COLUMBIA UNIVERSITY

ADVISORY COMMITTEE ON SOCIALLY RESPONSIBLE INVESTING

ANNUAL REPORT 2016-2017

Advisory Committee Members:

Jeffrey Gordon, Chair
Michael Anagnos
Marshall Bozeman
Stephen Christensen
Paul Goldschmid
Dan Goldschmidt
Liz Luckett
Brennon Mendez
Meredith Milstein
Gail O'Neill
Philip Protter
Ailsa Röell
Neil Schluger
Shahnaz Singh-Kandah
Ramon Verastegui

Executive Vice President and CFO:
Anne Sullivan, ex officio, non-voting

Associate Director, Socially Responsible Investing:
April Croft, ex officio, non-voting

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Introduction and Background

During the 2000 spring semester, Columbia established two committees to assist the University in addressing its responsibilities as an institutional investor: the Advisory Committee on Socially Responsible Investing ("ACSRI" or the "Committee") and The Subcommittee on Shareholder Responsibility of the Committee on Finance ("The Subcommittee," formerly Trustees Subcommittee on Shareholder Responsibility "TSSR"). The ACSRI is a permanent addition to the University, with the mandate to set its own agenda within the broad arena of socially responsible investing ("SRI"). Its mission is to advise the University Trustees on ethical and social issues that arise in the management of the investments in the University's endowment.

The ACSRI has established a membership process to ensure that it is broadly representative of the Columbia community. The President of the University appoints twelve voting members (four faculty, four students, and four alumni), who are nominated, respectively, by the deans of the schools, the Student Affairs Committee of the University Senate, and the Office of University Development and Alumni Relations. The President designates the Committee chair who presides at meetings of the Committee. The Chair certifies the minutes, all other official publications and any recommendations forwarded to the University Trustees or the University on behalf of the Committee. In addition, two administrators (the Executive Vice President for Finance and IT and the Associate Director for Socially Responsible Investing) sit as non-voting members of the Committee.

The legal and fiduciary responsibility for the management of the University's investments lies with the University Trustees. As a result, ACSRI recommendations are advisory in nature. The Subcommittee on Shareholder Responsibility deliberates and takes final action upon the recommendations of the ACSRI. In some circumstances, The Subcommittee may bring ACSRI recommendations to the full Board of Trustees for action.

The following report provides an overview of the Committee's activities during the 2016-2017 academic year. It provides information about ACSRI recommendations and votes on shareholder proposals during the 2017 proxy season (the period between March and June when most publicly-traded corporations hold annual meetings). It also summarizes the ACSRI's Sudan, Tobacco, and Private Prison Operators divestment monitoring processes as well as the Committee's fossil fuel divestment deliberations and recommendations.

2016-2017 Committee Membership

The ACSRI voting membership during the 2016-2017 academic year is listed below*:

Name	Membership Category	School Affiliation	Membership Start Year
Stephen Christensen	Alumni	School of the Arts	2015-2016 (converted from Student)
Paul Goldschmid	Alumni	Graduate School of Business and School of Law	2015-2016
Liz Luckett	Alumni	Columbia College	Spring 2017
Meredith Milstein	Alumni	Columbia College	Spring 2017
Gail O'Neill	Alumni	Graduate School of Business	Spring 2014
Ramon Verastegui	Alumni	SEAS and GSAS	2015-2016
Michael Anagnos	Student	Columbia College	Fall 2016
Marshall Bozeman	Student	Columbia College	Spring 2015
Dan Goldschmidt	Student	School of Law	Spring 2016
Brennon Mendez	Student	Columbia College	2014-2015
Shahnaz Singh-Kandah	Student	School of Nursing	Spring 2017
Jeffrey Gordon (Chair)	Faculty	School of Law	2014-2015
Ailsa Röell	Faculty	School of International and Public Affairs	2014-2015
Philip Protter	Faculty	Dept. of Statistics, Faculty of Arts and Sciences	Fall 2016
Neil Schluger	Faculty	CUMC	Fall 2016

*Membership totals more than twelve due to resignation or membership term completion.

2016-2017 Agenda

One of the core annual activities of the ACSRI is to make recommendations to the Trustees on how the University, as an investor, should vote on selected shareholder proposals addressed to U.S. registered, publicly-traded corporations whose securities are directly held in Columbia's endowment portfolio. As a general matter, the ACSRI expects that making recommendations to The Subcommittee with respect to shareholder proposals will continue to be one of its primary activities.

Another core activity is the Committee's monitoring of the divest/non-invest lists (screens) for Sudan, Tobacco, and Private Prison Operators. The monitoring of companies operating in Sudan is managed in accordance with the April 2006 Statement of Position and Recommendation on

Divestment from Sudan and is described in greater detail later in this report. (See Attachment A: Sudan Divestment Resolution and Recommendations)

In accordance with the Committee's January 2008 Statement of Position and Recommendation on Tobacco Screening, the Committee screens for domestic and foreign companies engaged in the manufacture of tobacco and tobacco products and alerts the Investment Management Company (IMC), which will refrain from investing in those companies. (See Attachment B: Tobacco Divestment Report)

In 2015, the Trustees voted to support a policy of divestment in companies engaged in the operation of private prisons and to refrain from making new investments in such companies. The Committee instituted the private prison operators screen in accordance with the June 2015 Trustee Statement on Prison Divestment Resolution. (See Attachment C: Private Prison Operators Divestment Resolution and Recommendations)

Periodically, the ACSRI considers divestment proposals from the Columbia community and makes recommendations to The Subcommittee on Shareholder Responsibility of the Committee on Finance. During the 2016-2017 academic year, the ACSRI considered a coal divestment proposal (see pgs. 38-45) from 25 members of The Earth Institute and recommended that the University divest/not invest in coal producers whose primary business is thermal coal production. This recommendation was approved by the Trustees in March 2017 with formal implementation to be completed in Fall 2017. (See Attachment D: Fossil Fuel Report to the Community/Coal Divestment Proposal and E: Columbia Announces Divestment from Thermal Coal Producers)

<u>Activities of the ACSRI 2016-2017</u>

Sudan Divestment Monitoring

In April 2006, the University Trustees passed a resolution adopting the recommendation for divestment from Sudan set forth in the Statement of Position and Recommendation on Divestment from Sudan adopted by the ACSRI on April 4, 2006. The ACSRI's statement recommended the University's divestment from and prohibition of future investment in all direct holdings of publicly-traded non-U.S. companies whose current activities, directly or indirectly, substantially enhance the revenues available to the Khartoum government, including companies involved in the oil and gas industry and providers of infrastructure. In its statement, the ACSRI identified eighteen such companies from which it recommended immediate divestment, and stated that recommendations for removals from and/or additions to the divestment list may be made in the future. The divestment list was revised with Trustee approval in March and June of 2007, and in March of each subsequent year. In addition, in March of 2008 a watch list was created of companies to be carefully reviewed for changes during the monitoring process.

In February 2009, the ACSRI recommended that the language regarding the University's position include specific reference to providers of military and defense services.

The independence of the Republic of South Sudan in 2011 did not substantively affect the University's screening process, which focuses on companies' activities which enhance the revenues of the Khartoum government in northern Sudan.

On January 13, 2017, citing "positive actions" by Sudan, President Obama signed an executive order to permanently revoke most sanctions against Sudan following a six-month waiting period. During that six-month period, the Treasury Department has authorized Americans to do business in Sudan including the exportation of US products. Sanctions tied to Sudan as a state sponsor of terrorism (i.e. weapons sales) remain in place. Going forward, the ASCRI will monitor this policy change and its implications but does not currently plan to change the existing (2006) divestment policy.

IW Financial and EIRIS CRN are currently retained to provide research to the ACSRI. The ACSRI's Sudan Subcommittee does further research and makes recommendations to the full committee for their vote. Prior to putting forth their recommendations for 2017, the ACSRI reviewed 400 publicly traded, non-US companies currently doing business in Sudan, an increase of 44 companies compared to last year. Last year, a number of companies remained on the divestment and watch lists as the information was not sufficient to determine an action. In instances where this situation reoccurred during this year's review, the companies are among those recommended for removal from the lists. The ACSRI's recommendations were then reviewed by the Subcommittee on Shareholder Responsibility, which, after consideration, determined to remove the majority of the telecommunications companies from the watch and divestment lists. The Subcommittee recommends that 47 companies be included on the divestment list, a net decrease of 27 compared to last year. The Subcommittee further recommends that 42 companies be included on the watch list, a net increase of 6 compared to last year. The modified divestment and watch lists (with additions underlined and deletions struck through) are attached as Exhibit A. The process followed and criteria adhered to by the ACSRI in reaching its recommendation are set forth in the attached Exhibit B.

As of June 30, 2017, the University does not currently hold any of the identified companies in its directly held public equity portfolio.

(See Attachment A: Sudan Divestment Resolution and Recommendations)

Tobacco Divestment Monitoring

The ACSRI engages IW Financial to create a list of domestic and foreign tobacco companies that directly manufacture tobacco products. The universe of companies and their revenues from specific activities are updated annually.

In 2017, one new domestic was identified by IW Financial and approved by the ACSRI for addition to the Tobacco Divestment/Non-Investment List. The list was provided to the Columbia Investment Management Company, and the University does not currently hold any of the identified companies in its public equity portfolio. (See Attachment B: Tobacco Screening and Divestment/Non-Investment List)

Private Prison Operators
The ACSRI engages IW Financial to create a list of domestic and foreign publicly traded companies engaged in the operation of private prisons. IW Financial identified the same companies that are currently on the non-investment list. The list was provided to the Columbia Investment Management Company, and the University does not currently hold any of the identified companies in its public equity portfolio. (See Attachment C: Private Prison Operators Divestment Resolution and Divestment/Non-Investment List)

Fossil Fuel Report to the Community
In February 2017, the ACSRI released a report summarizing its work over the past three years in assessing various proposals relating to fossil fuels and reports on its recommendations made to the Trustees and the President. (See Attachment D: Fossil Fuel Report to the Community)

During the 2016-2017 academic year, the ACSRI considered a coal divestment proposal (see pgs. 38-45) from 25 members of The Earth Institute and recommended that the University divest/not invest in coal producers whose primary business is thermal coal production.

Of the proposed ACSRI recommendations, the University's Trustees voted in March to support the Committee's recommendations to divest from companies deriving more than 35% of their revenue from thermal coal production and to participate in the Carbon Disclosure Project's Climate Change Program. (See Attachment D: Fossil Fuel Report to the Community and E: Columbia Announces Divestment from Thermal Coal Producers)

2016-2017 Proxy Season
There were 32 proxies (shareholder proposals) voted in the 2016-2017 season. The majority of the 32 proposals related to initiating or improving disclosure, primarily in the areas of political spending, lobbying and gender pay equity. The other issue which produced several shareholder proposals was climate change, with the adoption of climate change strategies and greenhouse gas reduction targets as the primary goals. Both the ACSRI and The Subcommittee voted to support 22 of the 32 reviewed proposals. The Subcommittee was in agreement with the ACSRI's recommendations on all but one of the proxies.

The ACSRI's and The Subcommittee's support for shareholder proposals followed consistent precedents and rationale. For example:

Precedent or Rationale	Shareholder Proposal
Increased Disclosure	Report on Lobbying, Report on Gender Pay Equity, Report on Climate Change
Reasonably Limit/Reduce Business Impact on Climate Change	Adopt Greenhouse Gas Emissions Reduction Targets

The ACSRI's and The Subcommittee's rejection of shareholder proposals also followed consistent precedents and rationale. For example:

Precedent or Rationale	Shareholder Proposal
Required individual identification of company personnel	Report on Indirect Political Spending
Proposal duplicated existing company efforts, imposed significant burdens on company resources without definable gains or appeared unrelated to company's business, etc.	Establish Committee on Human Rights, Implement Holy Land Principles, Report on Charitable Contributions, Report on Ethics and Oversight

Proxy Voting Summary

A summary of the proxies voted by the ACSRI and The Subcommittee on Shareholder Responsibility of the Committee on Finance in the 2016-2017 season is shown in the table below:

2017 Proxy Season

			ACSRI			Trustees		
Number of Proposals	Issue	Companies	Support	Reject	Abstain	Support	Reject	Abstain
2	Adopt / Report - Indigenous Peoples Policy	Marathon Petroleum, Wells Fargo	2			2		
1	Adopt Supply Chain Deforestation Policy	Yum Brands		None (split vote)				1
1	Establish Committee on Human Rights	Verizon Communications		1			1	
2	Implement Holy Land Principles	Merck, PepsiCo		2			2	
1	Report on Board Oversight of Product Safety	Merck		1			1	
1	Report on Charitable Contributions	GE		1			1	
1	Report on Conflict Zone Operations	Merck		1			1	
1	Report on Ethics and Oversight	Wells Fargo		1			1	
4	Report on Female Employee Compensation / Gender Pay Equity	Exxon Mobil, JP Morgan Chase, Mastercard, Wells Fargo	3 and	1 - None (split vote)		4		
2	Report on Indirect / Political Spending	AT&T, Berkshire Hathaway	1	1			2	
1	Report on Linking Executive Pay to Sustainability Metrics	ConocoPhilips	1			1		
9	Report on Lobbying	AT&T, CenturyLink, Comcast, ConocoPhilips, ExxonMobil, GE, IBM, Wells Fargo	9			9		
5	Adopt / Report - Climate Change Strategy, Greenhouse Gas / Methane Emissions Reduction Targets	Berkshire Hathaway, Exxon Mobil, Marathon Petroleum, Verizon Communications	5			5		
1	Report on Supplier Pesticide Use	PepsiCo	1			1		
32								

Attachment A: Sudan Divestment Resolution and Recommendations

THE COMMITTEE ON FINANCE

Socially Responsible Investing
Sudan Recommendations

February 24, 2017

BACKGROUND: Modification of List of Companies Identified for Sudan Divestment

The Columbia University Advisory Committee on Socially Responsible Investing (ACSRI) was formed by the University in March 2000 to advise the Trustees on ethical and social issues confronting the University as an investor, and includes students, faculty, alumni and non-voting University administrators as members. The ACSRI makes its own agenda, and may make recommendations to the Trustees. The Subcommittee on Shareholder Responsibility of the Committee on Finance has the role of receiving recommendations from the ACSRI. The current members of the Subcommittee are Ann Kaplan, Paul Maddon and Jonathan Lavine.

In April 2006 the Trustees adopted the ACSRI's recommendation for divestment from Sudan. Specifically, the ACSRI's Statement of Position and Recommendation on Divestment from Sudan (April 4, 2006) recommended the University's divestment from and prohibition of future investment in all direct holdings of publicly-traded non-U.S. companies whose current activities, directly or indirectly, substantially enhance the revenues available to the Khartoum government, including companies involved in the oil and gas industry and providers of infrastructure. [1] In its statement, the ACSRI identified eighteen such companies from which it recommended immediate divestment, and stated that recommendations for removals from and/or additions to the divestment list may be made in the future. The divestment list was revised with Trustee approval in March and June of 2007, and in March of each subsequent year. In addition, in March of 2008 a watch list was created of companies to be carefully reviewed for changes during the monitoring process.

In February 2009, the ACSRI recommended that the language regarding the University's position include specific reference to providers of military and defense services.

The independence of the Republic of South Sudan in 2011 did not substantively affect the University's screening process, which focuses on companies' activities of which enhance the revenues of the Khartoum government in northern Sudan.

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[1] The ACSRI's work focused on non-US companies beginning in 1997 when the U.S. government imposed comprehensive economic, trade and financial sanctions against Sudan - effectively barring U.S. companies from conducting business with the Government of Sudan, except those explicitly permitted by the US Treasury Department's Office of Foreign Assets Control (OFAC). These sanctions were tightened in 2007. Thus the recommended divestment/no investment principle as applied to Sudan extends the reach of sanctions that the U.S. government had decided were desirable and efficacious to non-U.S. companies.

On January 13, 2017, citing "positive actions" by Sudan, President Obama signed an executive order to permanently revoke most sanctions against Sudan following a six-month waiting period. During that six-month period, the Treasury Department has authorized Americans to do business in Sudan including the exportation of US products. Sanctions tied to Sudan as a state sponsor of terrorism (i.e. weapons sales) remain in place. Going forward, the ASCRI will monitor this policy change and its implications but does not currently plan to change the existing (2006) divestment policy.

Prior to putting forth their recommendations for 2017, the ACSRI reviewed 400 publicly traded, non-US companies currently doing business in Sudan, an increase of 44 companies compared to last year. Last year, a number of companies remained on the divestment and watch lists as the information was not sufficient to determine an action. In instances where this situation reoccurred during this year's review, the companies are among those recommended for removal from the lists. The ACSRI's recommendations were then reviewed by the Subcommittee on Shareholder Responsibility, which, after consideration, determined to remove the majority of the telecommunications companies from the watch and divestment lists. The Subcommittee recommends that 47 companies be included on the divestment list, a net decrease of 27 compared to last year. The Subcommittee further recommends that 42 companies be included on the watch list, a net increase of 6 compared to last year. The modified divestment and watch lists (with additions underlined and deletions struck through) are attached as Exhibit A. The process followed and criteria adhered to by the ACSRI in reaching its recommendation are set forth in the attached Exhibit B.

As of February 17, 2017, the University holds stock of one of the identified companies on the Watch List, China Railway Group Ltd., in its directly held public equity portfolio.

EXHIBIT A

Annotated Sudan Divestment/Non-Investment and Watch Lists

*Moved from watch to divestment/non-investment list
**Moved from divestment/non-investment list to watch list

Divestment/Non-Investment List

Abu Dhabi Islamic Bank
Almarai Co., Ltd.
~~Amlak Finance **~~
Andritz AG
Anton Oilfield Services Group
Arabian Pipes Co.
~~AREF Energy Holdings Co. (K.S.C.C.)**~~
~~AREF Investment Group**~~
~~Areva**~~
Asec Company for Mining
~~Astra Industrial Group Company**~~
Audi Saradar Group
AviChina Industry & Technology Co. Ltd
Bank Audi
Bharat Heavy Electricals
Bharat Petroleum Corporation Ltd.
Boustead Singapore Ltd.
China CAMC Engineering Co. Ltd.
China Gezhouba Group Company Limited*
China Petroleum & Chemical Corp
~~Citadel Capital Co. SAE~~ (Now listed as Qalaa Holdings)
~~Clariant AG~~
~~Comptel Oyj~~
~~Dietswell Engineering~~
Dongfeng Motor Group Co
Drake & Scull International Pjsc
Dubai Investments
Egypt Kuwait Holding Co.
~~Elisa Oyj~~
~~El Sewedy Electric Company **~~
~~Emirates Telecommunications Co.~~
Emperor Oil Ltd.
Energy House Holding Company K.S.C.C.
Engineers India Ltd.
~~Faisal Islamic Bank~~
Harbin Electric Company Limited (formerly Harbin Electric Corporation)

~~Hindustan Petroleum Corporation Ltd.**~~
~~Independent Petroleum Group Co.**~~
Indian Oil Corporation Ltd.
~~International Consolidated Airlines Group~~
JX Holdings Inc.
~~Kejuruteraan Samudra Timor Berhad~~
Kencana Petroleum
Kuwait Finance House
La Mancha Resources Inc.
LS Industrial Systems*
Managem
Mangalore Refinery & Petrochemicals Ltd.
~~Mitsui Engineering & Shipbuilding Co. Ltd.~~
~~MMC Corp Bhd~~
~~Mobile Telesystems~~
Muhibbah Engineering Berhad
Oil & Natural Gas Corporation Ltd.
Oil India Ltd.
~~Omdurman National Bank~~
~~Orascom Telecom Holdings S.A.E. (OT) (now listed as Global Telecom Holding SAE)~~
Orca Gold Inc.*
Panorama Petroleum Inc.
PetroChina
~~Petrofac~~
~~Pjbumi Bhd~~
Power Construction Corporation of China, Ltd.
Qalaa Holdings
~~Qatar Islamic Bank-Sudan~~
~~Ranhill Berhad**~~
Regency Mines
~~Reliance Industries**~~
SapuraKencana Petroleum Bhd
~~Schneider Electric**~~
Scomi Group Berhad
~~Seadrill Ltd.~~
Shanghai Electric Group Co
~~Sharjah Islamic Bank~~
Sinohydro Group, Ltd.
Statesman Resources Ltd.
Sudan Telecom Co. (Sudatel)
Trevi - Finanziaria Industriale Spa
~~Videocon Industries Ltd.~~

*Moved from watch to non-investment list
**Moved from non-investment list to watch list

Watch List

~~Acotel Group Spa~~
~~Africa Cellular Towers Ltd.~~
~~Agriterra Limited~~
Al Salam Bank Sudan
Amlak Finance **
AP Moller – Maersk AS
AREF Energy Holdings Co. (K.S.C.C.)**
AREF Investment Group**
Areva**
Astra Industrial Group Company**
Bamburi Cement
Barwa Real Estate
~~Byblos Bank~~
~~China Gezhouba Group Company Limited*~~
China Railway Erju Co Ltd
China Railway Group Ltd
~~CSR Corp Ltd.~~
Deutsche Post AG
~~Egyptians Abroad for Investment~~
~~Egyptians Housing Development~~
El Sewedy Electric Company **
Ericsson
~~Essar Oil~~
~~Global Telecom Holding S.A.E~~
Hindustan Petroleum Corporation Ltd.**
IHS Nigeria Plc
Independent Petroleum Group Co.**
International Container Terminal Services Inc.
Kingdream Public Ltd. Co.
~~Kyushu Electric Power~~
~~LS Industrial Systems*~~
~~Lundin Petroleum~~
MAN SE
~~Medco Energi~~
~~Mercator Limited~~
Mix Telematics Ltd.
~~Mobile Telecommunications Company K.S.C. (Zain)~~
~~MTN Group Ltd.~~
National Shipping Co.SA
NewLead Holdings
Nexans SA
Nirou Trans Co.
OFFTEC Holding
Orange SA

~~Orca Gold Inc.*~~
Panalpina Welttransport
~~Qatar National Bank~~
QNB
Ramco Cements Ltd.
Ramco Industrials Ltd.
Ranhill Berhad**
Reliance Industries**
Sany Heavy Industry Co.
~~Saras Raffinerie Sarde SPA~~
Saudi Arabian Amianit Co.
Saudi Public Transport
Saudi Telecom
Schneider Electric**
Sinopec Oilfield Equipment Corp
Stryker Corp.
~~Taageer Finance~~
Total S.A.
UltraTech Cement Ltd.
~~Weir Group~~

Exhibit B

Monitoring Process and Criteria

In developing its recommendations, the Sudan Divestment Subcommittee reviewed the activity of all companies already on the Columbia divestment list and watch list, as well as companies warranting scrutiny as determined by IW Financial and EIRIS.[2] For companies included on the current divestment list and watch list, the Sudan Subcommittee developed a recommendation to retain a company on the list, remove it, or shift a company between the lists. For newly reviewed companies, the Subcommittee developed a recommendation to add a company onto the divestment or watch list, or to perform no action.

Companies that fit Columbia's divestment criteria include non-U.S. companies with publicly- traded equity whose current activities, directly or indirectly, substantially enhance the revenues available to the Khartoum government (1) through their involvement in the oil and gas industry – including goods and services providers, as well as explorers and extractors, as providers of infrastructure – specifically those companies in the energy/utilities and telecommunications sectors or (3) as providers of military and defense products and services. The ASCRI does NOT recommend divestment from the following classifications of companies:

1) Companies active in Sudan in the past and/or companies having expressed intent to operate in Sudan in the future, but for which there is no (conclusive) evidence of current activity in Sudan.
2) Companies which may currently be active in Sudan, but have demonstrated a willingness (or even undertaken some action) to change their corporate behavior in Sudan. The Committee may judge that these companies are strong candidates for continued shareholder engagement and ongoing communication.
3) "Second order" and logistical support/service providers: companies which provide services to other suppliers/service providers in the industries matching the divestment criteria. The Committee did not recommend divestment of these companies for the following reasons:
   a) The Committee wished to establish a precedent of not targeting companies on the supply chain beyond the first order;

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2 The Sudan Subcommittee relied upon data from IW Financial (IWF) and a research service provider, EIRIS Conflict Risk Network: Empowering Responsible Investing (EIRIS). IWF provided the Committee with a list of all non-U.S. companies with publicly-traded equity currently operating in Sudan. The list included information on the companies such as, level of involvement (active or plan to cease) and industry (government, power, energy, telecom, defense, and financial). Each company on the list, excluding those that are involved only in the financial sector, was accompanied by a page of research outlining the company's involvement in Sudan. Though IW Financial is a provider of objective research and technology solutions that help financial professionals evaluate the environmental, social, and governance performance of companies, we wanted to make sure that we had *comprehensive* data for this effort. As a result, we continue to use EIRIS to provide us with a list of companies in the targeted sectors of oil, mineral extraction, power production or weapons and (a) that met the other threshold criteria laid out in the targeted Sudan divestment legislative model or (b) when the company has failed to respond to requests to provide evidence to the contrary. These companies are subject to divestment measures in states with legislation based on the targeted model. EIRIS research sheets are not provided as they confirmed the information from IWF for targeted divestment companies.

b) The Committee believed that these companies do not directly/substantially contribute revenue to the Khartoum government.

4) Subsidiaries of parent companies with known involvement in Sudan, unless the subsidiary itself fits the criteria and is actively involved in Sudan.
5) Companies providing goods or services that sustain life, including, without exception, pharmaceutical companies, medical service providers and agricultural fertilizer producers.

The Committee may recommend placement of companies meeting this exception criteria on the watch list in order to highlight them for careful monitoring during the ensuing monitoring process.

RESOLUTIONS OF THE COMMITTEE ON FINANCE

February 24, 2017

Modification of List of Companies Identified for Sudan Divestment

RESOLVED, that upon recommendation of The Subcommittee on Shareholder Responsibility of the Committee on Finance, the modified list of publicly-traded non-U.S. companies identified for Sudan divestment and to watch attached as Exhibit A be, and it hereby is, approved; and be it further

RESOLVED, that the University's Executive Vice President for Finance and Vice President for Investments and such other University officers as either of them may designate be, and each of them hereby is, authorized to take all such actions in the name of and on behalf of the University as either of them may deem necessary or desirable to implement the purposes and intent of the foregoing resolution.

EXHIBIT A

Divestment/Non-Investment List

Abu Dhabi Islamic Bank
Almarai Co., Ltd.
Andritz AG
Anton Oilfield Services Group
Arabian Pipes Co.
Asec Company for Mining
Audi Saradar Group
AviChina Industry & Technology Co. Ltd
Bank Audi
Bharat Heavy Electricals
Bharat Petroleum Corporation Ltd.
Boustead Singapore Ltd.
China CAMC Engineering Co. Ltd.
China Gezhouba Group Company Limited
China Petroleum & Chemical Corp
Dongfeng Motor Group Co
Drake & Scull International Pjsc
Dubai Investments
Egypt Kuwait Holding Co.
Emperor Oil Ltd.
Energy House Holding Company K.S.C.C.
Engineers India Ltd.
Harbin Electric Company Limited
Indian Oil Corporation Ltd.
JX Holdings Inc.
Kencana Petroleum

Kuwait Finance House
La Mancha Resources Inc.
LS Industrial Systems
Managem
Mangalore Refinery & Petrochemicals Ltd.
Muhibbah Engineering Berhad
Oil & Natural Gas Corporation Ltd.
Oil India Ltd.
Orca Gold Inc.
Panorama Petroleum Inc.
PetroChina
Power Construction Corporation of China, Ltd.
Qalaa Holdings
Regency Mines
SapuraKencana Petroleum Bhd
Scomi Group Berhad
Shanghai Electric Group Co
Sinohydro Group, Ltd.
Statesman Resources Ltd.
Sudan Telecom Co. (Sudatel)
Trevi - Finanziaria Industriale Spa

Watch List

Al Salam Bank Sudan
Amlak Finance
AP Moller – Maersk AS
AREF Energy Holdings Co. (K.S.C.C.)
AREF Investment Group
Areva
Astra Industrial Group Company
Bamburi Cement
Barwa Real Estate
China Railway Erju Co Ltd
China Railway Group Ltd
Deutsche Post AG
El Sewedy Electric Company
Ericsson
Hindustan Petroleum Corporation Ltd.
IHS Nigeria Plc
Independent Petroleum Group Co.
International Container Terminal Services Inc.
Kingdream Public Ltd. Co.
MAN SE
Mix Telematics Ltd.
National Shipping Co. SA
NewLead Holdings
Nexans SA
Nirou Trans Co.

OFFTEC Holding
Orange SA
Panalpina Welttransport
QNB
Ramco Cements Ltd.
Ramco Industries Ltd.
Ranhill Berhad
Reliance Industries
Sany Heavy Industry Co.
Saudi Arabian Amianit Co.
Saudi Public Transport
Saudi Telecom
Schneider Electric
Sinopec Oilfield Equipment Corp
Stryker Corp.
Total S.A.
UltraTech Cement Ltd.

Attachment B – Tobacco Divestment Report and Divestment/Non-Investment List

To: ACSRI Members
From: April Croft
Date: November 16, 2016
Re: Tobacco Vote for November 2016

Please find enclosed the *January 31, 2008 Statement of Position and Recommendation on Tobacco Screening* and the 2016 List of Domestic and Foreign Companies for Non-Investment.

Below is one new domestic tobacco manufacturing company for 2016 that Columbia University should refrain from investing in the future.

Domestic Company for Non-Investment

Company Name	Country of Domicile	Reason
Turning Point Brands Inc	United States	Turning Point Brands Inc produces snuff, chewing tobacco, cigars and pipe tobacco.

As of November 2010, ACSRI has been utilizing IW Financial as its research provider. The research agency offers us a list of screened domestic and foreign tobacco companies from which businesses that directly manufacture tobacco products can be identified. The University does not currently hold any of the identified companies in its public equity portfolio.

COLUMBIA UNIVERSITY
ADVISORY COMMITTEE ON SOCIALLY RESPONSIBLE INVESTING

Statement of Position and Recommendation on Tobacco Screening

January 31, 2008

The Advisory Committee on Socially Responsible Investing ("The Committee"), as chartered by the University Trustees in March 2000, is the University's vehicle to advise the Trustees on ethical and social issues confronting the University as an investor. At the prompting of the Investment Management Company ("IMC"), the Committee was asked to review the University's stance and informal practice of screening out investments in tobacco companies and to create a formal tobacco screening policy.

University Position on Tobacco Screening:
The Committee believes that for many years it has been the University's intention to refrain from investing in companies engaged in the manufacture of tobacco and tobacco products, but not from investing in companies who supply peripheral materials and supplies to the tobacco industry or distribute these products.

Review of Prior Practice:
Though not formally written as a policy, Columbia has engaged in the practice of screening tobacco companies for some time. Columbia obtains its list of screened tobacco companies from a service known as TrustSimon, provided by Institutional Shareholder Services (ISS). ISS creates its lists of restricted companies through industry lists and company research. The universe of companies and their revenues from specific activities are updated annually by ISS.

ISS divides its screening service based on geographic location of the companies, producing separate lists for domestic and foreign tobacco companies. Careful examinations of both lists produced by ISS have revealed that while the list of domestic tobacco companies matches the University's historic practice on tobacco screening, the list of foreign companies does not. The domestic universe includes filters to narrow the screening to tobacco manufacturers and includes only companies whose business is the direct manufacture of tobacco products, including chewing tobacco and/or snuff; cigarettes, including make-your-own custom cigarettes; cigars; pipe and/or loose tobacco; smokeless tobacco; and raw, processed or reconstituted leaf tobacco. The foreign list from ISS, however, includes manufacturers as well as distributors of tobacco products and suppliers to the tobacco industry. This past year, the Office of Socially Responsible Investing under the Executive Vice President of Finance carefully culled the foreign universe to more closely align with the University's practice of screening only manufacturers.

Committee position and recommendations:
The Committee requests that the Trustees clarify and formalize the University's stance on tobacco screening by recommending that IMC refrain from investing in companies whose business is the direct manufacture of tobacco products.

It is the belief of the Committee that appropriate lists of both domestic and foreign companies that conform to the above definition can still be obtained from ISS. The list of domestic companies obtained from ISS conforms to this definition as is. A comparable list of foreign companies can be obtained from the ISS list by simply applying a manual filter. The Committee would offer that IMC rely on the Office of Socially Responsible Investing to provide this service, either on scheduled dates throughout the year, or upon request from IMC.

Tobacco 2016 – List of Domestic and Foreign Companies for Non-Investment

Highlighted Blue Company is NEW for November 2016

Tobacco - Domestic Companies
Company Name
Alliance One International Inc
Altria Group Inc.
Philip Morris International Inc
Reynolds American Inc.
Schweitzer-Mauduit International, Inc.
Turning Point Brands Inc
Universal Corp.
Vector Group Ltd

Tobacco - Foreign Companies	
Company	**Country**
Adris Grupa D.D.	Croatia
Al-Eqbal Investment Company Ltd	Jordan
Bentoel Internasional Inv.	Indonesia
Bosanac d.d. Orasje	Bosnia and Herzegovina
British American Tobacco	United Kingdom
British American Tobacco (Kenya) Ltd.	Kenya
British American Tobacco (Malaysia) Bhd	Malaysia
British American Tobacco (Zambia)	Zambia
British American Tobacco Bangladesh Company Ltd.	Bangladesh
British American Tobacco Uganda	Uganda
British American Tobacco Zimbabwe Holdings	Zimbabwe
Bulgartabac Holding AD	Bulgaria
Ceylon Tobacco Company plc	Sri Lanka
Coka Duvanska Industrija ad Coka	Serbia
Dunavska Industrija ad Bujanovac	Serbia
Dupnitsa - Tabac AD	Bulgaria
Duvanski Kombinat ad Podgorica	Montenegro
Eastern Company S.A.E.	Egypt
Empresa Agroindustrial Cayalti S.A.A.	Peru
Fabrika Duhana Sarajevo dd Sarajevo	Bosnia and Herzegovina
Godfrey Phillips India Ltd.	India
Golden Tobacco Ltd.	India
Gotse Delchev Tabac AD	Bulgaria
Gudang Garam Tbk	Indonesia
H M Sampoerna Tbk	Indonesia
Haci Omer Sabanci Holding A.S.	Turkey
Hoang Long Group	Vietnam
Hrvatski Duhani D.D.	Croatia
Huabao International Holdings Ltd.	China
*Imperial Brands plc	United Kingdom
Isperih-BT AD	Bulgaria

ITC Ltd.	India
Japan Tobacco Inc.	Japan
Jerusalem Cigarette Company Ltd.	Israel
Karelia Tobacco Company Inc. S.A.	Greece
Khyber Tobbacco	Pakistan
KT&G Corporation	Korea South
LT Group Inc.	Philippines
Mitsubishi Corporation	Japan
Ngan Son Jsc	Vietnam
Nikotiana - BT Holding AD	Bulgaria
NTC Industries Ltd.	India
Pakistan Tobacco Company Ltd.	Pakistan
Pazardzhik-BT AD	Bulgaria
Philip Morris (Pakistan) Limited	Pakistan
Philip Morris Cr A.S.	Czech Republic
Philip Morris Operations a.d. Nis	Serbia
Pobis TNC Co Ltd.	Korea South
Press Corporation Ltd.	Malawi
RTCL Ltd.	India
Shanghai Industrial Holdings Ltd.	China
Shumen-Tabac AD	Bulgaria
Sila Holding, Pazardjik	Bulgaria
Sinnar Bidi Udyog Ltd.	India
Slantse Stara Zagora - Tabac AD	Bulgaria
Societe Ivoirienne des Tabacs	Ivory Coast
Strumica Tabak Strumica	Macedonia
Swedish Match	Sweden
Tanzania Cigarette Co	Tanzania
TSL Limited	Zimbabwe
Tutunski kombinat Prilep	Macedonia
Tvornica Duhana Zagreb d.d.	Croatia
Union Land Development Corporation	Jordan
Union Tobaco & Cigarette Industries	Jordan
Virat Crane Industries Ltd.	India
VST Industries Ltd.	India
West Indian Tobacco Co. Ltd.	Trinidad and Tobago
Wismilak Inti Makmur Tbk	Indonesia

* Name changed from Imperial Tobacco Group plc

Attachment C: Private Prison Operators Divestment Resolution and Divestment/Non-Investment List

COMMITTEE ON FINANCE
BACKGROUND FOR RESOLUTIONS

June 12, 2015

Divestment from companies engaged in the operation of private prisons. The Columbia University Advisory Committee on Socially Responsible Investing (ACSRI) was formed by the University in March 2000 to advise the Trustees on ethical and social issues confronting the University as an investor, and includes students, faculty, alumni and non-voting University administrators as members. The ACSRI makes its own agenda, and may make recommendations to the Trustees. The Subcommittee on Shareholder Responsibility of the Committee on Finance has the role of receiving recommendations from the ACSRI. The current members of the Subcommittee are Ann Kaplan, Paul Maddon and Jonathan Lavine.

Columbia Prison Divest, a student-organized group, made presentations to the ASCRI, in the spring and fall of 2014, and in February 2015 presented the ACSRI with an updated proposal for divestment. The ACSRI reviewed background and considered the proposal, and on March 31, 2015 resolved to make a recommendation to the Trustees that the University should divest any direct stock ownership interests in companies engaged in the operation of private prisons and refrain from making subsequent investments in such companies. A copy of the resolution, as well as additional views of some ACSRI members, is attached as Exhibit A.

The Subcommittee on Shareholder Responsibility is proposing that the Committee on Finance resolve that the University divest from and refrain from future investment in any direct holdings of publicly-traded stock of companies engaged in the operation of private prisons, and refrain from making investments in such companies in the future.

Resolution of the ACSRI

The Advisory Committee on Socially Responsible Investing of Columbia University hereby resolves to recommend to the Trustees that the University should divest any direct stock ownership interests in companies engaged in the operation of private prisons and refrain from making subsequent investments in such companies.

The resolution is based on the Committee's application of the three criteria that guide its divestment recommendations: community sentiment, the merits, and the possibilities for shareholder engagement.

The Committee is persuaded that the Columbia community would generally favor a private prison divestment measure, based on: a resolution adopted by an overwhelming majority of the University Senate's Student Affairs Committee, a 23-0-1 vote, representing students in the University's 20 schools and affiliates; an assessment of sentiments expressed at a public meeting called to discuss the matter; an informal consultation with knowledgeable faculty, especially at the Law School; and the absence of voiced opposition to such a measure, despite the public discussion of the proposal and opportunities provided by the Committee for the public expression of views.

Private prisons have been the subject of litigation alleging violations of constitutionally required minimal levels of maintenance, welfare, and medical conditions. The Committee has taken note of such litigation and the fact-finding reports by public interest groups substantiating such concerns, but has not attempted to compare private prisons with public prisons on this dimension. The Committee was particularly concerned that the business model of private prison companies creates incentives for increasing the level of incarceration in the United States, which is remarkably high both in historical terms in the U.S. and in international comparisons. The profits of private prison companies increase in the utilization of prison services, both in the occupancy rate for existing facilities and in the construction of new facilities. This gives private prison companies incentives to lobby for legislation, police and prosecutorial practices, and sentencing decisions that increase (or at least maintain) current incarceration levels. In the Committee's opinion, an investment whose positive performance is linked to an increase in already high levels of incarceration does not fit with the University's mission and values.

Engagement does not offer an avenue for addressing the Committee's concerns. The conditions in private prisons, including the opportunities for rehabilitative education and terms of confinement, are largely a matter of contract between private prison companies and the governmental authorities that use them. The University has little means of influencing governments in the fashioning and monitoring of those contracts, certainly not the usual course of its activities as a concerned shareholder. Given that the business model of a private prison company benefits from an increase in incarceration levels, it is not a promising course for shareholder activism to ask a company – or fellow shareholders – to retreat from a model that produces performance. On this basis, the Committee finds that shareholder engagement is not an effective alternative to divestment.[1]

March 31, 2015

[1] An independent manager disposed of the University's holdings in CCA, one of the private prison companies identified in the petition presented by Columbia Prison Divest, for investment-related reasons in February 2015. This matter is not moot, however, because Columbia may own shares in other such firms and the recommendation applies prospectively as well.

Additional Views of Some Committee Members

In the course of discussions within the ACSRI, a number of important issues raised by the divestment petition were the subject of dialogue and debate. The grounds set forth in the resolution attracted the broadest consensus but the Committee felt that it would be valuable to share some additional views expressed within the Committee to reflect the breadth of the issues considered and that many Committee Members believe there is opportunity for further work on the issues raised in connection with the petition, beyond the narrow act of divestment.

Specifically, some Committee Members expressed concern that the University's divestment from share ownership in private prison companies would be taken by the proponents as a sufficient response to their concerns about the level of incarceration or the educational and rehabilitative options available to the prison population. Some Committee Members also noted that conditions in private prisons were in significant measure the result of contractual terms with governmental agencies and reflected monitoring shortfalls by such agencies. Thus some Committee Members expressed the hope that proponents of the divestment resolution would undertake additional efforts towards improving conditions and outcomes in private prisons and public prisons.

Some Committee Members expressed particular concern about the disparate racial make-up of the inmate population of private prisons, even if this may have arisen as a by-product of other policies, such as contractual provisions that resulted in assigning younger inmates to private prisons because of the lower health care costs of this population. These Members wanted to point out that to the extent private prisons provide fewer resources for education and rehabilitation, confinement in a private prison would have racially disparate consequences.

Trustee Statement on Prison Divestment Resolution

> "The Trustees have voted to support a policy of divestment in companies engaged in the operation of private prisons and to refrain from making new investments in such companies. The decision follows a recommendation by the University's Advisory Committee on Socially Responsible Investing (ACSRI) and thoughtful analysis and deliberation by our faculty, students and alumni. This action occurs within the larger, ongoing discussion of the issue of mass incarceration that concerns citizens from across the ideological spectrum. We are proud that many Columbia faculty and students will continue their scholarly examination and civic engagement of the underlying social issues that have led to and result from mass incarceration. One of many examples of the University's efforts in this arena is the work of Columbia's Center for Justice, http://centerforjustice.columbia.edu/about/. In partnership with the Heyman Center for the Humanities, the Center for Justice recently received generous support from the Mellon and Tow foundations to help educate incarcerated and formerly incarcerated persons, and to integrate the study of justice more fully into Columbia's curriculum."

2017 Private Prison Operators Divest/Non-Invest List

Private Prisons - Domestic Companies
Company Name
CoreCivic* (formerly Corrections Corporation of America)
Geo Group, Inc.*
Private Prisons Foreign Companies
Company
G4S Plc*
*All the companies are the same as 2016

Attachment D: Fossil Fuel Report to the Community/Coal Divestment Proposal

ADVISORY COMMITTEE ON SOCIALLY REPONSIBLE INVESTING
COLUMBIA UNIVERSITY

February 22, 2017

<u>Report to the Community</u>

This report summarizes the work of the Advisory Committee on Socially Responsible Investing ("ACSRI" or "the Committee") over the past three years in assessing various proposals relating to fossil fuels and reports on the recommendations made by the Committee to the Trustees and the President.

Our recommendations are as follows:

1) The University should divest/not invest in coal producers whose primary business (more than 35% of revenues) is "thermal coal" production. ("Thermal coal" is used in coal-fired electricity generating plants; "metallurgic coal" ("met coal") is used in steel production.) The University should also recommend to its outside managers that they avoid investments in such companies.

2) The University should become a signatory to the CDP Climate Change Program, which aims to assure high quality disclosure of companies' fossil fuel footprint and other activities, so as to facilitate more robust shareholder engagement.[1]

3) The University should 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 broad-based divestment expressed by some alumni.

4) The Trustees should consider requesting Columbia Investment Management Company to send a letter to the endowment's 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."[2]

5) Because divestment is too narrow a focus for the University's engagement with the climate change threat, the President should appoint a representative committee to formulate a Plan of Action that would address (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

[1] CDP was formerly known as "the Carbon Disclosure Project", https://www.cdp.net/en/info/about-us.

[2] 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].

climate change and the risks, and (v) support for legal, economic, and regulatory analysis of the current US and international approaches to climate change.

Recommendations 2-5 have been presented previously and discussed in prior ACSRI reports of November 17, 2015, and April 15, 2016, which are attached to this report. Thus this memo addresses the additional proposal advanced by the Committee, Recommendation 1, divestment/no investment with respect to coal producers whose primary business is the production of thermal coal.

Summary of Prior Proceedings

The ACSRI's consideration of fossil fuel divestment began in fall 2013 with a proposal by a student group, Columbia Divest for Climate Justice, calling for divestment from the largest 200 coal, oil, and natural gas producers. The Committee rejected this divestment proposal in May 2014 and then, upon a renewed petition, in November 2015.[3] The Committee formulated its own proposal for narrowly-focused divestment from tar sands producers, which it put out for community reaction in August 2016.[4] Subsequently in September 2016 the Committee received a proposal from 25 Earth Institute faculty members calling for divestment focused on coal producers and for sending questionnaires to other fossil fuel producers to test their adherence to climate change science and their preparation for a transition to a regime of low-carbon energy sources, with divestment as a possible consequence of an inadequate response. [5]

A majority of the Committee favored withdrawing the Committee's tentative proposal on tar sands, concerned principally about the Committee's entitlement and capacity to generate its own divestment proposals. Instead, the majority favored supporting a variant of the Earth Institute 25-faculty proposal that focused on thermal coal. (The Committee vote in favor of this modified coal divestment recommendation was 7-4-1. [6]) The Committee generally agreed that the Earth Institute 25-faculty questionnaire proposal to make inquiry of other fossil fuel firms would be administratively burdensome and would lead to a fruitless search for sufficient criteria to recommend divestment.

In response to a survey sent to the Columbia community on August 31, 2016, the Committee learned that, at least among those who responded, there was substantial support in all constituency groups for divestment from coal producers and tar sands producers, although there were also some who did not favor divestment as a tool to address the climate change threat. The largest number of responses came from students (roughly 60% of approximately 1950 responses). Among a hierarchy of possible University actions, roughly half the responses placed divestment from coal and/or tar sands as first or second in preference.

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[3] See the Committee Report of November 17, 2015. The November 2015 report includes the CDCJ proposal as an Appendix. The student group, initially known as the Barnard/Columbia Divest for Climate Justice, changed its name in the 2014-15 academic year because of the formation of a specific Barnard group targeting the independently managed Barnard endowment.

[4] See the Committee Report of August 31, 2016.

[5] Proposal by 25 Earth Institute Faculty on Fossil Fuel Divestment and Engagement, September 12, 2016, attached as an appendix.

[6] In presenting the Committee's rationale for its coal divestment recommendation, this report will refer to "the Committee" meaning the views of the Committee majority. The dissents will be separately discussed.

Rationale for the Committee's Divestment Proposal

The criteria used by the Committee and the Trustees in considering divestment have three elements: (1) broad consensus in the Columbia community; (2) merits that lie clearly on one side, and (3) no feasible alternative to divestment through shareholder engagement or otherwise. The Committee concluded that its survey and other expressions of community sentiment, including prior student petitions and a prior letter signed by more than 300 faculty, [7] demonstrated sufficient consensus for a targeted divestment recommendation. The Committee was also persuaded, in part through its own history of responding to shareholder proposals presented through companies' proxy statement, that shareholder engagement was not a sufficient response to the urgency of the climate change threat. On the "merits," the Committee found that there was a compelling case for divestment of fossil fuel companies whose "primary business" was the production of thermal coal on the following grounds: First, of fuels in general use, coal has the highest level of CO_2 emission per unit of energy. Second, because of the ubiquity of coal usage throughout the world, coal is a particular threat to the possibility of avoiding an atmospheric temperature rise of more than 2˚C that scientists regard as the critical threshold for major climate change effects. Third, there are lower- CO_2 -emitting substitutes for coal in electricity generation, specifically, natural gas but also, increasingly, solar and wind. By contrast, there are no adequate substitutes currently available for fuel oil in transportation. A similar focus on substitutes led the Committee to focus on "thermal coal" rather than "metallurgic coal," for which there are no adequate substitutes in steel production.

For these reasons, the submission of the 25 Earth Institute faculty members argued and the Committee generally agreed that

> "Major reductions in global coal use are an essential part of any strategy to fight climate change. Coal companies are bad investments for the planet and for forward-looking investment portfolios. If these companies are losing money (as many of them are), Columbia University should not suffer the losses; if they are making money, Columbia should not share in the profits."

The Committee is aware that divestment from coal producers would be a form of symbolic speech. Other buyers will step in, stock prices will not directly be affected, and coal producers will not stop producing coal. Nevertheless divestment from fossil fuel producers has become the subject of an international campaign aimed at university endowments and others as a way to signal the seriousness of the climate change threat: a form of self-restraint that is meant to mobilize a broader public constituency. Columbia's decision to divest would have significant impact on this dimension precisely because of Columbia's leadership role in the creation of scientific knowledge about the climate change threat (through Lamont-Doherty and otherwise) and also because of the University's general prominence. The Committee regarded the existential nature of the climate change threat as sufficiently unique to distinguish this case of symbolic-speech-through-divestment from possible proposals addressing other concerns.

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[7] See Columbia Divest for Climate Justice, Proposal for Divestment from the Top 200 Publicly-Trade Fossil Fuels Companies (October 6, 2015), pp. 7-8 (describing various Columbia community manifestations of support for divestment); Proposal from 25 Earth Institute Faculty Members (Sept. 12, 2016), p. 5 (same).

Thus, as a separate ground, the Committee endorses the proposed divestment as a form of symbolic speech that resonates with the Committee's previously-developed "stand up for the science" framework. Although the University does not generally engage in symbolic speech on public policy matters, the University can and must "stand up for the science." A core mission of the University is the production of scientific knowledge and a core responsibility of the University in a democratic society is to encourage the use of the best available knowledge in public decision-making.

As regards climate change science, the actions necessary to avert a climate change catastrophe ultimately depend upon the concerted actions of governments, especially legislatures, necessarily entailing choices, trade-offs, and compromises. Yet a serious threshold problem is that the strong scientific consensus regarding the role of human agency in global climate change is denied by important governmental leaders and regarded as highly contestable within mainstream political discourse. This is a first order problem in addressing the climate change risk. To use a metaphor that the Committee has often employed: The consensus scientific evidence indicates that the threat of catastrophic climate change is, in effect, an on-rushing train, and we stand in the tracks. The denial of the science keeps us frozen on the tracks rather than engaged in the concerted actions necessary to jump away. In the symbolic act of divesting from thermal coal producers, the University would be communicating to the broader public that this science cannot be denied. Such divestment would underscore the University's commitment to "stand up for the science."

The Climate Change Threat and CO_2 Emissions

The causal connection between climate change and the combustion of carbon-based fuels that inject CO_2 into the atmosphere is a critical link that informs policy in this area. The submission of 25 Earth Institute faculty members identified the FIFTH ASSESSMENT REPORT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE as an authoritative summary statement of the climate change science that connects the climate change threat and the CO_2 emissions.[8] Among the key conclusions in that Report are:

> "Warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, and sea level has risen." (Synthesis Report Summary, p. 2)

> "Anthropogenic greenhouse gas emissions have increased since the pre-industrial era, driven largely by economic and population growth, and are now higher than ever.
> This has led to atmospheric concentrations of carbon dioxide, methane and nitrous oxide that are unprecedented in at least the last 800,000 years. Their effects, together

[8] https://www.ipcc.ch/report/ar5/syr/. Subsequent references in this Report are to CLIMATE CHANGE 2014 SYNTHESIS REPORT SUMMARY FOR POLICYMAKERS ("Synthesis Report Summary"), available at the identified link.

with those of other anthropogenic drivers, have been detected throughout the climate system and are extremely likely to have been the dominant cause of the observed warming since the mid-20th century." (Id., p. 4)

Among the risks are

"Continued emission of greenhouse gases will cause further warming and long- lasting changes in all components of the climate system, increasing the likelihood of severe, pervasive and irreversible impacts for people and ecosystems. Limiting climate change would require substantial and sustained reductions in greenhouse gas emissions which, together with adaptation, can limit climate change risks." (Id., p. 8)

The national signatories to the 2015 Paris Climate Conference Accord agreed that avoidance of catastrophic climate change required staying under 2˚C of warming above the pre-Industrial global mean temperature. [9] To maintain a 75% or higher probability of staying under 2˚C, cumulative CO_2 emissions over the 2015-2050 period cannot exceed approximately 600 Gt CO_2. [10] By comparison, the CO_2 content of already extant fossil fuel reserves is approximately 2800 Gt CO_2. 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.

Coal accounts for 65 percent of the CO_2 content of these reserves, approximately 1800 Gt CO_2, or three times the entire CO_2 emissions "budget" over the 2015-2050 period.[11] Current annual CO_2 emissions from coal are approximately 14.7 Gt, meaning that even on a no-growth trajectory, coal usage would consume virtually the *entire* CO_2 emissions "budget" over the 2015-2050 time frame. [12] Thus thermal coal is a necessary target for drastic CO_2 emissions reduction.

Combustion of coal produces the highest level of CO_2 emissions per unit of energy produced among the fossil fuels. For coal's principal use, electricity generation, there are existing substitutes (nuclear, hydro, gas, solar, wind) that are beginning to obtain cost advantages over coal. These points are well-advanced in the submission of the 25 Earth Institute faculty members:

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9 The limit agreed to in Paris, in December 2015, to "avoid dangerous anthropogenic interference" with the climate system . See *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 CO_2 Emissions 2015*, fig. 2.1. The Meinhausen et al article is the source for the CO_2 level of existing reserves and the projections regarding reserves consumption, projecting a 1000 Gt CO_2 cap over the 2000-2050 period as necessary to protect the 2˚C limit with 75% probability. The PBL Netherlands report documents CO_2 emissions of approximately 400 Gt over the 2000-15 period, producing (by subtraction) the 600 Gt CO_2 limit in the text. No adjustment has been made to the stated reserves level because reserve levels having been stable or growing since the Meinhausen et al article.

11 See CARBON TRACKER, UNBURNABLE CARBON – ARE THE WORLD'S FINANCIAL MARKETS CARRYING A CARBON BUBBLE? (2014)

12 Draft EPA GHG Emissions and Sinks, 1990-2015, https://www.epa.gov/sites/production/files/2017-02/documents/2017_complete_report.pdf; U.S. Energy Information Administration, International Energy Outlook 2016, https://www.iea.org/publications/freepublications/publication/CO2EmissionsFromFuelCombustionHighlights2015.pdf; on-line tables, http://www.eia.gov/outlooks/aeo/data/browser/#/?id=13-IEO2016&sourcekey=0

“The amount of carbon dioxide (CO_2) produced when different types of fossil fuels are burned is easily measureable and calculable. According to the U.S. Energy Information Administration, the breakdown in tonnes of CO_2 per gigawatt hour (converted from the original data of pounds/million BTUs by multiplying by a conversion factor of 1.5477) is as follows[13]:

Coal (anthracite)	353.81
Coal (bituminous)	318.37
Coal (lignite)	333.38
Coal (subbituminous)	331.68
Diesel fuel and heating oil	249.65
Gasoline	243.30
Propane	215.13
Natural gas	181.08

“However, carbon dioxide and other greenhouse gases are also emitted during processes other than combustion, including but not limited to extraction, transportation, and processing. Thus an entire “cradle to grave” lifecycle analysis of fossil fuels is a more appropriate measurement of total greenhouse gas emissions. While the definition of a fossil fuel’s lifecycle is not standardized, the World Nuclear Association analyzed 21 different lifecycle reports and reported the following total lifecycle greenhouse gas emissions in tonnes of CO_2 equivalent per gigawatt hour[14]:

13 U.S. Energy Information Administration (U.S. EIA), How much carbon dioxide is produced when different fuels are burned?, June 18, 2015; https://www.eia.gov/tools/faqs/faq.cfm?id=73&t=11

14 World Nuclear Association (WNA), *Comparison of Lifecycle Greenhouse Gas Emissions of Various Electricity Generation Sources*, July 2011, http://www.world-nuclear.org/uploadedFiles/org/WNA/Publications/Working_Group_Reports/comparison_of_lifecycle.pdf

Technology	Mean	Low	High
	tonnes CO_2e/GWh		
Lignite	**1,054**	790	1,372
Coal	**888**	756	1,310
Oil	**733**	547	935
Natural Gas	**499**	362	891
Solar PV	**85**	13	731
Biomass	**45**	10	101
Nuclear	**29**	2	130
Hydroelectric	**26**	2	237
Wind	**26**	6	124

"To be sure, oil also generates a substantial amount of [greenhouse gas] emissions per unit of energy produced. The question may be asked why, if Columbia should divest from coal, should it not also divest from oil? A major reason concerns the availability of substitutes.
The coal used for energy goes almost entirely to make electricity. (Some coal is also an input in certain metallurgical processes.) There are many other, cleaner ways to make electricity. All nuclear, hydropower, and wind turbine energy goes to make electricity, as does most solar and much natural gas. These cleaner energy sources are available in the rapidly developing countries. For example, both China and Brazil have already developed a great deal of hydropower and many other populous and rapidly developing countries, including India and Indonesia, have the natural features necessary to develop a great deal themselves. [15] According to the Renewables 2016 Global Status Report from REN21, [16] China is the world leader in solar photovoltaic capacity and additions, while India is ninth[17] and China is first in wind power capacity and additions, while India is fourth. [18] In the world's poorest countries, where large segments of the population have no electricity at all, distributed energy (primarily solar photovoltaic) is being rapidly installed and (unlike central station coal plants) does not require the installation of extremely expensive transmission lines. [19] In India, solar power is now cheaper to provide than coal.[20] [Indeed, recently released data from Bloomberg New Energy Finance indicated

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15 HYDROPOWER GENERATION AND POTENTIAL AROUND THE WORLD (Aug. 22, 2014), https://www.hydropower.org/blog/hydropower-generation-and-potential-around-the-world.

16 RENEWABLES 2016 GLOBAL STATUS REPORT, www.ren21.net.

17 Id. at p. 63.

18 Id., at p. 77.

19 Id., at id, at pp 87-97; see also *Solar power is reshaping energy production in the developing world*, The Economist, Ap. 16, 2016.

20 *Solar Power Now Cheaper Than Coal In India, Says Energy Minister*, Clean Technica, Jan 22, 2016, available at https://cleantechnica.com/2016/01/22/solar-power-now-cheaper-than-coal-in-india-says-

that "Solar power, for the first time, is becoming the cheapest form of new electricity.'[21]]

"In contrast, about 71% of the world's oil goes to transport, [22] and 93% of the energy used for transport in the world comes from oil. [23] Major efforts are underway around the world to use more electric cars, but there are only about 1.3 million electric automobiles now on the road around the world, [24] out of about 1 billion total, [25] just 0.1%. There are currently no commercial substitutes for petroleum or gas for heavy duty vehicles (such as trucks and buses) or for aircraft."

The Committee accepted the reasoning of the submission of the 25 Earth Institute faculty members as to the unique risks of thermal coal in leading to severe adverse climate change effects. This led to the Committee's new recommendation:

"The University should divest/not invest in coal producers whose primary business (more than 35% of revenues) is "thermal coal" production. ("Thermal coal" is used in coal-fired electricity generating plants; "metallurgic coal" ("met coal") is used in steel production.) The University should also recommend to its outside managers that they avoid investments in such companies."

*   *   *

energy-minister/. More generally on the growth of renewables, see *Renewables Overtake Coal as the World's Largest Source of Power Capacity*, Financial Times, Oct. 15, 2016.

21 *World Energy Hits a Turning Point: Solar That's Cheaper Than Wind* (Dec. 15, 2016), https://www.bloomberg.com/news/articles/2016-12-15/world-energy-hits-a-turning-point-solar-that-s- cheaper-than-wind

22 http://instituteforenergyresearch.org/topics/encyclopedia/petroleum/

23 https://www.iea.org/topics/transport/

24 *Number of electric cars worldwide climbs to 1.3 million*, Evannex (March 1, 2016), https://evannex.com/blogs/news/77801925-number-of-electric-cars-worldwide-climbs-to-1-3-million- tesla-model-s-takes-top-spot-among-new-ev-registrations.

25 *World Vehicle Population Tops 1 Billion Units*, Wards Auto (Aug. 15, 2011), http://wardsauto.com/news-analysis/world-vehicle-population-tops-1-billion-units.

Dissenting views

The Committee's recommendation was not unanimous. Four (of 12) dissented and one member abstained. Committee members had diverse reasons for dissenting. These reasons included:

1) The Coal Divestment proposal does not distinguish among coal companies that are winding down their legacy business vs. making new investments in coal producing capacity; or those that accept the science but want to utilize their productive capacity vs. those who deny the science and actively lobby against further constraints; or those that invest in CO_2-reducing technology ("carbon capture") and those that do not.

2) Coal combustion, not coal production, is the problem. A Coal Divestment recommendation shifts attention away from the electric power utilities, actors with genuine choice over how to produce electricity and responsibility for the choices they make.

3) Engagement is almost always superior to walking away from a problem. A shareholder, particularly if joined with other shareholders, has influence; a non-shareholder has no influence. If all environmentally conscious shareholders divested from energy companies, the only shareholders that would remain would be those that do not care about the environment. As a result, companies would be free to pursue environmentally damaging strategies without fear of shareholder disapproval. The problems that arise from burning fossil fuels will not be solved by disengagement.

4) Most of the publicly-traded coal companies are foreign domiciliaries producing for emerging market economies, yet our divestment proposal would target them. (US coal producers are almost all private companies.) Such countries may be struggling to meet the energy needs of their people; alternatives may not be readily available. Development opportunities for impoverished people may be set back if coal is not available.

5) The University itself uses power through the Con Ed grid that derives in part from the production of thermal coal. Columbia should first show that complete abandonment of coal (and other fossil fuels) is achievable before we take an action that is meant even only symbolically to prevent others from using it. Even if it were true that Con Ed is not using coal to produce energy that we use, as far as Columbia is concerned that would be an example of moral luck. Others who depend on a grid may be stuck with electricity from thermal coal. Thus our symbolic action would have "at least a whiff of hypocrisy."

6) Divestment would be completely symbolic and without any practical consequence on the production or use of coal. It might make us feel good (i.e. righteous) but if there is no effect, what's the point? A more effective approach would be to continue to pursue research on alternative energy sources, to develop policies that will provide incentives for alternative fuel use especially in developing countries, and to educate our students and the public about the need to do these things. Empty symbolic gestures that distract from the real problem should not be supported, especially if there is potential cost to the University endowment from lost diversification.

7) There is now widespread international agreement on the risk of fossil fuels, reflected in the 177 country signatories to the COP21 Paris agreement. How to achieve the COP21 goals, especially how each nation should achieve its goals, will lead to good faith disagreement among scientists, policy makers, legal experts, the energy industry and politicians, including disagreement among the experts on the Columbia faculty. The University qua university should not take a position on a particular strategy.

8) The Committee should simply accept or reject a proposal put forth by others, not fashioning its own proposal (for example, as regards tar sands) nor revising a proposal as here, where the Committee has narrowed the recommendation of the 25 Earth Institute faculty members on coal divestment and rejected that part of the proposal calling for Committee follow-up with respect to firms that produce oil or gas.

9) The merits of coal divestment “are not clearly on one side,” unlike divestment from tobacco companies or private prison companies. For example, many people across the globe have access to electricity because of coal, which fosters economic development and improvements in clean water supply and development. While it may be indisputable that it is necessary to phase out coal as an energy resource, there is no consensus over how this should be achieved. In its rejection of the CDCJ proposal ACSRI stated, “the more the Committee has deliberated over the possibility and the scope of a possible divestment recommendation …the stronger has become the feeling that divestment is too narrow a lens through which to consider Columbia University’s engagement with the climate change issue.” The questions over how we should grapple with coal combustion are far more nuanced and warrant a more sophisticated approach than the divestment approach used for the tobacco and private prison industries.

\# # #

ACSRI Proposal Submission Overview

Date of Submission to the ACSRI: September 12, 2016

Subject of Review: Fossil fuel divestment

Contact Name: Michael B. Gerrard

Contact Email: michael.gerrard@law.columbia.edu Phone Number: (212) 854-3298

University Affiliation: Andrew Sabin Professor of Professional Practice

Dept./Office: School of Law

Requesting on behalf of an organization? Yes

If yes, which organization? 25 members of Earth Institute Faculty signing statement

Provide a summary of the issue, the action requested, and the rationale:

There is a University-wide consensus that climate change poses a grave threat to humanity and to the natural systems on the planet, and that the use of fossil fuels is the principal cause. This proposal (formulated and signed by 25 members of the Earth Institute Faculty and others) calls upon the University to engage in an orderly divestment of the shares of the largest coal companies, and to submit questions to the largest oil and gas companies to ascertain their policies with respect to the needed transition from fossil fuels to cleaner sources of energy, the exploration for and production of unconventional fossil fuel resources, the acknowledgment of the need to reduce greenhouse gas emissions, and related matters. Based upon the results of this survey, divestment from some of the oil and gas companies may be recommended.

Please attach in PDF format the following additional required information and supporting evidence (20 pages max):

1) State which criteria the proposal is using to make the case (1 paragraph)
2) Provide all the critical data with footnotes for any arguments in your proposal
3) Provide research on the possible opposite argument against your conclusions
4) Conclusion - provide bullet points for the final recommendations to the ACSRI citing the criteria for each one

Email the proposal to the ACSRI Staff Administrator as posted on the website

Proposal on Fossil Fuel Divestment and Engagement

Michael B. Gerrard
Andrew Sabin Professor of Professional Practice
Director, Sabin Center for Climate Change Law
Columbia Law School
Chair of the Faculty of The Earth Institute

During the 2015-2016 academic year, the faculty of The Earth Institute held intensive discussions about whether Columbia University's endowment should divest from fossil fuel stocks. On March 1, 2016, a statement was released that was signed by 25 members of this faculty and by several Earth Institute researchers. It was not issued as a formal statement of the faculty itself; the faculty had never previously issued a statement on a social/policy issue and some members were uncomfortable with doing so now.

The relevant portions of the faculty members' statement are pasted below. (The remainder called for efforts to advance the efforts to reduce the greenhouse gas footprint of campus operations, and to continue research, educational and public service activities concerning climate change; all of these are being pursued as well.)

I am submitting this proposal to ACSRI on behalf of myself and the other signatories to the statement.

Statement on University Investment and Sustainability Policy

The undersigned faculty and researchers of Columbia University's Earth Institute recommend that Columbia University implement a policy that recognizes the critical need for society to transition to non-fossil fuel energy sources, the role of the University in promoting public good through its investments, and the importance of upholding these principles through activities on its campuses. Columbia University should proactively lead these efforts both within and without the University and recognize that such investment choices need not adversely affect University finances, but they do provide an opportunity to strengthen the University financially, civically and morally. We are aware of no evidence of a clear correlation between fossil fuel divestment and portfolio return.

1. Coal combustion is the largest and fastest-growing anthropogenic source of greenhouse gas emissions. Major reductions in global coal use are an essential part of any strategy to fight climate change. Coal companies are bad investments for the planet and for forward-looking investment portfolios. If these companies are losing money (as many of them are), Columbia University should not suffer the losses; if they are making money, Columbia should not share in the profits. Columbia should engage in orderly divestment from the stock of any companies that are primarily in the coal mining business, and should refrain from buying any such stock in the future.

2. Companies that are primarily involved with other fossil fuels need to transition to clean sources of energy in the decades to come. In order to stay in or join Columbia University's stock portfolio, oil and natural gas companies should provide satisfactory affirmative answers to these questions, and should provide documentation supporting the answers:

a. Has the company publicly and clearly subscribed to the goal agreed to by 196 countries in Paris in December 2015 to hold "the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels," and to the limits on GHG emissions needed to meet that goal?

b. Has the company left, or never joined, business groups that lobby or litigate against effective climate policies to achieve the temperature goal, and does it refrain from such activities itself?

c. Has the company ended, or never engaged in, any exploration and development of unconventional reserves (for example, in the Arctic and much of the Canadian oil sands)?

d. Has the company demonstrated that it remains a good investment despite society's transition away from fossil fuels, and has it published and is it implementing a plan to transition to low-carbon energy sources and technologies, as called for by the Paris Agreement?

3. Columbia University should hold no shares in any company, in whatever sector, that directly or through organizations that it supports rejects the scientific consensus on climate change.

4. The University should be an active investor in companies whose shares it continues to hold. The University should initiate or participate in shareholder resolutions and other activities that urge companies to behave in a responsible manner toward climate change, including, *inter alia*, the reduction in the emission of greenhouse gases and the transition to non-fossil fuel energy sources. In doing so, the University should cooperate with other organizations engaged in similar activities.

Applicable Criteria

ASCRI has identified three basic tests or criteria that must be met before divestment is recommended:

1) There must be broad consensus within the University community regarding the issue at hand;
2) The merits of the dispute must lie clearly on one side;
3) Divestment must be more viable and appropriate than ongoing communication and engagement with company management.

If "the issue at hand" is defined as whether climate change is a serious threat to humanity and to the planet, and the "dispute" is whether fossil fuels are a major contributor to climate change, the first two criteria are easily met. There is broad consensus among the scientific community (including, I believe it is fair to say, every member of the Earth Institute faculty) about the threat caused by climate change, and the central role of fossil fuels in causing it. Nor does there appear to be any serious disagreement within the University community about these points. I have participated in countless meetings and public fora at Columbia about climate change, and I do not recall ever hearing anyone express disagreement on these key points. There is certainly disagreement about the magnitude and pace of the climate threat, and about the best technical and policy tools for addressing it, but not about the underlying merits. The most authoritative current study of the causes and impacts of climate change is probably the Fifth Assessment Report of the

Intergovernmental Panel on Climate Change, which is linked here. If the ACSRI desires further scientific references on these points, I would be happy to provide them.

Many members of the University community support divestment. In October 2013 Spectator conducted a ballot referendum of Columbia College students; 73.7% voted in favor (though it is unclear from what I have found whether that is a percentage of all students, or of all respondents to the poll). Last spring an open faculty letter to President Bollinger and the Trustees received more than 350 signatures (see here). According to the Columbia Divest for Climate Justice website, linked here, over 2,000 students and faculty members have signed their petition to divest from fossil fuels, representing all undergraduate and graduate schools at Columbia. As the ACSRI is well aware, the issue has been the subject of a great deal of student activism on campus. Not everyone agrees with divestment but to my knowledge no groups have organized to oppose it, and there have been no counter-petitions. This is merely anecdotal, but I will report that in November 2014 I organized and chaired a public forum at the Law School about divestment; I had a great deal of difficulty finding anyone on or off campus willing to speak in opposition, and I had to fly an investment advisor in from Colorado to represent that point of view.

The third criterion is whether divestment is more viable and appropriate than ongoing communication and engagement with company management. There has been extensive shareholder activism with respect to climate change since the early 1990s. As a result a number of manufacturing companies have agreed to reduce their carbon footprint and take other environmentally beneficial actions. However, while this activism has had some effect on the securities disclosures of fossil fuel producers, it has had little discernible effect on the substantive practices of fossil fuel producers (as opposed to fossil fuel users). A large shale oil producer, Continental Resources, did agree to reduce its flaring (burning) of natural gas at its North Dakota well. ExxonMobil agreed to make certain disclosures (the adequacy of which are now a subject of investigation by the New York Attorney General). There may be other examples, but I have not found any.

Many groups continue to be engaged in shareholder activism on climate change; the Interfaith Center for Corporate Responsibility plays a leading role in organizing such efforts. However, it is unlikely that this kind of activism will induce any fossil fuel companies to move away from their core business. The fossil fuel divestment campaigns are ultimately aiming to achieve a major reduction in the use of fossil fuels around the world. One key element is the movement to "leave it in the ground" -- to not utilize the proven reserves that are a large piece of the asset base of many fossil fuel companies. Regulatory requirements, reduced markets, and economic factors (such as the currently low prices for oil and gas) may help achieve that, but it is difficult to imagine that shareholder activism could induce a company to abandon its assets and effect a fundamental shift in its business model. The more likely that a resolution is to seriously impair a company's profits (as opposed to alter its practices around the edges), the less likely that it will be supported by major investors and come anywhere close to a majority vote.

The present proposal would call for immediate divestment only from coal companies. It leaves room open for engagement with oil and gas companies, as they attempt to demonstrate (or don't) that they meet the other factors set forth in the faculty members' statement.

Few proponents of fossil fuel divestment believe that it alone will move the coal, oil and gas companies or even affect their stock price; there will always be other buyers for the shares. Rather the act of divestment is symbolic, and in important ways. It would help signify that Columbia University is using every tool available to it to address the grave issue of climate change: we are conducting research and education, we are greening our campuses, and now we would be pulling our shares from coal companies, and perhaps later from oil and gas companies. Divestment would also convey the idea that fossil fuel use is in growing disfavor, and so are the fossil fuel producers (whose views still carry great weight in Congress and other political bodies).

While a large number of entities around the world have announced partial or total fossil fuel divestment (see this compilation), few leading universities have. But among those that have announced partial divestment are Stanford, Georgetown, Oxford, and the London School of Economics. Columbia could mark itself as a leader in taking this action, while at the same time doing everything it can to reduce its own fossil fuel use and to participate in the scientific quest for alternatives.

Differentiating the Fuels

The proposal would immediately divest from coal companies, and disfavor the development of unconventional reserves. The divestment from coal is largely due to its emissions profile, which is far worse than all other fossil fuels. A major objective of EPA's Clean Power Plan and of many other efforts to reduce GHG emissions is to drive down the use of coal.

The amount of carbon dioxide (CO_2) produced when different types of fossil fuels are burned is easily measureable and calculable. According to the U.S. Energy Information Administration, the breakdown in tonnes of CO_2 per gigawatt hour (converted from the original data of pounds/million BTUs by multiplying by a conversion factor of 1.5477) is as follows[1]:

Coal (anthracite)	353.81
Coal (bituminous)	318.37
Coal (lignite)	333.38
Coal (subbituminous)	331.68
Diesel fuel and heating oil	249.65
Gasoline	243.30
Propane	215.13
Natural gas	181.08

However, carbon dioxide and other greenhouse gases are also emitted during processes other than combustion, including but not limited to extraction, transportation, and processing. Thus an entire "cradle to grave" lifecycle analysis of fossil fuels is a more appropriate measurement of total greenhouse gas emissions. While the definition of a fossil fuel's lifecycle is not standardized, the World Nuclear Association analyzed 21 different lifecycle reports and reported the following total lifecycle greenhouse gas emissions in tonnes of CO_2 equivalent per gigawatt hour[2]:

I. [1] U.S. Energy Information Administration (U.S. EIA), *How much carbon dioxide is produced when different fuels are burned?,* June 18, 2015; **https://www.eia.gov/tools/faqs/faq.cfm?id=73&t=11**

[2] World Nuclear Association (WNA), *Comparison of Lifecycle Greenhouse Gas Emissions of Various Electricity Generation Sources*, July 2011, http://www.world-nuclear.org/uploadedFiles/org/WNA/Publications/Working_Group_Reports/comparison_of_lifecycle.pdf

Technology	Mean	Low	High
	tonnes CO_2e/GWh		
Lignite	**1,054**	790	1,372
Coal	**888**	756	1,310
Oil	**733**	547	935
Natural Gas	**499**	362	891
Solar PV	**85**	13	731
Biomass	**45**	10	101
Nuclear	**29**	2	130
Hydroelectric	**26**	2	237
Wind	**26**	6	124

To be sure, oil also generates a substantial amount of GHG emissions per unit of energy produced. The question may be asked why, if Columbia should divest from coal, should it not also divest from oil? A major reason concerns the availability of substitutes. The coal used for energy goes almost entirely to make electricity. (Some coal is also an input in certain metallurgical processes.) There are many other, cleaner ways to make electricity. All nuclear, hydropower, and wind turbine energy goes to make electricity, as does most solar and much natural gas. These cleaner energy sources are available in the rapidly developing countries. For example, both China and Brazil have already developed a great deal of hydropower, and many other populous and rapidly developing countries, including India and Indonesia, have the natural features necessary to develop a great deal themselves. See here. According to the Renewables 2016 Global Status Report from REN21, available here, China is the world leader in solar photovoltaic capacity and additions, while India is ninth (p. 63), and China is first in wind power capacity and additions, while India is fourth (p. 77). In the world's poorest countries, where large segments of the population have no electricity at all, distributed energy (primarily solar photovoltaic) is being rapidly installed and (unlike central station coal plants) does not require the installation of extremely expensive transmission lines. (id, at pp 87-97; see also this). In India, solar power is now cheaper to provide than coal. See here.

In contrast, about 71% of the world's oil goes to transport, see here, and 93% of the energy used for transport in the world comes from oil, see here. Major efforts are underway around the world to use more electric cars, but there are only about 1.3 million electric automobiles now on the road around the world, see here, out of about 1 billion total, see here – just 0.1%. There are currently no commercial substitutes for petroleum or gas for heavy duty vehicles (such as trucks and buses) or for aircraft.

In other words, today there are many large-scale substitutes for coal in making electricity; the substitution of oil for transport is nowhere near that scale.

With respect to unconventional oil and gas, there are numerous and varying estimates of their emissions intensity. However, these methods of extraction all share one thing in common: they involve a quest for fossil fuel resources that should be left in the ground. We already know where massive coal reserves are located, and they can be extracted with very modest effort. However, most of the easily-recoverable oil and gas reserves (except for those in protected areas such as Antarctica) have already been extracted, and extraordinary efforts are needed to find and produce new ones. Given the solid scientific information available about the need to limit the amount of fossil fuel extracted (despite continuing questions about the exact amounts -- see this), elaborate hunts for new methods of extracting oil and gas, and the commencement of production in environmentally sensitive areas such as the Arctic and in deep waters offshore, amount to either a rejection of the science of climate change, or a cavalier disregard of its outcomes, in the same way that development of tar sands amounts to a rejection or disregard of science by deed.

Differentiating the Companies

How would the companies targeted for divestment be identified?

Fossil Free Indexes LLC is a research and investment company based in New York. Its web site is here. It identifies its mission as "to source and analyze carbon emissions data and to generate research, benchmarks, and investment solutions for investors who are attentive to climate risk." One of its products is the Carbon Underground 200, which it describes as "a list of the 100 largest public oil and gas and the 100 largest public coal companies globally, as measured by the potential CO_2 emissions of their reported fossil fuel reserves."

The lists are proprietary and available from Fossil Free Indexes for a fee. However, they publicly list the ten largest coal companies:

Rank	Coal Company	Coal Gt CO2
1	Coal India	43.104
2	Adani Enterprises	27.809
3	China Shenhua Energy	23.143
4	Inner Mongolia Yitai Coal	11.756
5	China Coal Energy	9.492
6	Mechel	9.483
7	Exxaro Resources	9.433
8	Public Power	9.339
9	Glencore	8.692
10	Peabody Energy	8.059

This list would be a convenient way to identify the coal companies that, under the proposal, should not be in Columbia's portfolio. Fossil Free Index also maintains a list of the 20 public companies with the largest tar sand reserves.

The list of the 100 largest public oil and gas companies would also be a good starting point for identifying the companies that are engaged in offshore oil exploration and shale gas production. Much of this information is readily available. For example, Rigzone Data Services publishes information about the owners of offshore oil rigs, for example. See here. Various centers or groups at Columbia could be engaged to carry out the needed research.

The proposal calls upon Columbia to send a questionnaire to oil and gas companies to inquire about certain specified activities and positions. The proposal itself sets forth the key questions (though some refinement and definitions would be in order). The Fossil Free Index would provide the list of companies that should receive the questionnaire.

One of the questions is whether the company has "published and is it implementing a plan to transition to low-carbon energy sources and technologies, as called for by the Paris Agreement." I note that at least one large oil company -- Total, which is headquartered in Courbevoie, France -- has published such a plan. See here.

It is unknown how many companies would respond to this questionnaire. One option would be for Columbia to ask the Carbon Disclosure Project to add these to the questions it includes in its annual Climate Change Information Request. This year's Request form is here. (I am aware that in April 2016 the ACSRI recommended that Columbia become an Investor Signatory to the CDP Climate Change program. I do not know whether this recommended has been acted upon.)

Another task required under the faculty members' proposal is identifying each company "that directly or through organizations that it supports rejects the scientific consensus on climate change." The number of publicly traded companies that fall within that category today is probably very low. Some of those that formerly did, such as ExxonMobil, no longer do. Few trade associations do so any longer. Some substantial companies still actively do, directly or indirectly, most prominently Koch Industries and Murray Energy, but they are privately held. Ongoing research at Columbia could help identify any such companies, but this is not likely to be a large category.

Much of the information sought can be obtained through research without resort to questionnaires. For example, a great deal of information is available publicly about private leasing of coal lands. See this and this, and the sources cited therein.

Conclusion

The ACSRI should recommend that the Trustees:

1. Direct the University's fund managers to engage in orderly divestment from the stock of any companies on the list of the 100 largest holders of coal reserves, and refrain from buying any such stock in the future.
2. Request the ACSRI to send a questionnaire to the 100 largest public oil and gas companies, asking them the questions posed in the faculty members' statement, or become an Investor Signatory to the CDP Climate Change program ask CDP to pose these questions.
3. Request the assistance of the ACSRI in helping the University become an active investor in companies whose shares it continues to hold. The University should initiate or participate in shareholder resolutions and other activities that urge companies to behave in a responsible manner toward climate change, including, *inter alia*, the reduction in the emission of greenhouse gases and the transition to non-fossil fuel energy sources. In doing so, the University should cooperate with other organizations engaged in similar activities.

Attachment E: Columbia Announces Divestment from Thermal Coal Producers

Columbia Announces Divestment from Thermal Coal Producers

March 13, 2017

Building on Columbia's longstanding commitment to addressing climate change, the University's Trustees have voted to support a recommendation from the Advisory Committee on Socially Responsible Investing (ACSRI) to divest from companies deriving more than 35% of their revenue from thermal coal production and to participate in the Carbon Disclosure Project's Climate Change Program.

Thermal coal is used in coal-fired electricity generating plants (whereas metallurgic coal is used in steel production). The basis of the **ACSRI recommendation** adopted by the Trustees is that coal has the highest level of CO2 emission per unit of energy; it is used ubiquitously across the globe as a source of electrical energy; and there exist today several cleaner alternative energy sources for electricity production (including but not limited to natural gas, solar, and wind). The University's divestment from thermal coal producers is intended to help mobilize a broader public constituency for addressing climate change and, in the words of ACSRI, to "encourage the use of the best available knowledge in public decision-making." "Divestment of this type is an action the University takes only rarely and in service of our highest values," said University President Lee C. Bollinger. "That is why there is a very careful and deliberative process leading up to any decision such as this. Clearly, we must do all we can as an institution to set a responsible course in this urgent area. I want to recognize the efforts of the many students, faculty and staff whose substantive contributions have brought us to this point."

The Trustees also encouraged the University to continue to strengthen efforts to reduce its own carbon footprint, as well as to further support research, educational efforts, and policy analysis in the field of climate change and carbon emissions reduction.

Many elements of this effort are already in place or underway. A multi-year planning process will result in the announcement next month of Columbia's new plan to further enhance the environmental sustainability of our operations. Columbia's renowned Lamont-Doherty Earth Observatory, on the forefront of the science of "global warming" since the term was first coined by a faculty member, is once again leading by example, having announced that it will rely on solar power for 75% of its electrical energy needs. Lamont-Doherty is part of the Columbia University Earth Institute, which brings together one of the world's most significant collection of researchers across multiple fields to deepen human understanding of climate change and the solutions for a sustainable future.

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