substances, but only because they transfer hazardous materials like used oil or electronics to the appropriate RCRA Subtitle C disposal sites. Moreover, EPA continues to reiterate its view that increased quantities of TRI materials in RCRA Subtitle C containment represent “a generally positive environmental trend because these facilities are in the business of

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					managing hazardous waste and do so under strict controls." www.epa.gov/tri/tridata/tri06/pdr/key_findings_v12a.pdf. See also www.epa.gov/tri/ tridata/tri08/national_analysis/pdr/TRI_key_findings_2008.pdf For example, in explaining what TRI data mean to a community, the EPA, in its most recent commentary about the TRI inventory, prioritized sites by subtracting emissions to land reported by RCRA Subtitle C regulated units because those units were considered to be physically controlling toxic releases rather than emitting them. http://www2.epa.gov/sites/production/files/2013-09/documents/tri_factors_to_consider_2013.pdf. Given EPA's distinction between RCRA Subtitle C containment of TRI materials and other "releases," using TRI as a surrogate to characterize the ecological impact of "waste management" doesn't convey useful information. It's merely another way of saying "do you operate a RCRA Subtitle C facility?" Moreover, it means the company is heavily regulated -- which says nothing about whether a waste sector facility has impacted the environment. Volume and percentage of leachate treated will not tell the public very much. The volume of leachate depends upon climatic conditions (a wet environment will result in wetter waste disposed and some rainfall during the day when waste is placed in the landfill), the type of on-site cover (clay vs. sand), the slope of the landfill surface, landfill design, and types of wastes accepted. All leachate disposal is subject to water quality standards – both in terms of permission to send leachate to a Publicly Owned Treatment Works, ability to discharge into a water body because the leachate meets all applicable water quality standards for such discharge, or ability to operate a treatment facility on-site. Leachate volume is independent of leachate quality, and the only issue of relevance to the environment is whether all leachate is disposed according to applicable water discharge standards. The

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					issue of whether a facility has violated its water discharge permits is meaningful, but leachate volume and manner of handling is not.
Waste Management	Land Use & Ecological Impacts	Materiality?	Corporate Professional	Maybe	I would prefer to see this labelled as "Environmental management" or "pollution". To us the issue is less land use, but the environmental impact of what we are putting in the land.
Waste Management	Land Use & Ecological Impacts	Materiality?	Corporate Professional	Maybe	See above.
Waste Management	Land Use & Ecological Impacts	Materiality?	Corporate Professional	No	the ef,fects of inattention or mismanagement of these factors are well regulated and monitored by other means; e.g., the potential metrics cited, TRI, leachate generated and fines are each the result of regulations, or otherwise regulated by CWA and similar.
Waste Management	Land Use & Ecological Impacts	Materiality?	Corporate Professional	Yes	Landfills create a permanent impact on land. Even beyond the regulatory minimum post-closure care period, landfills will need to be perpetually monitored and maintained. Regulatory agencies continue to assess this important area of risk (http://www.law360.com/articles/595001/looking-at-rcra-liability-post-closure-care-period). In addition, landfills continue to face challenges with regard to leachate collection and treatment. Recently, Waste Management was indicted on violations of the Clean Water Act, conspiracy, and making false statements (http://www.justice.gov/usao-hi/waste-management-hawaii-inc-and-managers-indicted-violations-clean-water-act-conspiracy).
Waste Management	Land Use & Ecological Impacts	Add Issue	Market Participant	Management of toxic waste and emissions [LAND USE &	(probably understood by the Land Use & Ecological Impacts-topic, but that topic does not clearly describe the issue) Waste companies are one of the sectors that face most fines and litigation (by EPA) due toxic waste and emissions. This is a highly material area.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
				ECOLOGICAL IMPACTS]	
Waste Management	Land Use & Ecological Impacts	Materiality?	Market Participant	Yes	Waste management is one of the most polluting sectors in the economy, facing frequent fines and litigation.
Waste Management	Land Use & Ecological Impacts	Materiality?	Public Interest	Yes	tax credits, regulatory compliance and brownsite management status would affect investor decisions
Waste Management	Land Use & Ecological Impacts	Materiality?	Public Interest	Yes	Enough said on this one.
Waste Management	Land Use & Ecological Impacts	Materiality?	Public Interest	Yes	Remediation requirements and obligations represent a significant cost to waste management companies, and therefore would be a pertinent topic for reasonable investors.
Waste Management	Land Use & Ecological Impacts	Materiality?	Public Interest	Yes	(blank)
Waste Management	Landfill Gas Management	Materiality?	Corporate Professional	Maybe	Auditing is certainly possible but there are so many locations it would be extremely challenging.
Waste Management	Landfill Gas Management	Materiality?	Corporate Professional	Maybe	Although disclosing landfill gas generated, flared and used for energy can be tabulated, auditing it would be very difficult (and expensive) for a third party to audit because the numbers involve so many individual sources. US EPA's GHG inventory rule rejected the idea of independent auditing as less reliable than the EPA system. See EPA-HQ-OAR-2008-0508: FRL-RIN 2060-A079, Section II. N.- Summary of Comments and Responses on Emissions Verification Approach, 74 Fed. Reg. at 56282.
Waste Management	Landfill Gas Management	Materiality?	Corporate Professional	Maybe	the associated potential and actual GHG emissions associated with landfill gas would be best disclosed as part of a larger GHG emissions inventory so picking some components without others seems shortsighted and provides an incomplete picture.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Waste Management	Landfill Gas Management	Materiality?	Corporate Professional	Maybe	This should be labelled "Landfill emissions management", not "gas". Currently, prediction of biogas generated in the landfill and measurement of emissions is based on calculations that may not be accurate, thus the first two metrics are suspect. Assuming that landfill gas capture is a long term solution for gas management is too prescriptive (IF0201-02).
Waste Management	Landfill Gas Management	Materiality?	Corporate Professional	Maybe	The industry can report on the various aspects of landfill gas generation and management. However third party auditing can be highly difficult due to the highly dispersed nature of these facilities.
Waste Management	Landfill Gas Management	Materiality?	Corporate Professional	Yes	Landfills are the 3rd largest source of anthropogenic methane (http://epa.gov/climatechange/ghgemissions/gases/ch4.html), a potent GHG 28-34 times as strong as CO2 over 100 years, and 84-86 times as strong as CO2 over 20-years (See Table 8.7 of https://www.ipcc.ch/pdf/assessment-report/ar5/wg1/WG1AR5_Chapter08_FINAL.pdf). A short lived climate pollutant, methane is increasingly under focus by the U.S. White House (https://www.whitehouse.gov/sites/default/files/strategy_to_reduce_methane_emissions_2014-03-28_final.pdf), the U.S. State Department (http://www.state.gov/r/pa/prs/ps/2012/02/184055.htm), and the United Nations Environmental Program (http://www.unep.org/ccac/About/History/tabid/130280/Default.aspx). Furthermore, landfill gas contains significant quantities of hazardous air pollutants, including known and potential carcinogens (See http://www.epa.gov/ttn/chief/ap42/ch02/draft/d02s04.pdf cross referenced with http://ntp.niehs.nih.gov/pubhealth/roc/roc13/index.html) Emissions of these hazardous air pollutants led to a recent $17M settlement for a Hawaii landfill (http://yosemite.epa.gov/opa/admpress.nsf/0/418BD8BA0112108F85257E4300652693).

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Waste Management	Landfill Gas Management	Materiality?	Market Participant	Yes	LFGs are such a large source of methane emissions and are likely to face tightening regulation in the future, which will have a material economic impacts on companies.
Waste Management	Landfill Gas Management	Materiality?	Market Participant	Yes	These gases face regulation and companies may be subject to fines for noncompliance.
Waste Management	Landfill Gas Management	Materiality?	Public Interest	Maybe	liability and cost of compliance, esp compliance if deleterious effects of that management are not properly disclosed to regulators
Waste Management	Landfill Gas Management	Materiality?	Public Interest	Maybe	Landfill gas is not well defined entity. It is defined operationally but may contain a variety of materials, some of which may or may not be regulated. All this depends on local politics and regulations
Waste Management	Landfill Gas Management	Materiality?	Public Interest	Yes	Since Landfill Gas is mostly methane, it has a much higher impact on climate change than carbon dioxide emissions. Furthermore, it can be used as a fuel source. So not making this a priority is wasteful. http://www.scsengineers.com/scs-white-papers/the-importance-of-landfill-gas-capture-and-utilization-in-the-u-s
Waste Management	Landfill Gas Management	Materiality?	Public Interest	Yes	Management of LFG is critical as proactive initiatives to reduce gas emissions will help to keep government regulation at bay. If companies can make progress in this area through reductions or innovative use of gas emissions, public pressure to legislate emissions is less likely. Operating in an environment with fewer regulatory requirements will allow for resources to be focused on engineering technologies rather than reporting/compliance.
Waste Management	Management of the Legal & Regulatory Environment	Materiality?	Corporate Professional	Maybe	It makes sense to ask companies to disclose the major topics on which they provide public advocacy and the link to their business and to ask about the processes by which they assure that their advocacy is coordinated and reviewed by senior leadership. The phrasing is confusing, however. “Public relations” strategies focus on selling the service, not on taking political positions. The sensible questions are “what are your most important policy positions on which you lobby” and “what processes are used to assure

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					political contributions are lawful and consistent with your public positions on policy."
Waste Management	Management of the Legal & Regulatory Environment	Materiality?	Corporate Professional	Maybe	See first topic comment above.
Waste Management	Management of the Legal & Regulatory Environment	Materiality?	Corporate Professional	Yes	Landfills were recently named as a source category for which the U.S. EPA has not fullfilled its statutory requirement to re-assess standards for hazardous air pollutants (http://www.4cleanair.org/sites/default/files/Documents/document_gw_02.pdf) The U.S. EPA is also expected to develop new regulations for the control of landfill gas (https://www.federalregister.gov/articles/2014/07/17/2014-16405/standards-of-performance-for-municipal-solid-waste-landfills)
Waste Management	Management of the Legal & Regulatory Environment	Materiality?	Corporate Professional	Yes	This is okay.
Waste Management	Management of the Legal & Regulatory Environment	Materiality?	Market Participant	Yes	(blank)
Waste Management	Management of the Legal & Regulatory Environment	Materiality?	Public Interest	Yes	Self explanatory.
Waste Management	Management of the Legal & Regulatory Environment	Materiality?	Public Interest	Yes	Waste management companies are constantly hit with fines, NOVs, orders, etc. Failure to effectively manage these items could pose a significant business risk.
Waste Management	Materials Recovery &	Add Issue	Corporate Professional	Customer solutions	Simply focusing on volumes of waste handled and customers served does not get to the heart of the waste sector as a service industry. It is important to have information on the ways the industry serves customer goals for more

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
	Landfill Diversion			[MATERIALS RECOVERY AND LANDFILL DIVERSION]	sustainable materials management. One way to focus on that customer service would be to ask for revenue breakdowns by business line: waste reduction services, recycling and of what kind, recovery of waste into electricity or fuel, and then landfilling. See the 2014 Sustainability Report linked below at p. 7, 18-23.
Waste Management	Materials Recovery & Landfill Diversion	Add Issue	Corporate Professional	Influencing change through customer engagement [MATERIALS RECOVERY AND LANDFILL DIVERSION]	Somewhat tied to my response in materials recovery & landfill diversion, an investor should be made aware of the activities a waste management company is involved in that may lead to increased sustainability for their customers. This impacts operations and materials management across the country and around the world via changes in areas of revenue growth, impact on greenhouse gas emissions, and risks to the company.
Waste Management	Materials Recovery & Landfill Diversion	Materiality?	Corporate Professional	Maybe	Landfill diversion should include a discussion on how waste management companies influence their customers to increase diversion.
Waste Management	Materials Recovery & Landfill Diversion	Materiality?	Corporate Professional	Maybe	Given the brief's recognition that waste reduction is highest on the sustainability "waste hierarchy," it makes sense to ask about what the company does to help customers avoid waste generation – either in terms of percentage of total revenue, number of waste reduction projects or customers served, or a qualitative discussion of the range of services rendered. The number of customers served through recycling or composting will be difficult to interpret. Is a municipal contract for recycling one customer – or is the population served the number of customers? Does the volume of material matter? How do you allocate between collection for recycling and operating the Material Recovery Facility that processes the materials for recycling? It would make more sense simply to ask the company to disclose the percentage of its revenue made from recycling and composting and from

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					waste reduction consulting contracts. It would be useful to cite the relevant e-cycling certification programs: eStewards (Basel Action Network), R2/RIOS, and ISO 9001 and 14001.
Waste Management	Materials Recovery & Landfill Diversion	Materiality?	Corporate Professional	Maybe	Materials recovery and diversion is highly dependent on the fluctuations of commodity markets and the ability of customers (residents and businesses) to actg in conformance with program requirements. In addition, when markets are strong, programs are more likely to be sustainable than when otherwise..
Waste Management	Materials Recovery & Landfill Diversion	Materiality?	Corporate Professional	No	Proposed metrics provide only part of the picture - would prefer a more holistic metric that consider the entire waste management scheme and how much of entire waste stream is landfilled/incinerated
Waste Management	Materials Recovery & Landfill Diversion	Materiality?	Corporate Professional	Yes	The disposal of waste materials in landfills represents a huge missed opportunity to lower environmental impacts, including energy consumption and GHG emissions. Connecticut, Massachusettes, and California are in various stages of implementing laws and regulations to divert organic materials from landfills.
Waste Management	Materials Recovery & Landfill Diversion	Materiality?	Corporate Professional	Yes	Don't agree with the term "Landfill Diversion". Would prefer to see "Materials Recovery & Management". Diversion to incineration, for example, is no better in our minds. if we want to avoid resource scarcity, we need to preserve materials, not consume them. Think of the LCA implications of oil to plastics to energy - lots of wasted emissions. We believe in higher/better use, not just diversion for the sake of getting it out of a landfill. Inert materials like plastics in a landfill do less environmental harm than when incinerated. Due to the diversity of the "waste' industry, not all metrics would be applicable and appropriate for every company. In addition, over time, there could be more metrics as emerging technology becomes viable.
Waste Management	Materials Recovery &	Materiality?	Market Participant	Yes	Waste is a highly valuable resource and should be used, not landfilled.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
	Landfill Diversion				http://www.bloomberg.com/news/articles/2012-04-03/trash-saved-by-waste-management-worth-up-to-40-billion
Waste Management	Materials Recovery & Landfill Diversion	Materiality?	Market Participant	Yes	The cost of getting new materials is getting higher, companies could make money from recycling these materials. Recycling also reduces the risk of seepage.
Waste Management	Materials Recovery & Landfill Diversion	Other Comment	Public Interest	DNA - Other Comment [MATERIALS RECOVERY AND LANDFILL DIVERSION]	The emphasis is on preventing or minimizing contaminant release through diversion/reuse/dispersal and finally containment. I do not see any indication that SASB is looking to minimize inputs to minimize waste being produced BY industry. For example, in Europe, Philips NV is a major electronics manufacturer and has cut its use of plastic types from hundreds down to about 4 types. This minimizes end-of-life management of the product and dramatically cuts the need to manage unusable waste--all of this directly affect the corporation's stock materiality (using the US Supreme Court definition of materiality). The lack of this discussion should be of concern, as SASB could place itself to incentivize national and state/provincial legislatures to reward the waste management industry and its customers through such profitable, stock-affecting mechanisms as tax credits, tax transfer credits (could these be tranched and sold by stock exchanges and bond markets?) and other incentive mechanisms.
Waste Management	Materials Recovery & Landfill Diversion	Materiality?	Public Interest	Maybe	These issues are very much in the future when they may become relevant (except in some localities where it falls under regulations)
Waste Management	Materials Recovery & Landfill Diversion	Add Issue	Public Interest	Preventing waste inflow as a profitable strategy	Much of the SASB discussion assumes that there will always be waste to divert/recycle/dump. The logical end for the industry ought be to get

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
				[MATERIALS RECOVERY AND LANDFILL DIVERSION]	rewarded for minimizing waste production at source, so there is decreasing waste to manage.
Waste Management	Materials Recovery & Landfill Diversion	Materiality?	Public Interest	Yes	Again, climate change is on everyone's mind. Why not reduce the GHG emissions by diverting?
Waste Management	Materials Recovery & Landfill Diversion	Materiality?	Public Interest	Yes	This is a key sustainability issue over which the waste management industry has significant control/influence.
Waste Management	Materials Recovery & Landfill Diversion	Materiality?	Public Interest	Yes	Recyclability is critical. Waste management companies rely on product design and engineering to design in recyclability, and also to create a market for recycled material. Government regulation (particularly in the European Union) has been instrumental in moving companies forward in this area, although recycling goals were missed as companies struggled to design for recyclability and build market structures to support the use of recycled materials. There are many market issues that impact this topic.
Waste Management	Metric comment	Other Comment	Market Participant	DNA - Other Comment	For all the quantitative environmental and social metrics, it would be important to add reduction or improvement targets as well.
Waste Management	New angle	Add Issue	Corporate Professional	Long-term environmental liability [LAND USE & ECOLOGICAL IMPACTS]	Landfills present a long-term environmental liability. Companies may be required to undertake remediation activities in the future in response to future environmental damages caused by landfills.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Waste Management	New angle	Add Issue	Corporate Professional	Water [LAND USE & ECOLOGICAL IMPACTS]	Landfills pose a signficant risk to groundwater and many are equipped with sophisticated leachate collection and control systems to mitigate this risk.
Waste Management	New angle	Add Issue	Corporate Professional	Landfill fires [AIR QUALITY] + [SAFETY MANAGEMENT]	Landfill fires are a significant problem. According to the US Fire Administration, there are about 8300 landfill fires a year. These fires represent a significant source of air pollution, including dioxin, however, they are not typically disclosed. The U.S. EPA has developed a preliminary estimate of landfill dioxin emissions of 1,300 g TEQ / yr (See Table 1-12 of attached EPA report), equal to one third of the total estimated U.S. dioxin emissions (quantitative inventory + preliminary) in the latest year for which data is available (2000), making landfill fires the single largest source of dioxin air emissions.
Waste Management	New Issue	Add Issue	Public Interest	Air pollutant emissions (the six that the EPA measures) [AIR QUALITY]	By including this and showing (hopefully) decreasing levels, a company can measure how they are affecting the health of the surrounding communities.
Waste Management	No action needed	Innacuracy	Corporate Professional	DNA - Innacuracy	Sue Briggum and I have discussed this and she has provided a summary of inaccuracies.
Waste Management	No action needed	Other Comment	Corporate Professional	DNA - Other Comment	I appreciate the opportunity to participate in this process.
Waste Management	No action needed	Add Issue	Public Interest	Governance and Transparency	By letting the public know about how the company is organized and what its priorities are, the public can be informed (and hopefully) engaged with what is going on in the community. In addition, the public can be better waste managers themselves making the waste management company's job easier.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Waste Management	Operational Energy & Fleet Fuel Management	Materiality?	Corporate Professional	Maybe	Tracking and reporting purchased electricity and natural gas is not a problem but estimating renewable energy consumed (and auditing that) might be a challenge.
Waste Management	Operational Energy & Fleet Fuel Management	Materiality?	Corporate Professional	Maybe	Estimating the percentage of renewable energy consumed would be next to impossible. Few states have energy service providers that can be selected based on renewable energy service, so at best the disclosure would simply track utility service area and the utilities' energy source ratios. In contrast, since RINs can be claimed for use of CNG trucks, and RINs are also available for LNG from LFG, so the percentage of renewable fleet fuel used can be calculated.
Waste Management	Operational Energy & Fleet Fuel Management	Materiality?	Corporate Professional	Maybe	see explanation above but for fuel consumption
Waste Management	Operational Energy & Fleet Fuel Management	Materiality?	Corporate Professional	Maybe	the total industry fleet is in excess of 100,000 trucks. These trucks operate in all fifty states.
Waste Management	Operational Energy & Fleet Fuel Management	Materiality?	Corporate Professional	Yes	This is one of our sustainability intiative pillars. Although the emissions are small compared to landfill emissions, they are a factor that we can manage and reduce. Management of these issues is an indicator of operational efficiency.
Waste Management	Operational Energy & Fleet Fuel Management	Materiality?	Market Participant	Yes	For waste managers the fleets represent a significant operating cost, therefore efficiency improvements can have a very material effect on costs.
Waste Management	Operational Energy & Fleet Fuel Management	Materiality?	Market Participant	Yes	Fuel expenses are a major cost for waste management companies and fluctuations in prices can have major impacts on profitability if they cannot be passes on to customers.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Waste Management	Operational Energy & Fleet Fuel Management	Materiality?	Public Interest	Maybe	While energy performance of waste management facilities is important, it ranks lower on the priority list relative to the other material issues presented since the other issues have more of direct impact on the immediate environment and surrounding population. There are also many legal ramifications associated with the other issues (or failure to effectively manage the other issues), which would be of greater concern to a reasonable investor.
Waste Management	Operational Energy & Fleet Fuel Management	Materiality?	Public Interest	Yes	efficiency of the company's of energy resources affect ability to respond to spot markets
Waste Management	Operational Energy & Fleet Fuel Management	Materiality?	Public Interest	Yes	Every Millennial I know is interested in sustainability. Most of the college students are studying this. They don't drive as much partially because they are concerned about the air they breathe. It makes economic sense, and it decreases smog. This in turn decreases respiratory related illness which the fleet does not pay for--the individual patient pays for. http://www.automotive-fleet.com/article/story/2010/07/green-fleet-mapping-a-sustainable-fleet-strategy.aspx
Waste Management	Operational Energy & Fleet Fuel Management	Materiality?	Public Interest	Yes	Improvements in this area will require the cooperation of local government and citizens for real progress. Moving from a strictly free market approach may help gains to be made in this area.
Waste Management	Survey comment	Other Comment	Corporate Professional	DNA - Other Comment	As I went through the survey, I was struck by the various types of expertise required to answer the questions in the depth requested. One would need to have quite a bit of experience in regulations, EH&S, sustainability, and other areas and it is unlikely one person or even two people in an organization holds such knowledge. So, I found some subjects were easy to respond to as an expert and other areas of which I have very little knowledge. It concerns me that there was no real opportunity to express that, to "opt out" of a question. Are responses from a large, anonymous group are they representing views binding on the company? Do you want my individual

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					responses or should I be expressing Waste Management's official company views?
Waste Management	Workforce Health & Safety	Materiality?	Corporate Professional	Maybe	Many tragic accidents that occur are not due to driver negligence but are the fault of a non-employee; this should be accounted for.
Waste Management	Workforce Health & Safety	Materiality?	Corporate Professional	Maybe	One of the challenges with requiring a simple fatality rate in the waste management sector is that the majority of fatalities involve a “civilian” running into a waste company’s vehicle. This would be a good opportunity to clarify that risk, and ask what the company is doing to prevent accidents where the company itself is not in control of the risk (e.g., a car runs into a garbage truck). The industry trade association is leading a safety initiative that is worth mentioning because it is relevant to all sectors with extensive fleets. See https://wasterecycling.org/our-work/safety (Slow Down to Get Around). It would also make sense to ask for a discussion of the company’s internal safety program – its training, certifications, etc.
Waste Management	Workforce Health & Safety	Materiality?	Corporate Professional	No	See first topic comment on previous page. Obviously worker health and safety is crucial to any company. But any chosen metrics must be applicable.
Waste Management	Workforce Health & Safety	Materiality?	Corporate Professional	Yes	H&S is already considered integral to public image, operational excellence, and is measured and reported by any number of OSHA standards and reporting metrics; investors could (and likely already do) use H&S reporting as a potential red flag on operational performance
Waste Management	Workforce Health & Safety	Materiality?	Corporate Professional	Yes	Agree, one of our pillars. The statistics that are required to be reported should align with what is already being reported to OSHA.
Waste Management	Workforce Health & Safety	Materiality?	Market Participant	Yes	We see high levels of H&S issues in this particular sector, both accidents and fatalities. Material.
Waste Management	Workforce Health & Safety	Materiality?	Public Interest	No	regulated activity governed by statute and regulation, in a way that to me does not present materiality effects

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Waste Management	Workforce Health & Safety	Materiality?	Public Interest	Yes	If a waste management company does not take care of its workers, who is going to want to work there?
Waste Management	Workforce Health & Safety	Materiality?	Public Interest	Yes	(blank)
Water Utilities	Climate Change Risk Exposure	Materiality?	Corporate Professional	Maybe	Climate change has an obvious impact on utilities: water and waste water utilities are no exception.
Water Utilities	Climate Change Risk Exposure	Materiality?	Corporate Professional	Maybe	Same reason as scarcity.
Water Utilities	Climate Change Risk Exposure	Materiality?	Corporate Professional	Yes	http://files.shareholder.com/downloads/AMERPR/3882272722x0x673338/387ABD61-183B-47B2-8814-556F59B13FDB/WP_Sustainability_and_Resiliency_Planning_White_Paper_6-27-13_Final.pdf
Water Utilities	Climate Change Risk Exposure	Materiality?	Market Participant	Maybe	main risk from climate change is water scarcity which is covered elsewhere. climate change impacts will depend on geography and hence too hard to compare.
Water Utilities	Climate Change Risk Exposure	Materiality?	Public Interest	Maybe	This is not a reliably measurable area.
Water Utilities	Climate Change Risk Exposure	Materiality?	Public Interest	Maybe	It is not clear to what extent climate change (a global phenomenon) will or will not affect local water availability
Water Utilities	Climate Change Risk Exposure	Materiality?	Public Interest	Yes	water scarcity, extreme weather events, risk to facilities and the ability to fulfill contract obligations have direct relationship to future performance
Water Utilities	Climate Change Risk Exposure	Materiality?	Public Interest	Yes	Climate change risk may impact water availability, energy costs, risk to infrastructure, and are therefore material.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Water Utilities	Climate Change Risk Exposure	Materiality?	Public Interest	Yes	http://water.epa.gov/infrastructure/watersecurity/climate/upload/epa817s14001.pdf
Water Utilities	Congratulations	Other Comment	Public Interest	DNA - Other Comment	The industry brief seemed to me well-researched and was very useful for completing the survey.
Water Utilities	Downstream Water Efficiency	Materiality?	Corporate Professional	Maybe	It all comes down to cost and what the regulators view as necessary for the rate payers to pay for. Additional efficiency may not be worth the cost to the rate payers.
Water Utilities	Downstream Water Efficiency	Add Issue	Market Participant	Use of smart technologies/ innovation [DOWNSTREAM WATER EFFICIENCY]	Loss of revenue often comes from leaky distribution systems which are often not monitored. This impacts both the supply and quality sides.
Water Utilities	Downstream Water Efficiency	Materiality?	Public Interest	Maybe	It depends on the nature of the full scale of the water utilities' business.
Water Utilities	Downstream Water Efficiency	Materiality?	Public Interest	No	I am not sure that downstream activity is within the control of a company or material or ability to satisfy upstream obligations
Water Utilities	Downstream Water Efficiency	Materiality?	Public Interest	Yes	Non-revenue water is the biggest loss in the business
Water Utilities	Downstream Water Efficiency	Materiality?	Public Interest	Yes	The trend in per capita water use (or customer water savings from efficiency measures) is relevant whether or not the market is decoupled; if it is not decoupled, the increase in efficiency can be a revenue risk. This is a paper looking at data from public utilities (not IOU) but relevant conceptually. http://www.ceres.org/resources/reports/assessing-water-system-revenue-risk-considerations-for-market-analysts/view
Water Utilities	Drinking Water Quality	Materiality?	Corporate Professional	Maybe	What's the metric, how does the source play a part? A utility could do a great job but if the original source of water is bad, there is only so much that can

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					be done for aesthic purposes and it gets expensive in a way that may not make sense considering such a small portion is actually consumed. If rate payers are willing to pay then yes more could be done.
Water Utilities	Drinking Water Quality	Materiality?	Corporate Professional	Yes	Without adhering to water quality it is impossible for water utilities to succeed financially
Water Utilities	Drinking Water Quality	Materiality?	Corporate Professional	Yes	http://files.shareholder.com/downloads/AMERPR/3882272722x0x188164/7D8CD1A5-21DF-4B72-BBB6-8B0DB95F6270/WP_Challenges_In_The_Water_Industry_Water_Quality41608.pdf
Water Utilities	Drinking Water Quality	Materiality?	Public Interest	Maybe	Drinking water quality is important since any violations of its required quality may result in regulatory penalties, negative publicity. However, actual technical violations are uncommon although procedural violations (e.g., record keeping) are more common. Any further regulatory changes tightening quality standards may have a significant impact as it may require large capital expenditures.
Water Utilities	Drinking Water Quality	Materiality?	Public Interest	Yes	Water quality is front and center in service contracts and regulatory requirements. Failure to meet minimum requirements could result in substantial penatlies and subsequent harm to reputation and ability to win new contracts
Water Utilities	Drinking Water Quality	Materiality?	Public Interest	Yes	Water utilities are in the business of providing drinking water at an acceptable quality. Poor performance is an indicator of poor management performance.
Water Utilities	Effluent Quality Management	Materiality?	Corporate Professional	Maybe	How to measure, how its compared, and the cost to do so may it potentially difficult to provide in a meaningful way.
Water Utilities	Effluent Quality Management	Materiality?	Corporate Professional	Maybe	Effluent quality can be greatly influenced by the quality of the source water, which can be quite variable and outside of the utility's ability to for and control.
Water Utilities	Effluent Quality Management	Materiality?	Market Participant	Yes	http://water.epa.gov/infrastructure/sustain/upload/2009_05_26_waterinfrastructures_tools_si_watereum_primerforeffectiveutilities.pdf

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Water Utilities	Effluent Quality Management	Materiality?	Public Interest	Yes	Regulatory requirements associated with effluent quality could dramatically impact company performance
Water Utilities	Effluent Quality Management	Materiality?	Public Interest	Yes	This is measureable, cost effective, auditable and comparable across utilities.
Water Utilities	Effluent Quality Management	Materiality?	Public Interest	Yes	Effluent is the final "product" and any violations of its quality as prescribed by regulations expose utilities to fines, legal process, negative publicity
Water Utilities	Effluent Quality Management	Materiality?	Public Interest	Yes	Effluent quality management can be material as repeated instances of unplanned releases or continuous practice of releases that do not meet regulatory requirements can be an indicator of poor management. Also, effluent quality thresholds are becoming more stringent across the world and can represent a significant cost (and therefore risk) to water utilities if large scale upgrades are required.
Water Utilities	Energy Management	Materiality?	Corporate Professional	No	Its a recovered cost in the regulated model so it doesn't really show anything other then smart management. It also is likely hard to put into perspective given the diverse nature of water and wastewater operations (small vs. large, surface vs. ground, age, etc.). Utilities may not be able to recover costs that are incurred just to be able to report on energy management.
Water Utilities	Energy Management	Materiality?	Corporate Professional	Yes	http://amwater.com/files/Water%20Energy%20Nexus%20v3.pdf and http://files.shareholder.com/downloads/AMERPR/3882272722x0x365011/D4A2FBF3-33FF-45EB-B762-E7E23D1E0EC0/WP_Water-Energy_Correlation_White_Paper_FINAL.pdf
Water Utilities	Energy Management	Materiality?	Market Participant	Yes	http://www.epa.gov/owm/waterinfrastructure/pdfs/guidebook_si_energymanagement.pdf
Water Utilities	Energy Management	Add Issue	Public Interest	Carbon management	Water utilities' business is intrinsically linked to the movement and treatment of water, which has a large energy component, the costs and risks of which are largely driven by their carbon intensity.
Water Utilities	Energy Management	Materiality?	Public Interest	Yes	Energy is one of the three primary cost categories associated with water treatment and conveyence

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Water Utilities	Energy Management	Materiality?	Public Interest	Yes	This is measureable, cost effective, auditable and comparable across utilities.
Water Utilities	Energy Management	Materiality?	Public Interest	Yes	Due to rising requirements with regard to quality standards both for drinking water and treated wastewater, the energy consumption of Water Utilities is expected to rise as more energy-intensive treatment processes will be necessary and required by regulators. Energy management will also become more important with a declining availability of raw water and the increasing need to rely on alternative water resources. As an example, desalination is very energy-intensive.
Water Utilities	Energy Management	Materiality?	Public Interest	Yes	Energy costs are a very large portion of operational expenses
Water Utilities	Energy Management	Materiality?	Public Interest	Yes	Energy costs can be a significant component of costs for water utilities, especially in areas without access to relatively cheap energy (coal-fired grid power, cheap gas) or for those utilities that move water across large distances (pumping costs).
Water Utilities	Fair Pricing & Access	Materiality?	Corporate Professional	No	I am not really sure what this means.
Water Utilities	Fair Pricing & Access	Materiality?	Corporate Professional	Yes	Fair pricing is essential for regulated operations as well as market based operations; pricing without a market basis is a recipe for non-competitive actions
Water Utilities	Fair Pricing & Access	Materiality?	Corporate Professional	Yes	One of the metrics you may want to include is disclosure related to utility companies' programs for low-income households. This ties to water accessibility in the U.S. http://files.shareholder.com/downloads/AMERPR/3882272722x0x507787/FD1DCD6A-5CEE-4D7D-9086-5741F302F114/WP_VValue_of_Water_white_paper_2013_updates.pdf
Water Utilities	Fair Pricing & Access	Materiality?	Public Interest	Yes	water is becoming more and more of a scarce vital resource. Perceptions (real or not) that pricing and access are not fair could lead to significant impact to company performance
Water Utilities	Fair Pricing & Access	Materiality?	Public Interest	Yes	As water is recognised as a human right by the UN since 2010, the right for access to affordable water has gained even further relevance and can be

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					claimed by communities and individual customers. In my point of view, it is also relevant how Water Utilities deal with vulnerable or low-income customers when defining rates.
Water Utilities	Fair Pricing & Access	Materiality?	Public Interest	Yes	Rate-setting is a political process and thus "social justice" issues may influence utilities' business
Water Utilities	Fair Pricing & Access	Materiality?	Public Interest	Yes	Fair pricing and access will be an indicator of the material cost risk to water utilities from future changes i.e., their ability to pass on the costs of any required changes in water provision to their user base.
Water Utilities	Ind. Brief comment	Other Comment	Market Participant	DNA - Other Comment	The specific metrics should be included in the brief so we can consider and mull over it while reading through the brief.
Water Utilities	Industry insights	Innacuracy	Corporate Professional	DNA - Innacuracy	it may be that this thought that I have is because I'm European, but what I see is that a lot of responsibility is intended to be assumed by the company when it should be the state for its character of public good and social interest
Water Utilities	Industry insights	Innacuracy	Corporate Professional	DNA - Innacuracy	These may not be inaccuracies per se, but merely my opinion. On page 25, you outline revenue opportunities associated with fracking. Fracking is only a small percentage of our revenues and at this point, we are unsure where its headed. Water companies are required by law to serve all customers....we don't get to pick and choose who we provide service to. To that end, American Water has engaged on this issue with the fracking companies, state regulators and community leaders, because our baseline concern regards the stewardship of water sources and maintaining water quality.
Water Utilities	Industry insights	Other Comment	Corporate Professional	DNA - Other Comment	We must be practical and measure the management of a water company, focusing our efforts on all national and state laws within the scope of the company are met.
Water Utilities	Industry insights	Add Issue	Public Interest	value (cost or benefit) of external benefits	Infrastructure, facility or building performance have long term financial, social and environmental implications including potential returns that could reflect positively on the company or costs that represent negative impacts that the public or communities absorb. Many of these costs are quantifiable

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
					via benefit cost analysis which is recognize around the world as the default standard for project valuation. The failure to assess these values is a failure to report on the full performance of a water company
Water Utilities	New angle	Add Issue	Corporate Professional	Utility asset replacement rates and need [DOWNSTREAM WATER EFFICIENCY]	From an investor perspective one of the most important things is whether a utility needs to and is actively investing in needed infrastructure improvements.
Water Utilities	New angle	Add Issue	Market Participant	Age of infrastructure [DOWNSTREAM WATER EFFICIENCY]	This has a huge impact on the viability of a water utility, especially in the US where many utilities are struggling due to lack of funding for much needed infrastructure upgrades.
Water Utilities	New angle	Add Issue	Market Participant	System Capacity and demand management [EFFLUENT QUALITY MANAGEMENT]	This is related to several of the topics already included but more transparent reporting regarding strains on capacity. I,e, number of days in a year where untreated sewage is released.
Water Utilities	New Issue	Add Issue	Corporate Professional	Community Engagement [COMMUNITY RELATIONS]	There is nothing listed to provide metrics for the way in which this critical business interacts with its customers, not just during rate-making, but during construction and in emergency. Environmental Justice and large-scale community planning/economic development efforts need to be addressed as well.
Water Utilities	New Issue	Add Issue	Corporate Professional	In general, social/governance metrics that	The topics you have all relate to environmental performance or operational efficiency. There are no social or governance metrics, which support the ability to implement those in the environmental/operational sector.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
				provide support to the above.....i.e. community/stakeholder engagement, public policy/regulation, safety/risk management. [COMMUNITY RELATIONS] + [SAFETY MANAGEMENT]	
Water Utilities	New Issue	Add Issue	Public Interest	workforce structure and availability [EMPLOYEE RECRUITMENT & RETENTION]	Currently, water professionals constitute an aging work force. A 2005 study found that the average age of a water utility worker was 45, while the typical retirement age was 56. These workers will be difficult to replace especially on the technician and engineer level
Water Utilities	No action needed	Other Comment	Public Interest	DNA - Other Comment	Thank you for the opportunity to participate!
Water Utilities	Survey comment	Comment on Brief	Corporate Professional	DNA - Comment on Brief	The research brief link did not work for me.
Water Utilities	Survey comment	Other Comment	Corporate Professional	DNA - Other Comment	I have asked our directors of environment and engineering to review the industry brief, given that you focus exclusively on environmental metrics. I will forward their feedback when it is available.
Water Utilities	Water Scarcity	Materiality?	Corporate Professional	Maybe	To my knowledge there is not a standard for this. The standard would need to be auditable and measurable in an efficient way to make it possible.

Industry	Mapping to SASB Topic	Survey Category	Stakeholder Type	Suggested Topic / Response	Comment
Water Utilities	Water Scarcity	Materiality?	Corporate Professional	Yes	http://files.shareholder.com/downloads/AMERPR/3882272722x0x188152/9F79B26E-DB21-45BF-B8C3-9E37FD6B98DF/WP_Challenges_In_The_Water_Industry_Meeting_Demand_in_the_West041608.pdf and
Water Utilities	Water Scarcity	Materiality?	Market Participant	Yes	http://www.ceres.org/resources/reports/an-investor-handbook-for-water-integration/view
Water Utilities	Water Scarcity	Materiality?	Public Interest	Yes	threats to water supply can have a direct impact on the company's ability to fulfill its service obligation
Water Utilities	Water Scarcity	Materiality?	Public Interest	Yes	Water is an essential input and the rationale for utilities business
Water Utilities	Water Scarcity	Materiality?	Public Interest	Yes	Increasing water scarcity not only represents additional cost risk, but will also be an indicator of management performance in terms of how water utilities address the issue.