

**Advisory Committee on Socially Responsible Investing
Columbia University**

August 31, 2016

To the University Community:

In its November 2015 response to a student group petition calling for broad-based divestment from fossil fuels companies,¹ the Advisory Committee on Socially Responsible Investing (ACSRI or “the Committee”) undertook to consider the possibilities for a targeted fossil fuel divestment/no-investment policy based on the “stand up for the science” approach that the Committee had previously articulated as a basis for divestment activity. This would mean targeting for divestment (or non-investment) publicly traded firms that engage in denial of climate change science whether by “word” or by “deed.”

In its deliberations the Committee came to the view that development of costly-to-extract fossil fuel resources represented “denial by deed” of climate change science. This is because the scientific consensus on climate change is that the full use of previously existing, cheaper-to-extract fossil fuel reserves will produce CO₂ emissions far in excess of safe levels, yet the development and holding of more costly-to-extract reserves presumes such prior use of the cheaper alternatives. To be more quantitative, if we are to adhere to the 2-degree centigrade (2°C) increase limit that the scientific consensus regards as necessary to avoid seriously damaging climate change, we cannot burn fossil fuel reserves holding more than approximately 600 Gigatons of CO₂ over the 2015-2050 period. The already-known reserves amount to approximately 2800 Gigatons of CO₂. Development and holding of additional reserves that are more costly to extract than existing reserves entails denial of the profound fact that we cannot burn the reserves we already have without climate change disaster. This is the basis for our proposal.

The logic of Committee’s approach would target unconventional, high-cost resource development such as Artic exploration and drilling, deep sea drilling, and tar sands. An actionable recommendation requires reliable data, however. The Committee has come to focus on tar sands because it believes that reliable data is available through Fossil Free Indexes, which is preparing a “Tar Sands 20” list of the top holders of tar sands reserves in response to various client requests and can credibly generate data to distinguish among these firms on criteria of on-going development expenditures.

¹ The group, Columbia Divest for Climate Justice, proposed divestment from an index of the 200 largest oil and coal companies. As discussed below, the Committee rejected that proposal.

The pattern of investment and development of tar sands is costly in a particular way: The very high upfront investment costs can be justified only because of an unusually long expected production period, 30-40 years, in comparison to a more conventional oil well with an expected 11 years of production. Thus the tar sands development model is based on denial of climate change science: the investment is driven by a presumption about the continuous use over a long term of a newly developed fossil fuel resource that the science teaches is inconsistent with the climate change threat. Moreover, the development process is costly in another way. The extraction process for tar sands produces emissions that range from 15%-40% higher than for conventional fuel oil. In other words, the business model of tar sands development not only requires long term production for economic success but also the imposition of extra emissions burdens throughout the long period. These elements, which lock in long term new production and long-term excess emissions, show the denial of climate change science in tar sands development and reserves holding.

Among the criteria for an ACSRI divestment recommendation is a broad consensus in the Columbia University community. Because the Committee is generating this particular approach rather than responding to a petition, the Committee is interested in hearing the views of community members. Shortly after the beginning of the fall semester, Committee will issue a formal request for responses and comments through a survey instrument posted on its website. The Committee anticipates a five week response and comment period. After assessing those reactions, the Committee will determine whether to submit a divestment/non-investment recommendation on tar sands to the Trustees and to consider other possible actions.

Recently, subsequent to the ACSRI's formulation of a tar sands proposal, some faculty members of the Earth Institute asked for the Committee's consideration of a proposal for divestment/non-investment from companies that are "primarily in the coal-mining business" and for screening of other fossil fuels companies based on various climate change science-acceptance factors. Once the Earth Institute faculty members submit a proposal per the ACSRI guidelines, the Committee will undertake an evaluation through its customary process of engagement with the proponents and Committee deliberation, beginning in fall 2016.

Procedural History

In fall 2013 the student group now known as "Columbia Divest for Climate Justice" presented a petition to ACSRI requesting that the University divest from the 200 companies on the "Carbon Underground 200" list. Since then the ACSRI has engaged with the fossil fuel divestment issue in a sustained way. In May 2014 the ACSRI declined to recommend the requested action to the Trustees on the grounds that it did not meet the three criteria for divestment: (1) that there must be broad consensus in the Columbia community, (2) that the merits must lie clearly on one side,

and (3) that there be no feasible alternative to divestment.² However, the Committee also decided that the issue warranted further investigation and thus established a standing subcommittee on fossil fuels.

In September 2015 the CDCJ student group asked the ACSRI to consider anew the petition for divestment from the Carbon Underground 200, asserting that various procedural flaws meant that the proposal had never been squarely addressed by the ACSRI notwithstanding the specific response in May 2014. Rather than debate the procedural claims, the Committee decided to consider the CDCJ Proposal de novo. There had been substantial Committee turnover since 2013-14 and it was worth testing whether views had evolved since the last consideration.

Specifically, the October 2015 CDCJ Proposal called for (1) a “freeze” on any new investments in companies on the Carbon Underground 200 list; (2) a public commitment to divest from “direct ownership of fossil fuel holdings and from any commingled funds that include fossil fuel public equities and corporate bonds” in an advance of the December 2015 United Nations climate change meeting; (3) a five year divestment period to facilitate a low-cost transition to other investments. Representatives of the CDCJ presented their proposal at the October 2015 ACSRI meeting and responded to questions of Committee members.

As explained in a report to the Columbia University community in November 2015, the ACSRI decided once again not to recommend the CDCJ proposal:

“While accepting climate change science and the grave risks associated with global warming, the ACSRI does not believe that such an across-the-board divestment approach would satisfy the demanding criteria for a divestment recommendation. The Carbon Underground 200TM list consists of ‘the top 100 coal companies globally and the top 100 public oil and gas companies globally, ranked by the potential carbon emissions content of their reported reserves.’³ Divestment on the basis of identification on this list would not distinguish among firms on the basis of their current conduct (e.g., the rate to which they are adding to reserves or the extent of research and development investment in renewables or in carbon-reducing technologies). The list includes natural gas companies as well as coal-mining companies, yet the substitution of natural gas for coal is one immediate way of reducing the carbon footprint of energy production. The list also omits electric utilities that generate a disproportionately high share of electricity from coal despite the opportunity to shift to natural gas.

² The May 2014 report is posted on the ACSRI website, <http://finance.columbia.edu/content/socially-responsible-investing>

³ <http://fossilfreeindexes.com/research/the-carbon-underground/> [visited Nov. 5, 2015].

Broad-based divestment by Columbia would be unprecedented given the pattern of the University's previous divestment decisions. In the case of South Africa and Sudan, for example, the goal of divestment was to persuade companies that did business with those two regimes to stop doing so, and thereby impose a penalty on governments that engaged in conduct that was profoundly morally objectionable. Because most of the targeted companies did only a relatively small fraction of their business with the particular regimes, it was reasonable to think that the stigma associated with divestment could change the companies' behavior. In the case of fossil fuels companies, divestment is unlikely to have any such effect. The largest companies generally look to retained earnings to finance their activities; the stigma of divestment is unlikely to lead the firms to turn away from their core business. Broad-based divestment would be undertaken without any regard to whether it would affect the future behavior of any particular firm. Rather it would be undertaken solely as a matter of symbolic speech. As such it would draw no distinctions based on the conduct of the firms in question even where differences in conduct materially affect the firm's carbon burden.

Last year the Committee recommended that the Trustees divest from companies that operated private prisons on the grounds that the companies' business prospects were linked to an increase in already historically high levels of incarceration so as to be inconsistent with the University's mission and values. It is hard to take such a position with respect to all fossil fuels firms given the University's own position as a major user of fossil fuels in its on-going activities, both directly (gasoline for its fleet of vehicles; natural gas to heat its buildings) and indirectly (electricity produced by fossil-fuel burning generation). Indeed, one specific action taken by the University to reduce its carbon footprint has been to substitute natural gas for heating oil. Where is the consistency in saying that divestment from large natural gas producers is required as a matter of socially responsible investing?"⁴

Regarding divestment as "too narrow a lens through which to consider Columbia University's engagement with the climate change issue," the Committee proposed alternative measures: First, "in light of the grave threats posed by climate change and the University's capacity to play a national leadership role," the Committee recommended the formulation of a broader Plan of Action that was anticipated to include (i) further efforts by the University to shrink its carbon footprint including specific goals, (ii) further support for the University's leadership in climate change research, (iii) support for research into new technologies related to renewable energy as well as atmospheric carbon abatement, (iv) support for public educational efforts on the mechanisms of climate change and the risks, (v) support for legal, economic, and regulatory analysis of the current US and international approaches to climate change.

⁴ The full report is posted on the ACSRI website, <http://finance.columbia.edu/content/socially-responsible-investing>

The Committee also recommended that the University establish a separate “fossil free” investment vehicle to receive the contributions of alumni who would prefer such investment management for their contributions to the University’s endowment, in light of support for divestment expressed by some alumni. The Committee also invited the Trustees to consider sending a letter to its investment managers similar to the one sent by David Swensen, head of the Yale Investment Office, which stated that “Yale asks [its investment managers] to avoid companies that refuse to acknowledge the social and financial costs of climate change and that fail to take economically sensible steps to reduce greenhouse gas emissions.”⁵ The Committee subsequently recommended that Columbia become an Investor Signatory to the CDP Climate Change program, which aims to assure high quality disclosure of companies’ fossil fuel footprint and other activities, which facilitates more robust shareholder engagement.

“Stand Up for Science”

The Committee also undertook to consider whether to recommend, as a matter of socially responsible investing, a targeted fossil fuel divestment/no investment policy that is aimed at “standing up for science.” This would mean targeting publicly traded firms that deny climate change science whether by “word” or by “deed.” The general “stand up for science” approach came out of framework that the Committee developed over the course of 2014-15 academic year.

The starting premise is that actions to avert climate change ultimately depend upon the concerted actions of governments, especially legislatures, and will entail tough choices, trade-offs, and compromises by political leaders, as they balance private economic interest and public environmental concern. Yet a serious threshold problem is that the core facts of human-action influence on global climate are denied by important governmental leaders and are regarded as highly contestable within mainstream political discourse despite the overwhelming scientific consensus. Thus the denial of human agency in climate change is a first order problem in the climate change debate. The consensus scientific evidence indicates that climate change is, in effect, an on-rushing train, and we stand in the tracks. It is the denial of the science that keeps us frozen on the tracks rather than engaged in the concerted actions necessary to jump away.

Firms can deny climate change science through their “words,” for example, through sponsoring or publicizing specious research or over-emphasizing small differences in the scientific community. Firms can also deny climate change science through their “deeds,” for example, through investment in high-carbon resources that can never be consumed in light of the climate change concern.

⁵ See Letter of David Swensen to Yale Investment Managers, reprinted in Financial Analysts Journal (May/June 2015), pp 11-12, available at <http://www.cfapubs.org/doi/full/10.2469/faj.v71.n3.3> [visited on Nov. 5, 2015].

A “stand up for science” approach to divestment thus (1) focuses on the fundamental impediment to addressing climate change risk, (2) derives from the core mission and social responsibility of the University in a democratic society, and (3) provides a limiting principle for the University’s engagement in contested debates through endowment management policies. This approach does not presume a general social license for the University to offer broad-based value judgments on contestable matters of social and political concern.

As we said in our November 2015 report,

“Columbia University is the producer of some of the key research in the climate change domain; the social function of the University generally is to foster research that produces new knowledge and to help assure that this research guides the important public policy questions of the day. Precisely because the science regarding climate change has been disputed on non-scientific grounds and because the public policy issue, the looming threat of climate change, is so serious, ACSRI may well recommend, as matter of socially responsible investing, a targeted fossil fuel divestment/no investment policy, and other strategies, that are aimed at ‘standing up for the science.’”

Tar Sands

A useful description of “tar sands” or “oil sands” is found in a recent report by HIS Energy, the energy consulting firm⁶:

“The immensity of the oil sands is their signature feature. Current estimates place the amount of oil that can be economically recovered from Alberta’s oil sands at 166 billion bbl [barrels], making oil sands the world’s third largest proven oil reserve (after Saudi Arabia, ~270 billion bbl) and Venezuela (~300 billion bbl). (IHS, p. 7; Barclays, p. 22)

“The oil sands are grains of sand covered with water, bitumen, and clay. The “oil” in the oil sands is bitumen, an extra-heavy crude oil with high viscosity. Raw bitumen is semisolid at ambient oil temperature and cannot be transported by pipeline. It must be diluted with light oil or converted into synthetic light crude oil.” (Id.)

As put in a Barclay’s research report,

“Tar sands are named after bitumen’s tar or asphalt-like qualities. Bitumen represents the residue from oil that has seeped from deep reservoirs over the last hundred million years.

⁶ IHS Energy, *Oil Sands Cost and Competitiveness* (Dec. 2015). Reference is also made to Barclays Bank, Equity Research, *Canadian Oil Sands Primer: Increasingly Competitive with Conventional Oil* (Nov. 2012). The Barclay’s report presents a very detailed account of the tar sands production process.

Since it has already lost its most volatile components through biodegradation over time, bitumen is highly viscous and sticky, but soluble in carbon disulfide.” (Barclays, p. 19).

Current production is an estimated 2.3 million barrels/day. Development of 1 million barrels/day of additional capacity is underway, and production is expected to exceed 3 million barrels/day by 2020. (IHS, p. 14)

Oil sands are extracted both through mining and in-situ processes. About 20 percent of the reserves are recoverable through a surface mining process similar to strip mining in coal; this accounts for 45 percent of current production. The remaining reserves are recoverable through in-situ thermal processes, which consist of injecting steam underground to reduce the viscosity of the bitumen, which will then flow. Thermal processes account for 45 percent of current production. The remaining 11 percent of current production is extracted through more conventional oil drilling techniques, though its importance is expected to decline over time. (HIS, p. 7).

Tar sands exploration and development has been very costly, in part because of the need to build out extensive infrastructure in a forbidding environment. Among other things, temperatures in Alberta vary between 90°F and -40°F over the course of a year. From 2000 to 2014 production dramatically increased, from 600,000 barrels/day to over 2.2 million barrels/day, and costs increased by more than 70 percent. (IHS, p. 6) To capture scale economies, production units are typically large, even exceeding 100,000 barrels/day. An upfront investment of \$1 billion to \$10 billion is required in advance of production. For the most common form of in-situ tar sands extraction, the required oil price “break even” (assuming a 10 percent discount rate) is over \$60/barrel for new development.⁷ For mining, the break-even price is nearly \$100/barrel. (IHS, p. 9; Brent). For an existing facility, covering the out-of-pocket operating costs requires oil prices of \$20-\$40/barrel, depending on the type of extraction process. (IHS, p. 12).

What distinguishes a tar sands project is its expected production period, 30-40 years. “Once operational, with periodic capital investments, oil sands facilities can produce a steady volume of crude oil over 30-40 years. This long-lasting level of output is different from the vast majority of the world’s oil fields, which enter into a decline after a peak in production.” (IHS, p. 9; Barclays, p. 71).⁸ Indeed, it is very clear that the extended production period is the critical feature to the economics of tar sands development.

⁷ For a new mine, IHS estimates a break-even range of \$85-\$95/barrel using WTI prices (which tend to be lower than Brent) and for in-situ-development, break-even at \$55-\$65/barrel (WTI). IHS, p. 13. Barclays estimates that oil prices of \$70-\$75/ barrel (WTI) will be generally necessary to achieve a 12 percent required internal rate of return for in-situ projects, though the best projects will be economic at less than \$50/barrel. Barclays, p. 1

⁸ Barclays says that 11 years is the typical reserve life of a conventional project. Barclays, p. 71.

Development and retention of tar sands reserves is inconsistent with the Committee’s “stand up for science” framework. The argument rests on two elements. The first element is the quantitative association between the fossil fuel reserves that remain to be burned and the probability of exceeding 2°C of warming above the pre-Industrial global mean temperature⁹. The exploitation of known reserves over the 2015-2050 period would result in total cumulative emissions of approximately 2,800 Gt CO₂. In contrast, to maintain a 75% or higher probability of staying under 2°C, cumulative emissions over the period cannot exceed approximately 600 Gt CO₂.¹⁰ The unescapable conclusion is that burning even a significant fraction of known fossil fuel reserves is inconsistent with limiting warming to less than the 2°C threshold.

The second element is an assumption about the business model of energy companies holding fossil fuel reserves: fossil fuel reserves that are cheaper to extract will be exploited first. Tar sands are significantly more expensive to develop and extract than many other substantial oil reservoirs. It is reasonable to expect that over time they will be extracted only after cheaper reserves are extinguished, and the price of a barrel of oil is high enough to recover production costs.¹¹ In other words, it makes economic sense to extract tar sands last. Tar sands projects are developed today mostly because of the extended expected extraction period, 30-40 years, over which high upfront costs will be amortized. This business model implicitly requires a commitment to extracting (and burning) the fossil fuel reserves, from the cheapest to the most expensive, to arrive at a price that makes extraction of oil from tar sands profitable over the long term. Developing and holding tar sands reserves for possible future use therefore is manifestly inconsistent with acknowledgement that most of known fossil fuel reserves will need to be left untouched, underground, to keep warming to less than 2°C. In this important sense, tar sands development and holding activity is denial of climate change science “by deed.”

An additional cause for concern is that oil extraction from tar sands is an extra source of CO₂ emissions burden. Because of the particular nature of the bitumen and the necessary extractive process, tar sands oil results in greater CO₂ emissions than many other crude oil alternatives. The

⁹ The limit agreed to in Paris, in December 2016, to “avoid dangerous anthropogenic interference” with the climate system [UN Framework Convention on Climate Change, Article 2: Objective; http://unfccc.int/key_documents/the_convention/items/2853.php].

¹⁰ See Malte Meinshausen et al, Greenhouse-gas Emission Targets for Limiting Global Warming to 2°C , 458 Nature Letters 1158 (Ap. 30, 2009); PBL Netherlands Environmental Assessment Agency & EU Commission Joint Research Center, Trends in Global CO₂ Emissions 2015, fig. 2.1. The Meinshausen et al article is the source for the CO₂ level of existing reserves and the projections regarding reserves consumption, projecting a 1000 Gt CO₂ cap over the 2000-2050 period as necessary to protect the 2°C limit with 75% probability. The PBL Netherlands report documents CO₂ emissions of approximately 400 Gt over the 2000-15 period, producing (by subtraction) the 600 Gt CO₂ limit in the text. No adjustment has been made to the stated reserves level because reserve levels having been stable or growing since the Meinshausen et al article.

¹¹ The argument can be generalized to other “unconventional” fossil fuel reserves such as deep-ocean or Arctic Ocean oil. Our initial focus is on tar sands because of the availability of reliable data on tar sands reserves and development.

main reason for this is that bulk of tar sands is extracted through the in-situ process, which requires burning fuel to heat water for steam injection to separate bitumen from the oil sands and thus to achieve necessary viscosity for extraction. Estimates of the extra emissions burden through the oil life cycle (“well to wheels,” presuming use as gasoline) range between 15%-40%.¹² A recent compilation of studies by the Congressional Research Services shows an average 17% of extra greenhouse gas emissions in tar sands oil extraction on this “wells to wheel” basis, depending on particular production processes (and the crude competitor).¹³

In other words, the business model of tar sands development not only requires long term production for economic success but also the imposition of extra emissions burdens throughout the long period. These elements, which lock in long term new production and long-term excess emissions, show the denial of climate change science in tar sands development and reserves holding.

Proposal

In light of these particular concerns, the Committee proposes to obtain detailed information from Fossil Free Indexes, which is preparing a “Tar Sands 20” list of the top holders of tar sands reserves in response to various client requests and can credibly generate data to distinguish among these firms on criteria of on-going development expenditures and other relevant factors.¹⁴ On the basis of this information, the Committee will propose specific divestment/no investment candidates for consideration by the Trustees’ Investment Subcommittee. The Committee will consider a recommendation that would cover all Tar Sands 20 firms or a subset, in light of other factors. The factors would include on-going development activity, on-going production, the absolute size of tar sands reserves holdings, the size of such holdings relative to the firm’s other fossil fuel reserves, and whether the firm has undertaken carbon abatement or recapture research and actions proportionate to its tar sands activity.

¹² Barclays, p. 68

¹³ Congressional Research Service, Canadian Oil Sands: Life-Cycle Assessment of Greenhouse Gas Emissions (March 10, 2014).

¹⁴ Fossil Free Indexes specializes in providing benchmarks and research for clients that want to pursue “fossil free” or fossil reduced investing. Its products and ranking are licensed to funds, ETFs, and separate accounts. It is the index provider to the “Carbon Underground 200” list of the 200 public firms holding the largest fossil fuel reserves rated in terms of potential CO₂ emissions.

FFI describes the “Tar Sands 20” as “a ranking of the 20 public companies with the highest potential CO₂ emissions embedded in their tar sands reserves. For 2015, the companies on the Tar Sands 20 list are estimated to account for over 90% of total tar sands reserves held by public companies.”

Request for Comment

Because one of the divestment criteria is community consensus, the Committee will undertake to assess community sentiment about its divestment proposal through a survey instrument posted on its website. To facilitate community discussion, the Committee decided to seek comments at the beginning of the fall semester rather than to run a survey over the summer, when it formulated its proposal. This will permit conversation and reflection among community members who would have been dispersed over the summer. We anticipate leaving the comment period open until Friday, October 7th, which will give the Committee time to assess reactions and move forward with its deliberations in the fall.