# Report of the Ad Hoc Advisory Committee on Divestment to the Board of Trustees June 14, 2016

# **Process**

The Committee met four times in person. In addition, written materials were provided to the Committee. Throughout the process we were provided administrative assistance by Alison McGhie and Joseph Gasiewski from the Office of the University Secretary.

**Meeting One**: We received our charge from David Cohen. We discussed the charge, the criteria for our decision making set forth in the Guidelines and Procedures for Consideration by the Trustees of Proposals for Divestment from the University Endowment or Other Holdings Based Upon Social Responsibility Concerns of the Penn Community ( the "Guidelines"), and the scope of the Committee's mandate. We also reviewed what comparable institutions had done regarding divestment proposals. We then discussed how the Divestment proposal matched up against each of the criteria.

**Meeting Two**: We prepared a list of questions for the leaders of Fossil Free Penn ("FFP"). We then had a presentation from the three student leaders of FFP followed by a question and answer session.

**Meeting Three**: We considered the question of whether the FFP Proposal satisfied the criteria. We then had three presentations from members of our Committee on Penn's current efforts in three areas of energy and climate change: sustainability on our campus, research efforts, and academic offerings. We are grateful to Marilyn Jost, Mark Alan Hughes, and Irina Marinov for all their work to educate the Committee.

We then discussed the contours of this report. Committee members made various suggestions which the Committee discussed.

**Between Meetings Three and Four**: The Committee reviewed drafts of this report and made suggestions.

Meeting Four: The Committee discussed and finalized its report.

# **Findings**

- 1) The Committee unanimously found that the FFP Divestment proposal did not meet the criteria set forth in the Guidelines.
- 2) Climate change is a critical global challenge of our times. The Committee commends FFP for their vigorous advocacy, their hard work, and for giving greater prominence to such an important issue.
- 3) In hearing the reports about sustainability, academics, and research, the Committee noted the following:

- a. Penn should be commended for the great strides it has made in sustainability on our campus. The University began to seriously envision the necessity of a sustainability plan over nine years ago, in 2007, when Penn became the first Ivy League signatory to the American College and University Presidents' Climate Commitment. The University then began the process of creating and executing a vision of environmental sustainability at Penn. In 2009 the Penn Climate Action Plan was launched with a five-year goal, and in 2014, after making great strides, Climate Action Plan 2.0 was presented with even higher goals.
- b. On the academic front, there are pockets of excellence. Penn offers over 170 courses focused on and related to sustainability. The voluntary program, *Integrating Sustainability across the Curriculum*, added 22 faculty and 12 students who have collaborated to infuse principles of sustainability into 21 new courses.
- c. There are also several programs and centers relevant to climate and energy research and teaching, and sustainability research and practice:
  - Vagelos Institute of Energy Science and Technology
  - Vagelos Integrated Program in Energy Research (VIPER)
  - Penn Institute for Urban Research (IUR)
  - Kleinman Center for Energy Policy at Design
  - Initiative for Global Environmental Leadership (IGEL) at Wharton
  - Risk Management and Decision Processes Center at Wharton
  - Penn Program in Environmental Humanities at SAS
- d. On the research front, we understand that Penn is in the process of a number of significant initiatives on research regarding energy, sustainability, and climate change. These include gifts from prominent donors to establish research programs and the recruitment of world renowned professors. But we also understand that in contrast to Penn's university-wide initiatives to increase the sustainability of campus operations and increase curricular offerings in sustainability, there are no similar campus-wide initiatives to systematically leverage and coordinate the research efforts being undertaken in different schools, programs, and centers. Accordingly, we think it would be useful to evaluate what our peer institutions have done in this regard.

# **Recommendations**

"As the Ad Hoc Committee considers the proposal, in light of each of the Guideline factors, it should consider not only whether divestment is justified, **but also whether** there are alternative means by which the University can better address the social responsibility concerns at issue, including letters to management and/or proxy voting. Any recommendation made to the Trustee Subcommittee on Divestment should include a discussion of these alternative courses of action."

1) We recommend that the Board of Trustees pursue a means to systematically leverage and coordinate existing and evolving efforts in campus sustainability, academics and research regarding climate change and energy. We believe these efforts are mutually reinforcing in theory and that deploying additional resources to make it so in practice by means best chosen by the Board and the Administration, would have many salutary effects.

- 2) We recommend that the University continue to enhance its programs, research, and teaching related to climate change, energy, and the environment as well as the institution's direct environmental impact.
- 3) We recommend that Penn's Endowment, in its investing decisions, as a matter of prudent business practices, consider whether its external investment managers and companies it invests in directly, are taking into account the effects of climate change and possible regulatory responses.
- 4) We recommend that the Penn Social Responsibility Advisory Committee (SRAC) consider proxy voting issues relating to greenhouse gas emissions and climate changes. We suggest that SRAC consider adopting something similar to what Yale has recently adopted:

Yale will generally support reasonable and well-constructed shareholder resolutions seeking company disclosure of greenhouse gas emissions, analyses of the impact of climate change on a company's business activities, strategies designed to reduce the company's long-term impact on the global climate, and company support of sound and effective governmental policies on climate change.

We believe these recommendations, collectively, would:

a) Enable Penn to have a worldwide impact on climate change that extends beyond its current influence on campus and in the Philadelphia region. In particular, reinforcement and coordination of efforts across campus will strongly enhance Penn's ability to make scientific discoveries, develop innovative technologies, and create new policies that address the critical challenges posed by the use of fossil fuels.

b) Enable Penn to become a recognized leader among peer institutions in climate, sustainability, and energy.

c) Enable Penn to better fulfill its teaching and research missions by producing graduates who are well educated on one of the most important global issues of our time.

d) Lead to Development opportunities, given keen general interest in and concern about these issues.

# **Committee Members:**

Chair and Alumni representative

David Roberts, W'84, Chair, GSE Overseer Board; Senior Managing Director, Angelo, Gordon

#### Faculty

Alison Buttenheim, Assistant Professor of Nursing and Assistant Professor of Health Policy, Nursing

Irina Marinov, Assistant Professor, Earth and Environmental Science, SAS Mark Alan Hughes, Professor of Practice at PennDesign; Faculty Director of the Kleinman Center for Energy Policy

Jennifer Lukes, Professor, Mechanical Engineering and Applied Mechanics, SEAS

# Students

Karen Chen, W'17 Dillon Weber, ENG'16 Stephen Goldstein, BMG, PhD'18 Mary Whitehouse, LPS'16

#### Alumni

Helen Pudlin, Esq. CW'70, GED'71, L'74, Member, Penn Law Overseer Board; former Executive Vice President and General Counsel, PNC Financial Services Group

#### Staff

Sharon Brokenbough, Director, Finance & Administration, Division of Public Safety

Tom Hecker, Associate Dean and Chief of Staff, PSOM

Marilyn Jost, Executive Director Administration and Finance, Facilities and Real Estate Services

Jeff Rowland, Associate Director of Staff and Labor Relations, Division of Human Resources

# At Large

Sharon Aylor, CW'75, Executive Director, Staff and Labor Relations, Division of Human Resources

Sara Senior, CW'52, former President of General Alumni Society; former Chair, Penn Museum Overseer Board

#### **Appendices**

We have attached an appendix containing the various materials we reviewed.

We note that the Committee did not receive any information relating to the scale, distribution, or returns of the University's investments in fossil fuels and fossil fuel related entities. As such, we have not been able to and have not attempted to conduct an analysis of the costs and benefits associated with these investments.

The Appendix includes:

1) The FFP resolution and FFP's PowerPoint presentation to the Committee

- 2) Examples of how peer institutions addressed similar proposals
- 3) The materials presented to the Committee by our members on sustainability, academics, and research.

Other documents provided to the Committee included the Charge to the Ad Hoc Advisory Committee on Divestment; the Guidelines and Procedures for Consideration by the Trustees of Proposals for Divestment from the University Endowment or Other Holdings Based Upon Social Responsibility Concerns of the Penn Community; the Resolution to Supplement the May 15, 2003 Statement on Responsibility Concerning Endowment Securities, to Adopt New Guidelines for Divestment Consideration, and to Establish the Ad Hoc Advisory Committee on Divestment and Trustee Subcommittee on Divestment

# Proposal for the Formation of an Ad Hoc Advisory Committee on Divestment from Fossil Fuel Holdings November 2015

Prepared for the University Council Steering Committee by Fossil Free Penn

Contributors: Madison Briggs, Richard Diurba, Cynthia Lee, Thomas Lee, Michelle López, Jorge Mancilla, Peter Thacher and Margarita Wegner

Acknowledgements: This proposal builds upon research from the brief by members of the Climate Action Society at the University of Glasgow. Fossil Free Penn would like to thank all members of the Climate Action Society for their inspiration for this document.

"This is an example of university citizenship at its best."

– President Amy Gutmann, referring to the research and recommendations of the members of SRAC and Students Taking Action Now: Darfur (STAND) regarding divestment from oil companies in Sudan in 2006.

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# 1 Overview

In accordance with the "Guidelines and Procedures for Consideration by the Trustees of Proposals for Divestment from the University Endowment or Other Holdings Based Upon Social Responsibility Concerns of the Penn Community" ("Trustees Guidelines and Procedures"), Fossil Free Penn chooses to "present [a divestment] proposal to the University Council Steering Committee for consideration."

Specifically, this proposal "document[s] the basis for the presenters' belief that the proposal meets the 'social responsibility' Guidelines," which are discussed in depth below. As mandated by the Trustees Guidelines and Procedures, the "Steering Committee will make a determination as to whether there is a sufficient basis for further consideration of the proposal."

Thus the purpose of this document is to establish a *prima facie* case for fossil fuel divestment, and the question under review is whether there is sufficient evidence to warrant further study by an Ad Hoc Committee.

#### **1.1 Proposal**

Fossil Free Penn recommends that the University:

- 1. Stop new investments in the fossil fuel industry.
- 2. Remove holdings in the top 200 fossil fuel companies within 5 years.
- 3. Reinvest a portion of the extricated funds into clean energy assets.

We recommend that the transition of investments from fossil fuels into clean energy be undertaken under the expertise of the Office of Investments and its asset managers.

#### **1.2 Companies Identified for Divestment**

The companies targeted for divestment include the top 100 public coal corporations and top 100 public oil and gas corporations globally. These rankings were compiled by Fossil Free Indexes and are based on the amount of coal, oil or gas in these corporations' reserves.

Top 100 Public Coal	Gigatons of	Top 100 Public Oil and Gas	Gigatons of
Corporations	$CO_2$	Corporations	$CO_2$
1. Coal India	57.722	1. Gazprom	43.915
2. China Shenhua	36.807	2. Rosneft	13.224
3. Adani	25.383	3. PetroChina <sup>2</sup>	8.591
4. Shanxi Coking	18.445	4. ExxonMobil	8.223
5. Anglo American	13.488	5. Lukoil	6.988

6. BHP Billiton <sup>1</sup>	12.351	6. BP	6.719
7. Yitai Coal	12.223	7. Petrobras	5.432
8. Datang Intl	12.206	8. Royal Dutch Shell	4.544
9. China Coal	12.103	9. Chevron	4.073
10. Peabody Energy	11.484	10. Novatek	3.853
11. Glencore Xstrata	10.698	11. Total	3.802
12. Datong Coal	10.281	12. ConocoPhillips	2.798
13. Yanzhou Coal	9.788	13. Tatneft	2.62
14. Public Power Corp (DEH)	9.339	14. ONGC <sup>2</sup>	2.457
15. Exxaro	8.793	15. ENI	2.356
16. Yangquan Coal	7.298	16. Statoil	1.985
17. Mechel	6.739	17. Sinopec <sup>2</sup>	1.722
18. Arch Coal	6.513	18. CNOOC	1.548
19. Alpha Natural Resources	5.458	19. Occidental	1.327
20. EVRAZ	4.855	20. BG Group	1.122
21. Mitsubishi	4.738	21. Canadian Natural Resources	0.995
22. Vale	4.401	22. Anadarko Petroleum	0.984
23. Raspadskaya	4.084	23. Apache	0.969
24. Rio Tinto	3.696	24. Chesapeake Energy	0.909
25. Asia Resource	3.181	25. Inpex	0.908
26. Rusal	3.081	26. Bashneft	0.892
27. Neyveli Lignite	3.035	27. Devon Energy	0.889
28. Pingdingshan	3.023	28. BHP Billiton <sup>1</sup>	0.854
29. Cloud Peak	2.753	29. Repsol	0.823
30. Sasol	2.731	30. Ecopetrol	0.774
31. Tata Steel	2.709	31. EOG Resources	0.772
32. AGL	2.704	32. Suncor Energy	0.715
33. Teck	2.603	33. Marathon Oil	0.683

<sup>&</sup>lt;sup>1</sup> BHP Billiton Limited is one corporation yet holds reserves in oil, gas and coal that make it both a top 100 oil and gas corporation and top 100 coal corporation. <sup>2</sup> Penn decided to divest from Petrochina, ONGC, and Sinopec in 2006 due to their operations in Sudan.

34. Severstal	2.577	34. Hess	0.565
35 Coalspur	2 545	35 Imperial Oil	0.303
	2.54		0.552
36. Kuzbass Fuel	2.504	36. Encana	0.548
37. Polyus Gold	2.294	37. Noble Energy	0.49
38. Energy Ventures	2.184		
(Australia)		38. BASF	0.483
39. Whitehaven Coal	2.055	39. EQT	0.449
40. Banpu	2.04	40. Range Resources	0.443
41. Bayan	1.957	41. Continental Resources	0.426
42. RWE	1.943	42. OMV	0.42
43. Consol Energy	1.887	43. Antero Resources	0.41
44. WHSP	1.851	44. KazMunaiGas EP	0.4
45. Westmoreland	1.835	45. YPF	0.389
46. Resource Generation	1.818	46. Southwestern Energy	0.38
47. Churchill Mining	1.745	47. Cenovus Energy	0.374
48. NTPC	1.74	48. Linn Energy	
49. Adaro	1.607	49. Woodside Petroleum	0.36
50. Nacco	1.557	50. Husky Energy	0.343
51. Idemitsu Kosan	1.53	51. PTT <sup>3</sup>	0.317
52. ARLP	1.468	52. Consol Energy	0.312
53. Huolinhe Opencut		53. Pioneer Natural	
	1.387	Resources	0.302
54. Golden Energy	1.354	54. Cabot Oil & Gas	0.3
55. Mitsui & Co	1.344	55. WPX Energy	0.275
56. Coal of Africa Limited	1.339	56. SK Innovation	0.263
57. NLMK	1.288	57. Whiting Petroleum	0.244
58. Tata Power	1.062	58. Murphy Oil	0.242
59. MMK OJSC	1.046	59. QEP Resources	0.233
60. Wesfarmers	1.011	60. Newfield Exploration	0.223
61. Kazakhmys	0.998	61. Dragon Oil	0.202
62. New World Resources	0.972	62. Sasol	0.201

63. MMC (Mongolian			
Mining)	0.903	63. Ultra Petroleum	0.2
64. Itochu	0.878	64. Santos	0.195
65. Cockatoo	0.8	65. Concho Resources	0.194
66. Shanxi Meijin Energy	0.784	66. Denbury Resources	0.19
67. Jizhong Energy	0.742	67. Freeport-McMoRan	0.183
68. Bandanna	0.731	68. Maersk Group	0.174
69. Polo Resources	0.726	69. MEG Energy	0.173
70. Allete	0.723	70. SandRidge Energy	0.157
71. CLP Holdings	0.696	71. Crescent Point Energy	0.157
72. Aspire	0.67	72. GDF SUEZ	0.155
73. Marubeni	0.568	73. Pacific Rubiales Energy	0.154
74. China Resources	0.567	74. SM Energy	0.148
75. Walter Energy	0.556	75. JX Holdings	0.146
76. Coal Energy	0.503	76. Cimarex Energy	0.144
77. Indika	0.485	77. Mitsui & Co	0.142
78. Arcelor Mittal	0.464	78. Penn West Petroleum	0.137
79. FirstEnergy	0.458	79. Polish Oil & Gas	0.132
80. Black Hills	0.431	80. MOL	0.131
81. Wescoal	0.43	81. Energen	0.128
82. Grupo Mexico	0.42	82. TAQA	0.123
83. ARM	0.383	83. Oil Search	0.114
84. Shanxi Coal	0.376	84. Oil India	0.113
85. Capital Power	0.367	85. ARC Resources	0.112
86. PTT <sup>3</sup>	0.359	86. Genel Energy	0.107
87. Shanxi Lanhua Sci-Tech	0.338	87. Canadian Oil Sands	0.102
88. Fortune Minerals	0.328	88. Energy XXI	0.096
89. Cardero	0.323	89. PDC Energy	0.095
90. Zhengzhou Coal	0.319	90. Oasis Petroleum	0.094
91. SAIL	0.307	91. Tourmaline Oil	0.093

<sup>&</sup>lt;sup>3</sup> PTT Public Company Limited is one corporation yet holds reserves in oil, gas and coal that make it both a top 100 oil and gas corporation and top 100 coal corporation.

92. JSPL	0.301	92. Rosetta Resources	0.093
93. Shougang Fushan	0.299	93. RWE	0.093
94. Jingyuan	0.297	94. National Fuel Gas	0.088
95. Stanmore	0.287	95. Peyto E&D	0.088
96. Prophecy Coal	0.272	96. Xcite Energy	0.088
97. Cliffs Natural Resources	0.247	97. Tullow Oil	0.087
98. James River	0.195	98. Energi Mega Persada	0.085
99. CESC		99. Breitburn Energy	
	0.185	Partners	0.081
100. Alcoa	0.18	100. Enerplus	0.08

# 1.3 Analysis of Social Responsibility Criteria

According to the Trustees Guidelines and Procedures, there are four criteria of social responsibility required for divestment considerations. Throughout this document, we will demonstrate that fossil fuel divestment meets these criteria, especially in the context of the Darfur divestment precedent in 2006.<sup>4</sup>

# **Criterion 1**. "There exists a moral evil implicating a core University value that is creating a substantial social injury."

According to the footnote reference 2, "substantial social injury" is further defined in the Trustees' document "Statement on Responsibility Concerning Endowment Securities."

"With regard to corporate behavior, substantial social injury is defined as the excessive or deliberate injurious impact on employees, consumers, and/or other individuals, or groups resulting directly from specific actions or inactions by a company. Included in this category are actions that violate, subvert, or frustrate the enforcement of rules of domestic or international law intended to protect individuals and/or groups against deprivation of health, safety, basic freedoms or human rights."

First, a precedent on this issue was set by the Trustees in responding to the Darfur divestment proposal by the Social Responsibility Advisory Committee.<sup>5</sup> During this case, divestment was warranted since the oil companies represented large inputs to the regime's genocide activities, but relatively small inputs to the victim population's benefit. Thus, one

<sup>&</sup>lt;sup>4</sup> Holtzman, Phyllis. "Penn to Divest From Sudan in Response to Genocide." Penn News. June 19, 2006.

<sup>&</sup>lt;sup>5</sup> Social Responsibility Advisory Committee, University of Pennsylvania. "Report on Investing in the Sudan." March 3, 2006. Accessed September 21, 2015.

sufficient standard for achieving the excessive or deliberate Criterion 1 is when there exist particular populations who suffer from harms (net of benefits) from the companies in question.

Second, another sufficient standard for achieving Criterion 1 is the violation, subversion, or frustration of laws. Note that the phrasing of "included" means that the standard of net harms is independent of the illegality standard.

**Criterion 2**. "There must be a specific company or companies identified for divestment, rather than a broad proposal directed at an industry or activity more generally."

We have provided a specific list of 200 target companies, consisting of the companies holding the top 100 coal reserves and top 100 oil-gas reserves by their greenhouse emission potential.

**Criterion 3**. "The company or companies identified for divestment must have a significant, clear, and undeniable nexus to the moral evil."

As is demonstrated below in Sections 2.6 and Appendix A, the companies which we have identified meet this criterion.

**Criterion 4**. "The proposal for divestment must have the support of a broad and sustained consensus of the University community reflected over a sustained period of time."

Since the inception of the fossil fuel divestment group Divestment at Penn (now Fossil Free Penn) in early 2013, the university community has seen a groundswell of growing support from students, faculty, and alumni, as demonstrated in Appendices C, D, and E. In particular, the spring 2015 Nominations & Elections Committee referendum for fossil fuel divestment saw 87.8% undergraduate support, with more than half of the required student turnout, the details of which can be found in Appendix B.

# 2 Moral Evils of the Fossil Fuel Industry

#### 2.1 Social Injuries Regarding Local Impacts & Pollution

The negative impacts of fossil fuel extraction and localized pollution constitute a social injury. A sampling of these negative effects include public health risks and ecological destruction in areas near mountaintop removal coal mines, coal power plants, hydraulic fracturing sites and oil extraction sites.

Mountaintop removal coal mining, also known as surface mining, is practiced throughout Appalachia in the United States. According to a 2010 report in the journal Science, elevated levels of airborne, hazardous dust have been documented near surface mining sites.<sup>6</sup> Additionally, the report found that "adult hospitalizations for chronic pulmonary disorders and hypertension are elevated as a function of county-level coal production, as are rates of mortality, lung cancer; and chronic heart, lung, and kidney disease."<sup>7</sup> These health problems were common to both women and men, indicating that effects "are not simply a result of direct occupational exposure of predominantly male coal miners."<sup>8</sup> A 2011 report by the U.S. Environmental Protection Agency was found that nearby water ecosystems were significantly altered due to mountaintop removal mining, including but not limited to degradation of water quality in local streams, elevated selenium concentrations, and permanent loss of springs and streams due to the removal of mountains and burial of streams under fill.<sup>9</sup> A 2011 report by researchers at Washington State University and West Virginia University found that in areas of four Appalachian states where mountaintop removal was most common between 1996 and 2003 the rate of birth defects was 235 per 10,000 births as compared with a rate of 144 defects per 10,000 births in non-mining areas controlled for socio-economic and behavioral risks.<sup>10</sup> Further up the supply chain, the negative health impacts of coal power plants have also been documented, with a 2010 report by the Clean Air Task Force finding that the activities of U.S. coal power plants are responsible for an estimated 9,700 hospitalizations each year.<sup>11</sup>

Adverse public health impacts have been observed in association with hydraulic fracturing for natural gas. A 2014 study supported by the Department of Environmental and Occupational Health at the Colorado School of Public Health that examined associations between maternal residences and natural gas development between 1996 and 2009 in rural Colorado found that births to mothers in the areas most exposed to natural gas development had a 30% grater prevalence for congenital birth defects than those that lived in areas without natural gas development in a 10 mile radius.<sup>12</sup> A 2015 study by researchers at the University of

<sup>&</sup>lt;sup>6</sup> Palmer, M. A., E. S. Bernhardt, W. H. Schlesinger, K. N. Eshleman, E. Foufoula-Georgiou, M. S. Hendryx, A. D. Lemly, G. E. Likens, O. L. Loucks, M. E. Power, P. S. White, and P. R. Wilcock. "Mountaintop Mining Consequences." *Science* 327, no. 5692 (2010): 148-49. Accessed October 30, 2015. doi:10.1126/science.1180543. <sup>7</sup> Ibid.,

<sup>&</sup>lt;sup>8</sup> Ibid.

<sup>&</sup>lt;sup>9</sup> U.S. EPA (Environmental Protection Agency). 2011. "The Effects of Mountaintop Mines and Valley Fills on Aquatic Ecosystems of the Central Appalachian Coalfields". Office of Research and Development, National Center for Environmental Assessment, Washington, DC. EPA/600/R-09/138F.

<sup>&</sup>lt;sup>10</sup> Washington State University. "Large numbers of birth defects seen near mountaintop mining operations." ScienceDaily. June 23, 2011. Accessed October 30, 2015.

<sup>&</sup>lt;sup>11</sup> "The Toll from Coal." Clean Air Task Force. September 1, 2010. Accessed July 27, 2015.

<sup>&</sup>lt;sup>12</sup> McKenzie, Lisa, Ruixin Guo, Roxanna Witter, David Savitz, Lee Newman, and John Adgate. "Birth Outcomes and Maternal Residential Proximity to Natural Gas Development in Rural Colorado." *Environ Health Perspect* 122, no. 4 (2014): 412-17. Accessed October 30, 2015. doi:10.1289/ehp.1306722.

Pennsylvania found an increased correlation between inpatient hospitalization for cardiology, neurology and wells per square kilometer.<sup>13</sup>

The Niger Delta in Nigeria has been a site of oil production and has seen numerous damaging ecological and health impacts as a result. The United Nations Environmental Programme produced a comprehensive report on such issues in Ogoniland, a 1,000 square kilometer area in the Niger Delta in the south of Nigeria.<sup>14</sup> The area was the site of oil production by Shell Petroleum Company Limited and Nigerian National Petroleum Company from the 1950s until 1993 when a large protest campaign compelled them to cease operations.<sup>15</sup> The report found extensive pollution of soil in land, sediments and swamplands, even after many years of cessation.<sup>16</sup> Two thirds of contaminated land sites near oil production facilities have soil contamination at a rate that exceeds Nigerian national guidelines.<sup>17</sup> Hydrocarbons were found in 28 wells at 10 communities adjacent to production sites with seven wells having hydrocarbon levels at least 1,000 times higher than the Nigerian drinking water standard.<sup>18</sup>

# 2.2 Social Injuries Regarding Climate Change

The fossil fuel industry's practices are socially injurious in a manner that requires a response of divestment from the University of Pennsylvania. These social injuries are imposed on individuals, communities and ecosystems across the globe. While these negative impacts of the fossil fuel industry are not limited to climate change, the burning of a large portion of remaining fossil fuel reserves would result in adverse effects that constitute great social injury. These include, but are not limited to, the following:

- 1. Agricultural Impacts
- 2. Human Health Impacts
- 3. Inundation of Coastal Areas and Rising Sea Levels
- 4. Increased Stress to Ecosystems
- 5. Security Impacts

In its Fourth Assessment published in 2007, the Intergovernmental Panel on Climate Change (IPCC) included the following table demonstrating that adverse, socially injurious climate impacts would worsen the more global temperatures rise. The validity of these effects are further demonstrated by the IPCC's Fifth Assessment Report.<sup>19</sup>

<sup>&</sup>lt;sup>13</sup> Jemielita, Thomas, George L. Gerton, Matthew Neidell, Steven Chillrud, Beizhan Yan, Martin Stute, Marilyn Howarth, Pouné Saberi, Nicholas Fausti, Trevor M. Penning, Jason Roy, Kathleen J. Propert, and Reynold A. Panettieri. "Unconventional Gas and Oil Drilling Is Associated with Increased Hospital Utilization Rates." PLoS ONE 10, no. 7 (2015). Accessed October 30, 2015. doi:10.1371/journal.pone.0137371.

<sup>&</sup>lt;sup>14</sup> Environmental Assessment of Ogoniland. Nairobi: United Nations Environment Programme, 2011. 22.

<sup>&</sup>lt;sup>15</sup> Ibid., 20.

<sup>&</sup>lt;sup>16</sup> Ibid., 207.

<sup>&</sup>lt;sup>17</sup> Ibid., 9.

<sup>&</sup>lt;sup>18</sup> Ibid., 11.

<sup>&</sup>lt;sup>19</sup> "IPCC Report Graphics." IPCC Report Graphics. Accessed October 30, 2015.



Examples of impacts associated with global average temperature change (Impacts will vary by extent of adaptation, rate of temperature change and socio-economic pathway)

Global average annual temperature change relative to 1980-1999 (°C)

Warming by 2090-2099 relative to 1980-1999 for non-mitigation scenarios 6.4°C A1F 5.4°C A2 A1B **B**2 A1T B1 3 4 5°C

Figure 1: Examples of impacts associated with global average temperature change. Source: IPCC 4th Assessment Report, Synthesis Report, p. 51

These social injuries are distributed in an unjust manner in several different respects. First, the vast majority of those who will feel these effects are not affiliated or responsible for the fossil fuel industry's practices. Those affiliated with the fossil fuel industry's practices include their workers and executives, which constitute a very small fraction of the world's workers and an even smaller fraction of the great mass of humanity that will be affected negatively by climate change. Further, as is stated by the United Nations Development Programme (UNDP), "climate change... already imposes substantial costs, with the brunt of them borne by poor countries and poor communities"<sup>20</sup>. The UNDP goes on to state that while the disadvantaged feel climate

<sup>&</sup>lt;sup>20</sup> United Nations Development Programme, Human Development Report 2013: The Rise of the South: Human Progress in a Diverse World, p. 34.

change's negative effects most significantly, "climate change and local stresses on natural resources and ecosystems are increasing pressure on the environment in almost all countries, regardless of their stage of development. Unless action is taken urgently, future progress in human development will be threatened." <sup>21</sup> Causing climate change is socially injurious, especially when the negative results of climate change will be unevenly distributed, and when continuation of such practices over the years will stunt human development as a whole.

Climate change will be increasingly costly for economies at local and global levels. Worldwide climate change costs already constitute close to 1% of global GDP."<sup>22</sup> If no action is taken against climate change, these costs are forecast by the Climate Vulnerability Monitor to "double by 2030, lowering world GDP by well over 3 percent." Researchers also stress the importance of climate change mitigation, stating that "both climate change and carbon economy costs grow as emissions expand and are lessened as they are cut."<sup>23</sup>

Carbon dioxide emissions are unequivocally a major cause of climate change today. As a result of this causation a number of institutions, organizations and nations have decided to quantify a social cost of carbon. According to U.S. government interagency report that included the Council of Economic Advisers, Department of Energy, and the Environmental Protection Agency, the social cost of carbon is \$40 per metric ton at a 3% discount rate.<sup>24</sup>

# **Agricultural Impacts**

Climate change has severe effects on food production. In the IPCC's Fourth Assessment it is stated that drops in agricultural production are to be expected in Australia and New Zealand by 2030 and that water scarcity in Latin America will grow significantly. <sup>25</sup> The United Nations Human Development Report states that "although low HDI [human development index] countries contribute the least to global climate change, they are likely to endure the greatest loss in annual rainfall and the sharpest increase in its variability, with dire implications for agricultural production and livelihoods." <sup>26</sup> The impacts of extreme weather events can also be tremendously detrimental to crop growth. For example, when the Mississippi River flooded in 2008; farmers lost an estimated \$8 billion in the area.<sup>27</sup> Despite the conjecture that there is a possibility for climate change to bring positive agricultural impacts, the negative effects easily nullify this impact.<sup>28</sup>

<sup>&</sup>lt;sup>21</sup> United Nations Development Programme, Human Development Report 2013: The Rise of the South: Human Progress in a Diverse World, p. 87

<sup>&</sup>lt;sup>22</sup>McKinnon, Matthew. "Climate Vulnerability Monitor: A Guide to the Cold Calculus of a Hot Planet." *Estudios Gráfcos Europeos, SA, Spain* (2012): 331, p. 24.

<sup>&</sup>lt;sup>23</sup> Ibid.

<sup>&</sup>lt;sup>24</sup> "2013-06-17 Energy Conservation Program: Energy Conservation Standards for Standby Mode and Off Mode for Microwave Ovens; Final Rule." Regulations.gov. June 17, 2013. Accessed October 25, 2015.

<sup>&</sup>lt;sup>25</sup> Intergovernmental Panel on Climate Change, *Fourth Assessment Report: Climate Change 2007*, See: Synthesis report, Table SPM.2. Examples of some projected regional impacts.

<sup>&</sup>lt;sup>26</sup> United Nations Development Programme, Human Development Report 2013: The Rise of the South: Human Progress in a Diverse World, p. 6.

<sup>&</sup>lt;sup>27</sup> Karl, Thomas R. Global climate change impacts in the United States. Cambridge University Press, 2009.

<sup>&</sup>lt;sup>28</sup> A study by the Committee on Climate Change finds that, in the UK, the rise of temperatures and longer growing seasons could present conditions for farmers to "increase productivity and so benefit from potential increases in global food prices." Nevertheless, the threats of "water scarcity, loss of soil fertility, or persistent presence of pests and diseases! can easily nullify these possibilities."

Furthermore, the International Food Policy Research Institute (IFPRI) found in a recent study that wheat production will be adversely affected by climate change, and that the longer mitigation is delayed, the greater the production will fall. Using a 2000 baseline, they project a decline in yield for rain-fed wheat in the developed world of 1.3 percent by 2030, 4.2 percent by 2050, and 14.3 percent by 2080.<sup>29</sup> The IFPRI determines that "[s]tarting the process of slowing emissions growth today is critical to avoiding a calamitous post-2050 future." <sup>30</sup>

#### **Human Health Impacts**

The worldwide consensus is that human health is being affected by climate change, with the Centers for Disease Control and Prevention (CDC) and the World Health Organization (WHO) concluding such.<sup>31,32</sup> According to the WHO, global climate change has been causing 140,000 deaths per year since 2004.<sup>33</sup> A more recent study commissioned by 20 governments around the world estimates that this number has grown to approximately 400,000 climate-related deaths per year.<sup>34</sup> The WHO stresses that "the health effects of a rapidly changing climate are likely to be overwhelmingly negative, particularly in the poorest communities, which have contributed least to greenhouse gas emissions" and recognizes the ever more damaging impact of an ever-warmer climate on social and environmental health factors such as clean air, water, food, and shelter.<sup>35</sup>

In addition to people in poorer countries and communities, the elderly, the young, the ill, and those with pre-existing conditions are all particularly vulnerable to the health impacts of climate change.<sup>36</sup> The WHO additionally states that major causes of death such as dengue fever, malnutrition, malaria and diarrheal diseases are "highly climate-sensitive and are expected to worsen as the climate changes."<sup>37</sup> Developed countries cannot expect to be shielded from climate change's health impacts, with mortality expected to rise 1-4 percent in EU countries for each one-degree rise in temperature.<sup>38</sup>

#### **Inundation of Coastal Areas and Rising Sea Levels**

In addition to the damage that climate change is already causing, the social and environmental damage expected to occur in the future as a cause of climate change is enormous. Sea level rise from climate change is expected to cause substantial social and environmental impacts both nationally and globally. In the United States, the entire city of New York, as well as

<sup>&</sup>lt;sup>29</sup> Nelson, Gerald C., Mark W. Rosegrant, Amanda Palazzo, Ian Gray, Christina Ingersoll, Richard Robertson, Simla Tokgoz et al. *Food security, farming, and climate change to 2050: Scenarios, results, policy options*. Vol. 172. Intl Food Policy Res Inst, 2010. p. 85.

<sup>&</sup>lt;sup>30</sup> Ibid.

<sup>&</sup>lt;sup>31</sup> World Health Organization. *Global health risks: mortality and burden of disease attributable to selected major risks*. World Health Organization, 2009, p. 44

<sup>&</sup>lt;sup>32</sup> Centers for Disease Control and Prevention. CDC Policy on Climate Change and Public Health.

<sup>&</sup>lt;sup>33</sup> World Health Organization. "Climate and health: Fact sheet," July 2005.

<sup>&</sup>lt;sup>34</sup> DARA, Climate Vulnerable Forum. *Climate Vulnerability Monitor 2nd Edition: A Guide to the Cold Calculus of a Hot Planet*. 2012. Accessed September 21, 2015.

<sup>&</sup>lt;sup>35</sup> World Health Organization, Climate and health: Fact sheet, July 2005.

<sup>&</sup>lt;sup>36</sup> "CDC Policy on Climate and Health." Centers for Disease Control and Prevention. December 22, 2014. Accessed October 30, 2015.

<sup>&</sup>lt;sup>37</sup> Ibid.

<sup>&</sup>lt;sup>38</sup> European Union: Commission Staff Working Document, Accompanying document to the White Paper: Adapting to climate change: Towards a European framework for action "Human, Animal and Plant Health Impacts of Climate Change." 2009. p.4- 5.

entire low-lying states such as Florida, are especially vulnerable. In recognition of this, Congress has passed legislation, such as the Southeast Florida Regional Climate Change Compact, that recognizes the unique vulnerability of the area.<sup>39</sup> The U.S. military has also found it necessary to address this vulnerability, as since 2009, the U.S. Army Corps of engineers has also been incorporating sea level rise into all of its civil works programs.<sup>40</sup>

At the international and inter-continental level, global climate change has already caused the melting of parts of the Greenland and West Antarctic ice sheet (WAIS); much more severe melting is to be expected in the future.<sup>41</sup> The IPPC identifies the threshold for near-total glaciation at 3.2- 6.2°C local warming (1.9- 4.6°C global warming). This is within the range of warming projections generated by several emission scenarios studied by the IPCC, corresponding to the absence of aggressive mitigation action on the part of governments.<sup>42</sup> However, even for a warming of an additional 1°C, research has concluded that sea levels may rise by an estimated 2.3 meters.<sup>43</sup> Sea level rises on this scale would cause significant social injury, as entire nations such as Bangladesh and the Netherlands would be widely inundated, as well as many other densely populated coastal areas such as those in China. Sea level rise also has the potential to be abrupt, heightening the economic and human costs associated. Recent research has concluded that during the last interglacial period, "a critical ice sheet stability threshold was crossed, resulting in the catastrophic collapse of polar ice sheets and substantial sea level rises." <sup>44</sup> As with many other climate impacts, the faster sea level rise happens, the more costly and disruptive it will be.

#### **Increased Stress to Ecosystems**

Loss in biodiversity in plants and animals has been noted by researchers on a global scale, at rates that do not show signs of decline.<sup>45</sup> Without mitigation, these losses are expected to increase exponentially, with an expected 56-57% of plants and 34-37% of animals losing approximately 50% of their present range within this century.<sup>46</sup> Because ecosystems are vital to the survival and prosperity of all of humanity, damage imposed on them is an important form of social injury arising from the activities of fossil fuel companies. As the UN Development Program points out, "ecosystem losses are constraining livelihood opportunities,

<sup>&</sup>lt;sup>39</sup> Broward County, Miami-Dade County, Monroe County, and Palm Beach County, Southeast Florida Regional Climate Change Compact.

<sup>&</sup>lt;sup>40</sup> United States Army Corps of Engineers. "US Army Corps response to Sea Level Rise." 2011.

<sup>&</sup>lt;sup>41</sup> Change, Intergovernmental Panel On Climate. "Fourth assessment report." See: "Deglaciation of West Antarctic and Greenland ice sheets." *IPCC, Ge* (2007).

<sup>&</sup>lt;sup>42</sup> Change, Intergovernmental Panel On Climate. "IPCC Third assessment report- Climate Change 2001." (2001).

<sup>&</sup>lt;sup>43</sup> Levermann, Anders, Peter U. Clark, Ben Marzeion, Glenn A. Milne, David Pollard, Valentina Radic, and

Alexander Robinson. "The multimillennial sea-level commitment of global warming." *Proceedings of the National Academy of Sciences* 110, no. 34 (2013): 13745-13750.

<sup>&</sup>lt;sup>44</sup> O'Leary, Michael J., Paul J. Hearty, William G. Thompson, Maureen E. Raymo, Jerry X. Mitrovica, and Jody M. Webster. "Ice sheet collapse following a prolonged period of stable sea level during the last interglacial." *Nature Geoscience* 6, no. 9 (2013): 796-800. p.1.

<sup>&</sup>lt;sup>45</sup> Butchart, Stuart HM, Matt Walpole, Ben Collen, Arco Van Strien, Jörn PW Scharlemann, Rosamunde EA Almond, Jonathan EM Baillie et al. "Global biodiversity: indicators of recent declines." *Science* 328, no. 5982 (2010): 1164-1168.

<sup>&</sup>lt;sup>46</sup> Rockström, Johan, Will Steffen, Kevin Noone, Åsa Persson, F. Stuart Chapin, Eric F. Lambin, Timothy M. Lenton et al. "A safe operating space for humanity." *Nature* 461, no. 7263 (2009): 472-475.

especially for poor people." <sup>47</sup> This is an example of how fossil fuel companies' actions are exacerbating global inequalities, as it is scientific consensus that the only sure way to maintain the health of terrestrial and aquatic ecosystems is to significantly mitigate the release of GHG emissions into the atmosphere.

Heightened CO<sub>2</sub> concentrations in the atmosphere, directly resulting from fossil fuel combustion, are causing the oceans to become more acidic, with the pH of the oceans decreasing at a rate of 0.02 units per decade according to multiple measures.<sup>48</sup> A 2010 report from the United Nations Environment Programme (UNEP) concluded that: "[i]f ocean acidification continues, disruptions to food chains and direct and indirect impacts on numerous species are considered likely with consequent risk to food security," and states the "obvious solution" as cutting down on anthropogenic CO<sub>2</sub> emissions.<sup>49</sup> Significant damage to coral reefs, as a result of acidification, has already been observed, including the loss of 50.7 percent of initial coral cover in Australia's Great Barrier Reef.<sup>50</sup> Ecosystem services provided by coral reefs, including food, jobs, and tourism, have an estimated value of as much as \$375 billion per year.<sup>51</sup> Moreover, as exceptionally rich ecosystems, coral reefs have an importance that goes beyond their inherent biological or monetary value.

A common theme that can be drawn through these observations is that although the damage to ecosystems and associated social impacts are unimaginable given a continuation of today's actions and warming trends, the damage that is already being done is sufficient to merit immediate action.

#### **Security Impacts**

Climate change is already undermining the livelihoods and security of many people around the world, and the number of climate refugees grows every year. As the UN states, "The Norwegian Refugee Council and the UN Office for the Coordination of Humanitarian Affairs (OCHA) have estimated that in 2008 alone, at least 36 million people were newly displaced by sudden natural disasters, including over 20 million displaced by disasters related to the climate."<sup>52</sup> A number of major analyses have looked with detail at the likely global security implications of climate change. In 2008, a National Intelligence Assessment was assembled by 16 U.S. intelligence agencies. The chairman stated publicly that climate change could disrupt U.S. access to raw materials, create millions of refugees, and cause water shortages and damage from melting permafrost.<sup>53</sup> Moreover, a joint report from the Centre for Strategic and International Studies and the Centre for a New American Security highlights the need for urgent action to reduce emissions, stating. "An effective response to the challenge of

<sup>&</sup>lt;sup>47</sup> United Nations Development Programme. Human Development Report 2013: The Rise of the South: Human Progress in a Diverse World. 2013. url: <u>http://hdr.undp.org/en/2013-report</u> page 95.

<sup>&</sup>lt;sup>48</sup> Doney, Scott C., Victoria J. Fabry, Richard A. Feely, and Joan A. Kleypas. "Ocean acidification: the other CO2 problem." *Marine Science* 1 (2009).

<sup>&</sup>lt;sup>49</sup> United Nations Environment Programme. Environmental Consequences of Ocean Acidification: A Threat to Food Security. 2010.

<sup>&</sup>lt;sup>50</sup> De'ath, Glenn et al. "The 27-year decline of coral cover on the Great Barrier Reef and its causes." In: Proceedings of the National Academy of Sciences (Oct. 2012).

<sup>&</sup>lt;sup>51</sup> National Oceanic and Atmospheric Administration. "Heat Stress to Caribbean Corals in 2005" Worston Record. 2010.

<sup>&</sup>lt;sup>52</sup> "Refugees: Next Steps, New Dynamics of Displacement." United Nations. Accessed October 31, 2015.

<sup>&</sup>lt;sup>53</sup> Craven, Greg. "What's the Worst That Could Happen?: A Rational Response to the Climate Change Debate." Perigee Trade, 2009.

global warming cannot be spread out across the next century, but rather must be set in place in the next decade, in order to have any chance to meaningfully alter the slope of the curves one sees in the IPCC report." <sup>54</sup>

In 2012, the U.S. National Academy of Sciences published a report entitled "Climate and Social Stress: Implications for Security Analysis."<sup>55</sup> The report describes in great detail the ways in which climate change is a national security issue for the United States, as well as a threat to international peace and security. Summing up the importance of climate change as an utmost security concern, in March 2013, Admiral Samuel J. Locklear III, chief of U.S. naval forces in the Pacific, argued that climate change "is probably the most likely thing that is going to happen... that will cripple the security environment, probably more likely than the other scenarios we all often talk about."<sup>56</sup>

#### 2.3 Social Injuries Regarding Political Influence and Lobbying

#### **Science Denial by Fossil Fuel Companies**

The incontrovertible scientific consensus that anthropogenic climate change exists and is already impacting human and natural systems<sup>57, 58, 59, 60, 61, 62, 63, 64, 65, 66</sup> is not appropriate for academic debate at any legitimate institution such as Penn. While there may be legitimate discussions about how to best implement solutions to the issue, actively denying the scientific facts is academically dishonest and obstructs the democratic process of creating these solutions. Climate denial thus contradicts Penn's values as an academically-rigorous university and its reputation as the "Civic Ivy." There are two implications for social injury impacts: first, in the absence of these activities, stricter regulations would have prevented some of the social injuries that were inflicted; second, the resources spent on false science and lobbying is a direct opportunity cost that could have been spent on improving lives.

<sup>&</sup>lt;sup>54</sup> Center for Strategic and International Studies and the Center for a New American Security. "The Ageof Consequences: The Foreign Policy and National Security Implications of Global Climate Change." 2007.

<sup>&</sup>lt;sup>55</sup> "Climate and Social Stress: Implications for Security Analysis." Climate and Social Stress: Implications for Security Analysis. Accessed October 30, 2015.

<sup>&</sup>lt;sup>56</sup> Bender, Bryan. "Chief of US Pacific Forces Calls Climate Biggest Worry." Boston Globe. March 9, 2013. Accessed October 30, 2015.

<sup>&</sup>lt;sup>57</sup> American Association for the Advancement of Science. "AAAS board statement on climate change." *Washington, DC* (2006).

<sup>&</sup>lt;sup>58</sup> American Chemical Society. "Global Climate Change". 2013.

<sup>&</sup>lt;sup>59</sup> American Geophysical Union. "Human-Induced Climate Change Requires Urgent Action". August 2013.

<sup>&</sup>lt;sup>60</sup> American Medical Association. "Global Climate Change and Human Health". 2013.

<sup>&</sup>lt;sup>61</sup> American Meteorological Society. "Climate Change: An Information Statement of the American Meteorological Society". 20 August 2012.

<sup>&</sup>lt;sup>62</sup> American Physical Society. "National Policy: Climate Change". November 18, 2007.

<sup>&</sup>lt;sup>63</sup> The Geological Society of America. "Position Statement: Climate Change". April 2015.

<sup>&</sup>lt;sup>64</sup> Academia Brasiliera de Ciencias, Academie des Sciences, Accademia dei Lincei, Royal Society, Royal Society of Canada, Deutsche Akademie der Naturforscher, Science Council of Japan, National Academy of Sciences, Chinese Academy of Sciences, Indian National Science Academy, Russian Academy of Sciences. "Joint science academies" statement: Global response to climate change". 2005.

<sup>&</sup>lt;sup>65</sup> U.S. Global Change Research Program. "Global Climate Change Impacts in the United States". 2009.

<sup>&</sup>lt;sup>66</sup> Intergovernmental Panel on Climate Change. IPCC Fourth Assessment Report: Climate Change 2007. "Working Group I: The Physical Science Basis".

Unfortunately, fossil fuel companies have a long and well-documented history of funding the denial of anthropogenic climate change, an activity which they continue to do so today.<sup>67, 68, 69, 70</sup> According to the Oxford Handbook of Climate Change and Society, "[b]oth individual corporations such as ExxonMobil and Peabody Coal as well as industry associations such as the American Petroleum Institute, Western Fuels Association, and Edison Electric Institute provided funding for individual contrarian scientists, conservative think tanks active in climate change denial, and a host of front groups." <sup>71</sup> Their promotion of false science is discordant with a university that prides itself on academic excellence. Additionally, fossil fuel companies expend enormous resources on lobbying. In the US alone, lobbying by the oil and gas industry amounted to \$9.8 million in 2014 and \$6.3 million in 2013 so far.<sup>73</sup> From the same source, since 2000, the oil and gas industry has spent \$1.633 billion, and coal mining industry has spent \$153.3 million on lobbying.

Funding for climate denial directly translates to the political obstruction of climate action and the wider democratic system of which Penn is a civic participant. Based on data from the 113th Congress, a climate-denying member of Congress took on average 3.58 times more in fossil fuel industry contributions than a scientifically-literate member of Congress who did not deny anthropogenic climate change (the deniers on average received \$346,975 from fossil fuel companies versus \$96,999 for others).<sup>74</sup> The problem persists in the current 114th Congress, where climate-denying Senators took 4.01 times as much fossil fuel donations as others, and climate-denying House Representatives took 3.40 times as much as their colleagues.<sup>75</sup>

With these facts, fossil fuel companies have a clear nexus to a "moral evil implicating a core University value that is creating a substantial social injury". In a counterfactual world without these companies' anti-science and anti-climate lobbying, stronger climate policies would have been implemented sooner, thereby lessening the accumulation of the above social injuries. Thus, the historical and ongoing lobbying efforts by fossil fuel companies have a direct causal link to creating additional social injuries.

# Alternatives to Divestment in the Context of Science Denial

First, committing more resources to academic research on climate science and solutions as well as on-campus sustainability efforts, does not represent a viable alternative, because these actions are not mutually exclusive to divestment. In fact, divestment can improve the risk-

<sup>&</sup>lt;sup>67</sup> Newsweek Staff. "Global Warming Deniers Well Funded". Newsweek. 12 August 2007.

 <sup>&</sup>lt;sup>68</sup> Douglas Fischer, "'Dark Money' Funds Climate Change Denial Effort". *Scientific American*. December 23, 2013
<sup>69</sup> Justin Gillis, John Schwartz. "Deeper Ties to Corporate Cash for Doubtful Climate Researcher". *New York Times* Feb 21, 2015

<sup>&</sup>lt;sup>70</sup> Simon Bowers. "Climate-sceptic US senator given funds by BP political action committee" *The Guardian* 22 March, 2015

<sup>&</sup>lt;sup>71</sup> John S. Dryzek, Richard B. Norgaard, and David Schlosberg. "Organized Climate Change Denial". Oxford Handbook of Climate Change and Society. Aug 2011. Web. October 20, 2015

<sup>&</sup>lt;sup>72</sup> Center for Responsive Politics. "Oil & Gas: Lobbying, 2015." OpenSecrets. Accessed October 25, 2015.

 <sup>&</sup>lt;sup>73</sup> Center for Responsive Politics. "Coal Mining: Lobbying, 2015." OpenSecrets. Accessed October 25, 2015.
<sup>74</sup> Tiffany Germain, Ryan Koronowski. "The Anti-Science Climate Denier Caucus: 113th Congress Edition".

ThinkProgress. June 26, 2013.

<sup>&</sup>lt;sup>75</sup> Tiffany Germain, Kristen Ellingboe, Kiley Kroh. "The Anti-Science Climate Denier Caucus: 114th Congress Edition". *ThinkProgress.* January 8, 2015.

adjusted returns of the endowment and protect its long-term financial value, meaning that divestment would help Penn better conduct more research and sustainability programs. In addition, as long as fossil fuel companies continue to lobby against fundamental science and the implementation of real climate solutions, any positive impact from Penn's own climate actions would be negated. In other words, Penn's laudable contributions to the climate would be annihilated by Penn's financial complicity in fossil fuel companies' stance against science.

Another commonly suggested alternative to divestment is to participate in shareholder engagement, e.g. proxy voting or letters to management. However, these actions have proven insufficient in eliminating anti-science lobbying. For example, Penn's Social Responsibility Advisory Committee consists of faculty, students, alumni, and staff who make rational and informed decisions on proxy voting for resolutions on companies in Penn's portfolio. This committee was founded by the Trustees' Resolution to Establish Procedures for Proxy Voting in 2003, and performs important work. However, if shareholder engagement alone were sufficient, fossil fuel companies would no longer be funding anti-science lobbying.

#### 2.4 Unlawful Practices by the Fossil Fuel Industry

Fossil fuel corporations violate international law. The *Universal Declaration of Human Rights* declares that "everyone has the right to life, liberty and security of person."<sup>76</sup> The right to life is the basis for all other fundamental human rights. The activities of companies in the fossil fuels industry threaten these rights to life and security for reasons including the increased frequency and severity of extreme weather such as droughts and hurricanes, increased incidence of infectious disease, deprivation from potable water and loss of agricultural productivity.

The resolve of fossil fuel companies to carry out the extraction and combustion of their entire reserves of coal, oil and gas infringes on international agreement, such as the 1989 *Hague Declaration of the Environment*, which makes an explicit link between the right to life and the harmful effects of climate change.<sup>77</sup> If fossil fuel corporations are allowed to remain operating under business-as-usual conditions and carry out their business pans, much more than 2°C of warming will take place, which, as explained above, would detrimentally impact people everywhere. Scientific consensus indicates that to stay within this 2-degree margin, we must cap carbon dioxide emissions at 394 gigatons between now and 2050.<sup>78</sup> The fossil fuel industry, however, owns enough coal, oil, and gas reserves to produce 2860 gigatons of carbon dioxide.<sup>79</sup> Fossil fuels being their primary product, they will not stop emitting massive amounts of greenhouse gases simply of their own volition.

Fossil fuel companies' practices are also at odds with the fundamental purpose of the United Nations Framework Convention on Climate Change (UNFCCC), which was ratified by

<sup>&</sup>lt;sup>76</sup> United Nations General Assembly, *The Universal Declaration of Human Rights*.

<sup>&</sup>lt;sup>77</sup> Representatives from Australia, Brazil, Canada, Cote d'Ivoire, Egypt, France, Federal Republic of Germany, Hungary, India, Indonesia, Italy, Japan, Jordan, Kenya, Malta, Norway, New Zealand, the Netherlands, Senegal, Spain, Sweden, Tunisia, Venezuela, and Zimbabwe, —Hague Declaration on the Environment.

<sup>&</sup>lt;sup>78</sup> Meinshausen, Malte, Nicolai Meinshausen, William Hare, Sarah C. B. Raper, Katja Frieler, Reto Knutti, David J. Frame, and Myles R. Allen. "Greenhouse-gas Emission Targets For Limiting Global Warming To 2 °C." Nature 458 (2009): 1158-162. Accessed July 27, 2015. doi:10.1038;"CAIT: WRI's Climate Data Explorer." World Resources Institute. 2014. Accessed July 27, 2015.

<sup>&</sup>lt;sup>79</sup> "World Energy Outlook 2012." International Energy Agency. November 12, 2012. Accessed July 27, 2015.

the U.S. and entered into force on March 21, 1994. The UNFCCC upholds the aim of signatories to accomplish the "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system." <sup>80</sup>

Aside from violating these agreements that have been ratified by the United States, fossil fuel companies are guilty of violating binding international agreements in other countries where they have been ratified, and are therefore, law. Fossil fuel companies have frequently blocked the enforcement of the International Labour Organization's *Indigenous and Tribal Peoples Convention, 1989.*<sup>81</sup> This convention requires that indigenous populations be "consulted on issues that affect them" and that they be able to "engage in free, prior and informed participation in policy and development processes that affect them." <sup>82</sup> In numerous cases oil, gas, and coal extraction has taken place without such consultation or in outright opposition from indigenous groups. Dutch Royal Shell's conduct in the Niger Delta, described in greater detail below, is a particularly notorious example. Additionally, numerous fossil fuel corporations have been successfully sued in U.S. court for violations of United States law, examples of which can be found in Appendix A.

#### **Case Study: Royal Dutch Shell**

Shell represents an ideal case study to illustrate how fossil fuel companies are both morally evil investments and liabilities to shareholders. Shell is responsible for socially injurious behavior as a consequence of company practices that:

- 1. Violated national and international law, and
- 2. Disrespected governmental regulations, international health and safety or environmental standards.

These actions do not represent isolated incidents. Rather, their recurrence reveals that the proclivity for systematic law infringement is called for by the extraction-based business models of fossil fuel companies. The proclivity to be involved in lawsuits threatens Shell's stock value, due to the risk they pose to the company itself and to the attention that they bring to socially conscious investors. Shell's 2014 Annual Report documents that the company is currently involved in cases of environmental litigation.<sup>83</sup>

#### **Oil Spills and Environmental Damage**

Previous cases where Shell has been found responsible for oil pollution and ordered to pay compensation over the last twenty years include *Bodo vs Shell* and *Niger Delta Farmers vs Shell Oil Company*. In relation to the latter case, *The Economist* argued that "[t]he ruling could open a flood-gate to legal complaints against oil companies."<sup>84</sup>

The Federal High Court of Nigeria ruled in November 2005 that "continuing to flare gas in the course of their oil exploration and production activities in the applicants' community is a

<sup>&</sup>lt;sup>80</sup> Parties to the United Nations Framework Convention on Climate Change, *United Nations Framework Convention on Climate Change*, p. 4.

<sup>&</sup>lt;sup>81</sup> International Labour Organization, Convention No. 169.

<sup>82</sup> Ibid.

<sup>&</sup>lt;sup>83</sup> Royal Dutch Shell, Annual Report, P.140.

<sup>&</sup>lt;sup>84</sup> The Economist, A mixed verdict.

gross violation of their fundamental right to life (including healthy environment) and dignity of human person as enshrined in the Constitution."<sup>85</sup> The court ordered Shell to "take immediate steps to stop the further flaring of gas in the applicant's community."

In spite of that court order, Shell has refused to end gas flaring in the Iwherekan community in Nigeria in the years following 2005. Furthermore, Shell has evaded compensation payments totaling \$1.5 billion to the Delta's Ijaw ethnic group for decades of pollution.<sup>86</sup> Shell has repeatedly ignored governmental regulation and international health and environmental standards in Nigeria, has additionally been sued for the violation of indigenous people's rights in Canada, and is currently facing at least ten cases linking it to groundwater contamination.<sup>87, 88, 89, 90</sup>

Furthermore, the American subsidiaries of Royal Dutch Shell have incurred in alleged violations of the Clean Air Act seven times since 2001, and once in an alleged violation of the Clean Water Act.<sup>91</sup> These cases all resulted in settlements where Shell subsidiaries agreed to pay fines or installing equipment to reduce the illegal emissions. In another case, the U.S. Supreme court stated that Shell Oil Company could be held responsible for spills of the pesticide that it sells, and required it to pay recovery costs to the U.S. Government for the occurrence of a spill.<sup>92</sup>

#### Human Rights Abuses

In accordance with the *Torture Victim Protection Act of 1992*, the *Racketeer Influenced and Corrupt Organizations Act (RICO)*, and the *Alien Tort Statute*, the Wiwa family initiated three lawsuits against Royal Dutch Shell, its Nigerian subsidiary, and the CEO of that subsidiary in the United States District Court for the Southern District of New York. These cases were brought in regards to the execution of Saro-Wiwa and eight others, the torture and detention of Owens Wiwa and Michael Tema Vizor, and the shooting of Karololo Kogbara when she nonviolently demonstrated against the clearing of her crops to allow the passage of a Shell pipeline. The plaintiffs alleged that the executions were conducted with Shell's "knowledge, consent and/or support."<sup>93</sup> They additionally alleged that Shell had made payments to soldiers involved in human rights abuses taking place in the region.<sup>94</sup> Shell settled legal action out of court with a payout of \$15.5 million.<sup>95</sup> This payout reveals Shell's vulnerability and points to the company's complicity in these activities.

#### Continued threats to Human Rights, environmental law, and international law

The above information is by no means exhaustive of the litigation involving Shell over the past twenty years. In Shell's case, the sheer volume of allegations against the company is

<sup>&</sup>lt;sup>85</sup> Federal High Court of Nigeria, Gbemre v Shell Petroleum Development Company Nigeria Limited and Others.

<sup>&</sup>lt;sup>86</sup> Ukala, "Gas Flaring in Nigeria's Niger Delta: Failed Promises and Reviving Community Voices".

<sup>&</sup>lt;sup>87</sup> CTV Calgary, First Nation sues Shell.

<sup>&</sup>lt;sup>88</sup> Steiner, International Standards to Prevent and Control Pipeline Oil Spills, Compared with Shell Practices in Nigeria.

<sup>&</sup>lt;sup>89</sup> Steiner, Double standard: Shell practices in Nigeria compared with international standards to prevent and control pipeline oil spills and the Deepwater Horizon oil spill.

<sup>&</sup>lt;sup>90</sup> Royal Dutch Shell, Annual Report, P.140.

<sup>&</sup>lt;sup>91</sup> Environmental Protection Agency, *Civil Cases and Settlements* 

<sup>&</sup>lt;sup>92</sup> Burlington Northern & Santa Fe Railway Co. et al. v. United States et al.

<sup>&</sup>lt;sup>93</sup> United Nations Environment Programme, Environmental Assessment of Ogoniland, p.27.

<sup>&</sup>lt;sup>94</sup> Kearney, New York trial delayed for Nigerians suing Shell.

<sup>&</sup>lt;sup>95</sup> Mouawad, Shell to Pay \$15.5 Million to Settle Nigerian Case.

demonstrative of Shell's history of causing social injury and often refusing to desist even when ordered by courts. Shell's record of being the target of lawsuits raises the question of whether this investment represents the values of the University of Pennsylvania, in addition to being a material risk to the company's profitability going forward.

#### **Divestment from Shell**

Shell's reputation for human rights violations and environmental degradation has resulted in the avoidance of Shell stock by socially conscious investors. The Dow Jones Sustainability Index, which incorporates assessment of economic, environmental and social criteria with stress on long-term shareholder value, omitted Shell from the index in both 2010 and 2011 due to trepidations regarding their practices in Nigeria.<sup>96</sup> Additionally, 28 Right Livelihood Award Laureates including conservation scientists and professionals implored the Norway Government Pension Fund to divest its holdings in Royal Dutch Shell in February 2012.<sup>97</sup>

#### 2.5 Net Harm, Injustice, and Energy Poverty

Fossil fuel production produces net social injuries to society at large. Of course, social injuries per se do not necessarily require divestment, because fossil fuels today also serve as important sources of energy. However, alternative sources of energy do exist, and the pure economic values of fossil fuels over these alternatives are far outweighed by their social injuries. As estimated below, coal, oil, and natural gas inflict at least 2.5, 1.8, and 1.4 times as much harms as they do benefits to society, respectively.<sup>98</sup> Note that while coal to natural gas fuel-switching does produce relative benefits, natural gas still inherently constitutes net social injuries.

Moreover, the distribution of fossil fuel companies' impacts is highly inequitable: the populations who are suffering the most now, and are most vulnerable to climate collapse, have contributed least to the problem. This inequity inherent in fossil fuel production means that the issue of energy poverty can best be addressed by new, alternative technologies rather than furthering old combustion-based fuels. The combination of net harms and unjust distribution of injuries means that fossil fuel companies' activities constitute substantial social injuries under Criterion 1, thereby justifying divestment.

# **Total Welfare: Net Harm**

This section will explain a rough estimate of fossil fuel companies' net contribution to social welfare. As in the Darfur divestment precedent, divestment is warranted if a population

<sup>&</sup>lt;sup>96</sup> Reuters, Shell to scrap bonus link to sustainability index.

<sup>&</sup>lt;sup>97</sup> Right Livelihood Award Foundation, Petition for Norway Pension Fund. The Right Livelihood Award.

<sup>&</sup>lt;sup>98</sup> These values are ignoring the non-climate pollution and local human health impacts outlined above (which are harder to quantify without extensive modeling because the pollutants are non-homogenous), so the harms-to-benefits ratios would be even more severe after factoring in those social injuries.

suffers net harms as a result of companies' actions; if society in general suffers more harms than benefits then that clearly is basis for considering divestment.

We consider whether the net negative externalities of fossil fuels exceed the additional consumer surplus of fossil fuels.<sup>99</sup> First, if the total net sum of all three categories is negative, then clearly there is an overall net harm to society caused by these companies, warranting divestment. Second, if producer surplus exceeds the net sum of consumer surplus and externalities, this situation is perhaps even more morally abhorrent because Penn as a shareholder would be literally profiting from the net injuries and suffering incurred by the rest of humanity, again warranting divestment.

#### Social Benefit of Fossil Fuels (Consumer Surplus)

We assume for simplicity that energy demand is completely inelastic.<sup>100</sup> Under this model, as illustrated in the figure below, the additional per-unit consumer surplus compared to a next-best alternative is found by subtracting the alternative next-best price P2\* by the fossil fuel price P1\*.



We take a simplifying assumption that coal and natural gas are primarily used for electricity production. We compare the levelized costs of electricity (LCOE) for a marginal unit of electrical energy (one megawatt-hour) with a next-best alternative, onshore wind. From Lazard's LCOE values<sup>101</sup>, coal power generation costs \$66 / MWh (minimum of estimate range)

<sup>&</sup>lt;sup>99</sup> From the perspective of basic economics, fossil fuel products contribute to social welfare in three ways: 1) producer surplus, 2) consumer surplus, and 3) externalities. Producer surplus arises when the market price exceeds the seller's marginal production costs, and consumer surplus arises when the buyer's willingness to pay exceeds the market price - reflecting value from avoiding the opportunity cost of the next-best alternative. Externalities arise when there are damages (or benefits) imposed on individuals who are not involved in the product's transaction at all. <sup>100</sup> This assumption gives a conservative estimate in fossil fuel's favor becauses it maximises the area of consumer surplus. Also, under this assumption society would not have to sacrifice any quantity of consumption. <sup>101</sup> Lazard. "Lazard's Levelized Cost of Energy Analysis - Version 8.0." Lazard. September 2014.

and combined cycle natural gas power generation costs 61 / MWh (minimum of estimate range). From the same source, unsubsidized wind generation costs 81 / MWh (maximum of estimate range).<sup>102</sup> This gives a consumer surplus of 15 / MWh for coal and 20 / MWh for natural gas on an energy-equivalent basis. Using power generation heat rates from the Energy Information Administration, which states that 0.00052 short tons of coal or 0.01010 Mcf of natural gas is needed to generate 1 kilowatt-hour (kWh) of electricity,<sup>103</sup> the gross social benefit for coal and natural gas is 28.8 / short ton and 1.98 / thousand cubic feet respectively.

We take the simplifying assumption that oil is primarily used for transportation, and so we compare the market price of gasoline with the a next-best alternative of ethanol biofuel.<sup>104</sup> The average 2015 price is \$1.95 / gallon for gasoline and \$1.61 / gallon for ethanol.<sup>105</sup> While ethanol is cheaper than gasoline on a volume basis, it has about 74% of the energy density,<sup>106</sup> so ethanol's average price is \$2.17 to provide the same energy as a gallon of gasoline. So the oil's gross social benefit is \$0.22 / gallon.

#### **Social Cost of Fossil Fuels (Externalities)**

The United States Government's Interagency Working Group on Social Cost of Carbon<sup>107</sup> calculates in dollar amount the marginal negative externalities from each additional unit of greenhouse gas emissions. It is important to note that the integrated assessment models (IAM) used to find the social cost already incorporate the effect of any *positive* externalities such as the possibility of improved agriculture. In other words the social cost of carbon represents the *net* negative externalities. For 2015, the social cost of carbon<sup>108</sup> is \$40 per metric ton of carbon dioxide.<sup>109</sup>

The Energy Information Administration provides energy content values for coal and natural gas, as well as emissions coefficients for bituminous coal (the cleanest coal, giving a

<sup>&</sup>lt;sup>102</sup> These values are levelized costs and so already include the cost of constructing new alternative power generation plants. We take coal and natural gas's lower range while taking wind's upper range. Moreover, these are totally unsubsidized costs, and therefore do not include any externalities that might already be partially priced in by tax policies. Thus this estimate for a marginal unit of energy is conservative in fossil fuel's favor.

<sup>&</sup>lt;sup>103</sup> U.S. Energy Information Administration. "How Much Coal, Natural Gas, or Petroleum Is Used to Generate a Kilowatthour of Electricity?" October 13, 2015. Accessed October 26, 2015.

<sup>&</sup>lt;sup>104</sup> Ethanol is carbon-neutral since the carbon dioxide emitted during its combustion has been originally absorbed from the atmosphere by the plants used to produce the fuel.

<sup>&</sup>lt;sup>105</sup> U.S. Department of Agriculture, Economic Research Service. "Table 14 - Fuel Ethanol, Corn and Gasoline Prices, by Month." October 2015. Accessed October 26, 2015.

<sup>&</sup>lt;sup>106</sup> Alternative Fuels Data Center. "Fuel Properties Comparison." Department of Energy. October 29, 2014. Accessed October 27, 2015.

<sup>&</sup>lt;sup>107</sup> The Interagency Working Group consists of the Council of Economic Advisers, Council on Environmental Quality, Department of Agriculture, Department of Commerce, Department of Energy, Department of

Transportation, Environmental Protection Agency, National Economic Council, Office of Management and Budget, Office of Science and Technology Policy, and Department of the Treasury

<sup>&</sup>lt;sup>108</sup> This value is for a 3% discount rate, which is a conservative value in line with economists such as Nordhaus. Other economists such as Lord Stern prefer discount rates much closer to zero to reflect true intergenerational equity - a lower discount rate would drastically increase social cost of carbon values.

<sup>&</sup>lt;sup>109</sup> U.S. Environmental Protection Agency. "The Social Cost of Carbon." October 5, 2015. Accessed October 26, 2015.

lower bound on coal emissions), crude oil, and natural gas.<sup>110,111,112</sup> These values and the required calculations are summarized in the following table. We include the effect of methane leakages originating from natural gas extraction to find a carbon dioxide equivalent value: 1.5% leakage occurs from total production,<sup>113</sup> methane has 56 times the greenhouse potential as carbon dioxide, the density of methane is 0.6797 kg/m<sup>3</sup>, and one cubic meter equals 35.31 cubic feet.<sup>114</sup>,<sup>115</sup>

Fuel	Coal	Natural Gas	Oil	
Emissions factor	93.28 kg CO <sub>2</sub> / MMBtu	53.06 kg CO <sub>2</sub> / MMBtu	10.29 kg CO <sub>2</sub> / gallon	
Heat content	19.622 MMBtu / Short Ton	1,032 Btu / cubic foot		
Emission per quantity	1830. kg CO <sub>2</sub> /short ton	70.97 kg CO <sub>2</sub> e / Mcf		
Social cost at \$40	\$73 / short ton	\$2.8 / Mcf	\$0.41 / gallon	
Average market price	\$66 / MWh	\$61 / MWh	\$1.95 / gallon	
Alternative price	\$81 / MWh	\$81 / MWh	\$2.17 / gallon- equivalent	
Consumer surplus*	\$28.84 / short ton	\$1.98 / Mcf	\$0.22 / gallon	
Harm-to-benefit ratio	2.5	1.4	1.8	

<sup>&</sup>lt;sup>110</sup> U.S. Energy Information Administration. "Voluntary Reporting of Greenhouse Gases Program (Voluntary Reporting of Greenhouse Gases Program Fuel Carbon Dioxide Emission Coefficients)." January 31, 2011. Accessed October 30, 2015.

<sup>&</sup>lt;sup>111</sup> U.S. Energy Information Administration. "Heat Content of Natural Gas Consumed." September 30, 2015. Accessed October 27, 2015.

<sup>&</sup>lt;sup>112</sup> U.S. Energy Information Administration. "Table A5. Approximate Heat Content of Coal and Coal Coke." October 2015. Accessed October 26, 2015.

<sup>&</sup>lt;sup>113</sup> U.S. EPA Office of Air Quality Planning and Standards. "Oil and Natural Gas Sector Leaks". April 2015.

<sup>&</sup>lt;sup>114</sup> United Nations Framework Convention on Climate Change. "Global Warming Potentials". 2014. Accessed October 20, 2015.

<sup>&</sup>lt;sup>115</sup> "Methane, CH4, Physical Properties." *Air Liquide Gas Encyclopedia*.

#### **Distributional Welfare: Injustice**

As explained in detail throughout the sections above, the harms of fossil fuel companies are intersectional and disproportionately inflicted upon already-marginalized groups in society. The disparity of fossil fuel companies' impacts based on ethnicity, socioeconomic status, and national origin, is systematically rooted and unjust. Thus, climate justice is fundamentally tied to racial and economic justice, because climate change exacerbates existing these inequalities.

Globally, climate change impacts like extreme weather events and increased disease incidence are disproportionately borne by people of color in developing countries. For example, the 2013 monsoon flooding in India had a death toll of up to 10,000 people, and Typhoon Haiyan in the Philippines killed more than 6,000 people. While the world has made significant progress in addressing global poverty and inequality, the United Nations Development Programme warn that "[t]he impacts of climate change will reverse decades worth of human development gains".<sup>116</sup>

Within the United States, people of color have been experiencing a long history of environmental racism induced by fossil fuel companies. While African Americans are 12.7% of the population, they account for 26% of asthma deaths.<sup>117</sup> According to the NAACP, "African Americans are hospitalized for asthma at three times the rate of whites and die of asthma at twice the rate of whites," and "[h]eat-related deaths among African Americans occur at a 150 to 200 percent greater rate than for non-Hispanic whites."<sup>118</sup>

## **Energy Poverty**

Advocates of the fossil fuel industry often claim that global energy poverty, i.e. the lack of access to modern energy services, is a reason to continue fossil fuel development. The lack of modern energy access is a real, significant issue affecting more than a billion people;<sup>119</sup> however, it has been exploitatively co-opted by fossil fuel interests. In fact addressing energy poverty is consistent with fossil fuel divestment, and divestment is a step towards energy justice.

First, the vast majority of the populations affected by energy poverty reside in rural communities,<sup>120</sup> which have very limited reachability from grid extension and can be better

<sup>&</sup>lt;sup>116</sup> United Nations Development Programme. "Climate Change and Poverty Reduction." 2015. Accessed August 25, 2015.

<sup>&</sup>lt;sup>117</sup> Russell, Leslie. "Reducing Disparities in Life Expectancy: What Factors Matter?" *Roundtable on the Promotion of Health Equity and the Elimination of Health Disparities of the Institute of Medicine*, 2011.

<sup>&</sup>lt;sup>118</sup> National Association for the Advancement of Colored People. "The Hidden Consequences of Climate Change." Accessed August 25, 2015.

 <sup>&</sup>lt;sup>119</sup> International Energy Agency. "Energy poverty." 2015. Accessed October 26, 2015.
<sup>120</sup> Ibid.

served by distributed renewables and microgrid technologies.<sup>121,122</sup> The nonprofit organization Power for All, which is a collection of private industries and public organizations, explains that "bottom-up distributed energy solutions should be the *preferred* solution for assuring universal access to electricity because they are faster, cleaner, and cheaper than extending power grids to rugged or sparsely-populated regions."<sup>123</sup> Examples already flourish demonstrating renewable energy positively impacting developing countries, such as Google's investment into the Lake Turkana Wind Power Project in northern Kenya or SunEdison's development of distributed solar-battery microgrids in rural India.<sup>124,125</sup> Therefore, reinvestment into clean energy actually represents a superior method to address energy poverty concerns as an investor.

Second, even if expanding fossil fuel usage to areas may create private economic value, the above section demonstrates that fossil usage on net creates severe externalities that outweigh the benefits. Since these harms such as climate change and extraction pollution are inflicted disproportionately on marginalized communities, the populations undergoing energy poverty would suffer even more net harm due to fossil fuels.

#### 2.6 Warrants for Nexus to Moral Evils

As a result of their central nexus to fossil fuel extraction, these companies have a significant, clear, and undeniable nexus to the moral evil delineated above. In the global economic system, fossil fuel production is driven by supply and demand. However, the fact that we individually continue to use fossil fuels does not negate the moral reason to divest. For example, the University continues using fossil fuels despite having divested from seven multinational oil companies operating in the Sudan region. The University is using petroleum products originally extracted by these seven companies, and then sold oil into the global commodity market, <sup>126</sup> yet still found it necessary to divest from these companies.

In addition, the relative magnitudes of moral complicity are drastically different between sellers and buyers. As an institutional consumer with thousands of individual students, faculty, and alumni, Penn's 2014 emissions were 184,218 metric tons of carbon dioxide equivalent

<sup>&</sup>lt;sup>121</sup> International Energy Agency. "Chapter 2 - Extract: Modern energy for all". *World Energy Outlook 2013*. November 12, 2013.

<sup>&</sup>lt;sup>122</sup> International Energy Agency, UN Development Programme, UN Industrial Development Organization. "Energy Poverty: How to make modern energy access universal?" September 2010.

<sup>&</sup>lt;sup>123</sup> Fairley, Peter. "Renewable Minigrids Should Be the End Goal for Rural Poor." *Institute of Electrical and Electronics Engineers Spectrum*, May 22, 2015.

<sup>&</sup>lt;sup>124</sup> Metz, Cade. "Google Pumps Funds into Africa's Biggest Wind Power Project." WIRED, October 20, 2015.

<sup>&</sup>lt;sup>125</sup> Doom, Justin. "SunEdison Buying Imergy Batteries for Microgrids in Rural India." *Bloomberg Business*, March 25, 2015.

<sup>&</sup>lt;sup>126</sup> Even if they were not the same physical barrels of oil, the participation of any consumer contributes to global demand creating the commodity price.

(based on an 18% reduction from 2007),<sup>127128</sup> a large portion of which derives from fossil fuel usage. This is a significant footprint that we should care about; indeed, Penn has already demonstrated leadership by decreasing our carbon footprint by 18% through the Climate Action Plan initiated by President Amy Gutmann. However, our moral complicity as fossil fuel consumers is vastly outweighed by our complicity as fossil fuel investors. On an annual basis, even the smallest coal company on our targeted list (Alcoa) produced 39.4 million metric tons of coal in 2014, responsible for about 79.5 million metric tons of carbon dioxide equivalent<sup>129</sup> - more than 400 times the annual Penn amount. The smallest oil-gas company (Enerplus) on our list produced 14.7 million barrels of crude oil and 130.0 million cubic feet of natural gas in 2014, responsible for a total of 15.5 million metric tons of carbon dioxide equivalent<sup>130</sup> - more than 80 times the annual Penn amount. The rest of the targeted companies have even more highly concentrated contributions to global social injury, far outweighing any individual at Penn.

<sup>&</sup>lt;sup>127</sup> Penn Green Campus Partnership. "University of Pennsylvania: Climate Action Plan Progress Report 2011".2011. Accessed September 21, 2015.

<sup>&</sup>lt;sup>128</sup> Penn Green Campus Partnership. "University of Pennsylvania: Climate Action Plan 2.0". 2011. Accessed September 21, 2015.

<sup>&</sup>lt;sup>129</sup> This value was estimated using a coal energy content coefficient of 19.622 Million Btu per Short Ton from U.S. Energy Information Administration's "Table A5. Approximate Heat Content of Coal and Coal Coke", and an emissions rate of 93.28 kg CO<sub>2</sub> per Million Btu for bituminous coal (bituminous has the lowest emissions factor, in order to give a conservative estimate) from U.S. EIA's "Voluntary Reporting of Greenhouse Gases Program (Voluntary Reporting of Greenhouse Gases Program Fuel Carbon Dioxide Emission Coefficients)".

<sup>&</sup>lt;sup>130</sup> This figure was estimated using crude oil and natural gas emissions rates of 10.29 kg  $CO_2$  / gallon and 53.06 kg  $CO_2$  / MMBtu found in the second EIA source above. It used a natural gas energy content coefficient of 1,032 Btu per cubic foot from EIA's "Heat Content of Natural Gas Consumed".

# 3 Fiduciary Responsibility

Fossil fuel divestment is consistent with the Trustees' fiduciary responsibility. The purpose of the university endowment is the long-term support of the university's core mission. Penn's Chief Investment Officer Peter Ammon explains that the university endowment should "take a time horizon longer than the vast majority of investors can."<sup>131</sup> First, historical evidence tracking actual performances of fossil-free portfolios compared to non-divested benchmarks shows that divestment from fossil fuels does not decrease risk-adjusted returns. Second, an analysis of fossil fuel companies' business fundamentals shows that failing to divest would increase the endowment portfolio's exposure to carbon bubble and climate change risk.

#### **3.1 Empirical Evidence**

Fossil fuel divestment is objectively consistent with fiduciary responsibility. Several studies conducted independently by investment managers MSCI, Impax Asset Management, and Advisor Partners (together with more than \$75 billion under management) all conclude that portfolios free from fossil fuel companies perform either equally or better compared to non-divested benchmark portfolios.<sup>132,133,134</sup> Reinforcing these conclusions, a Morgan Stanley report finds that the performance of sustainable investing has usually met or exceeded comparable traditional investments, on "both an absolute and a risk-adjusted basis, across asset classes and over time."<sup>135</sup>

Specifically, to consider the effect of fossil fuel divestment on a portfolio, we compare the performance of the benchmark portfolio versus the performance of the same portfolio excluding fossil fuel companies. In the absence of Penn publishing its exact endowment holdings, we can use other well-diversified portfolios as proxies. These following example portfolio comparisons show that fossil fuel divestment is financially sound: it increased returns, increased risk-adjusted returns (measured through the Sharpe ratio), and decreased risk. This empirical fact outweighs any theoretical conjecture that divestment always increases portfolio risks due to imposing constraints on the selection of securities.

## S&P 500 "Core", GFF, "Extended"<sup>136</sup>

The authors of a Journal of Environmental Investing study compared the performance of the S&P 500 to three fossil free portfolios: a "core" portfolio that excludes companies directly owning and operating fossil fuel reserves, a GFF portfolio that excludes companies on the top

<sup>&</sup>lt;sup>131</sup> Grabarz, Kristen. "Endowment Returns Fail to Outpace the Pack." The Daily Pennsylvanian. October 28, 2014. Accessed January 3, 2015.

<sup>&</sup>lt;sup>132</sup> MSCI ESG Research. "Responding to the Call for Fossil-fuel Free Portfolios." December, 2013. Accessed October 25, 2015.

<sup>&</sup>lt;sup>133</sup> Impax Asset Management. "Beyond Fossil Fuels: The Investment Case for Fossil Fuel Divestment." Accessed October 25, 2015.

<sup>&</sup>lt;sup>134</sup> Kern, Daniel, Jim Blachman, and Gerard Cronin. "Fossil Fuel Divestment: Risks and Opportunities." Advisor Partners, LLC. July, 2013. Accessed October 25, 2015.

<sup>&</sup>lt;sup>135</sup> Morgan Stanley Institute for Sustainable Investing. "Sustainable Reality: Understanding the Performance of Sustainable Investment Strategies". March 2015.

<sup>&</sup>lt;sup>136</sup> Willis, John, and Paul Spence. "The Risks and Returns of Fossil Fuel Free Investing." *The Journal of Environmental Investing*, 2015. Accessed October 31, 2015.

200 fossil fuel list, and an "extended" portfolio that further divests from other carbon-intensive companies. All three of these fossil free portfolios outperformed on the benchmark over the timeframe from 2009 through 2013, in terms of annual returns and Sharpe ratios. It is noteworthy that the most constrained "extended" portfolio of the three achieved the best performance, furthering demonstrating that investment constraints do not necessarily lead to higher risk or lower return. Moreover, the long pre-2014 time period under study ensured that the results were robust to short term commodity price fluctuations, e.g. the recent oil price downturn.

	Annualized Returns		Annualized Volatility			Sharpe Ratio			
	5 Years	3 Years	1 Year	5 Years	3 Years	1 Year	5 Years	3 Years	1 Year
S&P 500 Index	19.9%	15.8%	28.7%	15.2%	12.1%	8.4%	1.30	1.30	3.38
Core	20.6%	16.5%	29.5%	15.1%	11.5%	8.5%	1.36	1.43	3.46
GFF	20.7%	16.3%	29.5%	15.3%	11.9%	8.6%	1.35	1.38	3.44
Extended	20.9%	16.8%	30.0%	15.3%	11.8%	8.6%	1.36	1.42	3.49

Source: SICM Note that the highest annualized returns are shown in blue.

# MSCI Ex Fossil Fuels Index<sup>137</sup>

The MSCI ACWI Index is a global benchmark portfolio "across all sources of equity returns in 23 developed and 23 emerging markets". The MSCI ex Fossil Fuels Index is based on the parent index but excludes companies owning coal, oil, and natural gas reserves. This latter fossil free index actually outperformed the non-divested benchmark in terms of returns throughout 2012 (13.47% vs. 11.67%), 2013 (22.68% vs. 21.15%), and 2014 (13.23% vs. 11.22%), representing a divestment premium of at least 1.5 percentage points for each year. Furthermore, the fossil free index had a higher three year Sharpe ratio of 1.22 compared to the benchmark's 1.09, meaning that fossil fuel divestment generates higher risk-adjusted returns; since the fossil free index achieved superior returns this means that fossil fuel divestment also decreased the portfolio risk across this time period by reducing volatility. In this case, divestment was the superior financial strategy.

# FFIUS<sup>138</sup>

The Fossil Free Indexes US Index is based on the S&P 500 but excludes the current top 200 fossil fuel companies (the same list targeted by this proposal). FFIUS consistently outperformed the underlying benchmark in terms of cumulative returns across the 3-month, 6-month, 1-year, 3-year, 5-year, and 10-year timeframes. Furthermore, FFIUS had a higher 5-year (2010-2015) Sharpe ratio than the benchmark: 0.75 vs. 0.70. Again, fossil fuel divestment created superior risk-adjusted returns.

Although past performance does not indicate future performance, the empirical facts above demonstrate two implications. First, fossil fuel investments are risky due to high volatility of commodity prices. Thus, divestment helps to reduce portfolio risk and improve risk-adjusted

<sup>&</sup>lt;sup>137</sup> MSCI. "MSCI ACWI EX FOSSIL FUELS INDEX (GBP)." September 30, 2015. Accessed October 1, 2015.

<sup>&</sup>lt;sup>138</sup> Fossil Free Indexes. "Fossil Free Indexes US (FFIUS) Fact Sheet." March 31, 2015. Accessed October 1, 2015.

returns. Second, the assumption that imposing external constraints on an endowment portfolio would always increase risk is clearly proven wrong.

#### **3.2 Fundamentals Evidence**

Looking beyond the historical evidence, one finds that the long-term business models of fossil fuel extraction companies are fundamentally unsustainable.<sup>139</sup> According to Meinshausen et al in *Nature*, in order to have an 80% chance of limiting global warming to 2°C, cumulative carbon dioxide emissions from 2000 to 2049 must be constrained to 886 Gt.<sup>140</sup> According to the World Resources Institute's Climate Analysis Indicators Tool 2.0, the world already emitted more than 492 Gt since 2000, leaving only 394 Gt for the world to emit.<sup>141</sup> At the same time, according to the International Energy Agency's World Energy Outlook, "total potential emissions from fossil-fuel reserves" are 2860 Gt.<sup>142</sup> This means 86% of fossil fuel reserves are unburnable if we want to avoid the worst catastrophic effects of climate change. If Penn fails to divest there are two possible scenarios, both of which constitute a violation of fiduciary responsibility. Since these scenarios are logically exhaustive, fossil fuel divestment is actually equivalent to upholding fiduciary responsibility.

#### Scenario I: Penn does not divest and the world exceeds the carbon budget.

If this were to happen, the planet would suffer the very worst climate impacts of global warming past 2°C. The endowment cannot support core university missions if students and professors are physically unable to live on this planet. Moreover, these impacts would decimate Penn's endowment as a "universal owner" of a well-diversified portfolio.<sup>143</sup> Using a 3% discount rate for present value (similar discounts are favored by economists like Nordhaus), DARA and the Climate Vulnerable Forum calculate that 2.1% of world GDP would be lost each year by 2030 if climate change goes unchecked in this fashion.<sup>144</sup> Since the long-term success of Penn's endowment relies on the success of the overall economy, these economic harms translate directly into financial losses of companies in Penn's endowment portfolio. In fact, the vast majority of companies in the economy are already suffering from climate change. Of the respondents to the Climate Disclosure Project, 77% of S&P 500 companies are exposed to negative financial impacts of climate change.<sup>145</sup> For these companies, extreme weather events were the top climate risk drivers; this financial risk exposure would increase catastrophically if we were to exceed the

externalities matter to institutional investors." 2011. Accessed September 21, 2015.

<sup>&</sup>lt;sup>139</sup> Spedding, Paul, Kirtan Mehta, and Nick Robins. "Oil & Carbon Revisited: Value at Risk from 'unburnable' Reserves." HSBC Global Research. January 25, 2013. Accessed September 21, 2015.

<sup>&</sup>lt;sup>140</sup> Meinshausen, Malte, Nicolai Meinshausen, William Hare, Sarah C. B. Raper, Katja Frieler, Reto Knutti, David J. Frame, and Myles R. Allen. "Greenhouse-gas Emission Targets For Limiting Global Warming To 2 °C." *Nature* 458 (2009): 1158-162. Accessed July 27, 2015. doi:10.1038

<sup>&</sup>lt;sup>141</sup> "CAIT: WRI's Climate Data Explorer." World Resources Institute. 2014. Accessed July 27, 2015.

<sup>&</sup>lt;sup>142</sup> "World Energy Outlook 2012." International Energy Agency. November 12, 2012. Accessed July 27, 2015.

<sup>&</sup>lt;sup>143</sup> United Nations Environment Program Finance Initiative. "Universal Ownership: Why environmental

<sup>&</sup>lt;sup>144</sup> DARA, Climate Vulnerable Forum. *Climate Vulnerability Monitor 2nd Edition: A Guide to the Cold Calculus of a Hot Planet.* 2012. Accessed September 21, 2015.

<sup>&</sup>lt;sup>145</sup> CDP, PricewaterhouseCoopers. "Investment, transformation and leadership: CDP S&P 500 Climate Change Report 2013". 2013. Accessed September 21, 2015.
2°C threshold. Thus, exceeding the carbon budget would fundamentally destroy Penn's ability to support its mission.

Under this scenario, Penn's continued investments in the fossil fuel industry would have been directly culpable in actively supporting humanity's failure to meet the carbon budget. A failure to divest clearly constitutes a violation of Penn's fiduciary duty of care, by ignoring the holistic impacts of investment decisions on the entire portfolio: fossil fuel companies do not exist in a vacuum and impose negative externalities on all other assets that the endowment holds.

#### Scenario II: Penn does not divest and the carbon budget is not exceeded.

Were this to happen, in order for the world to stay within the carbon budget its fossil fuel combustion would have to have been drastically reduced. As a result, valuations of fossil fuel companies would be drastically undercut, because their current valuations from business fundamentals are based on the ability of fossil fuel reserves to generate future cash flows. In this scenario, with 86% of reserves remaining in the ground, the vast majority of the current value of Penn's fossil fuel assets would evaporate. Moreover, even amid low oil price, fossil fuel companies continue to wastefully convert shareholder equity through billions of dollars of capital expenditures on drilling new wells to augment their already-excessive reserves, further increasing the proportion of stranded assets. In this scenario, the long-term and permanent impact of stranded assets significantly outweighs cyclical fluctuations based on fuel prices. In this case, Penn's investment decision would have violated its duty of care by incurring direct financial losses from lost company valuations.

Technological solutions do have a role to play in mitigating climate change; however, even the most optimistic technological forecasts would not enable these companies to keep extracting fossil fuels at the current rate without exceeding 2°C. First, any downstream technology improvements such as energy efficiency or more efficient heat rates in power plants would decrease the demand for upstream fossil fuel products; the targeted 200 companies are chiefly upstream extraction companies and would not fare well under this case. Second, the only technological improvement that is relevant to protecting fossil fuel companies' cash flows is carbon capture and storage (CCS), which has limited feasibility and success. According to a London School of Economics and Carbon Tracker report, in even the most idealized scenario of CCS project development (requiring a 47,400% increase from the current 8 to 3800 large-scale projects), CCS can only extend the carbon budget by 125 Gt CO<sup>2</sup> to 2050.<sup>146</sup> In this highly idealized case, 83% of fossil fuel reserves will still be unburnable and thus worthless. Moreover, for carbon capture and storage to actually be commercially monetized and deployed, there must be a pricing mechanism for carbon. Otherwise, the captured carbon dioxide is currently more economically used for enhanced oil recovery (EOR), further exacerbating the emissions problem. Fossil fuel companies are in fact actively lobbying against such policies from being enacted. Penn cannot rely on technology to absolve fossil fuel companies' long-term unprofitability.

<sup>&</sup>lt;sup>146</sup> Grantham Research Institute on Climate Change and the Environment, LSE, and Carbon Tracker Initiative.

<sup>&</sup>quot;Unburnable Carbon 2013: Wasted capital and stranded assets". 2013. Accessed September 21, 2015.

#### 4 Consistency with Existing Penn Commitments

The University of Pennsylvania is committed to taking action on climate change, and has implemented programs to address climate change and other environmental issues. From academic programs such as the Penn Program for Environmental Humanities, Kleinman Center for Energy Policy, and Wharton's Initiative for Global Environmental Leadership, to student-led programs such as Eco-Reps, these programs signal the importance that Penn seeks to place on environmental sustainability. In the fall of 2014, Amy Gutmann released the Climate Action Plan 2.0, which recognizes Penn's need for environmental sustainability. This plan states new standards for campus sustainability performance, such as carbon emissions. The plan also expands on the educational opportunities for students studying sustainability, and gives support for the faculty researching and teaching sustainability.<sup>147</sup>

Penn's Climate Action Plan 2.0 sets Penn as an institution that prioritizes sustainability as an issue that needs immediate action. Divesting from fossil fuels is the natural next step in taking action on environmental issues. Divestment has shown to be superior over other tactics. In comparison to Penn's existing climate action programs, divestment solves the moral evil and fiduciary duty problems that would persist even if all of Penn's programs are 100% successful. Investing in something an institution does not believe in or that goes against its morals equates to funding a moral evil.

There are many options for reinvestment as well. Renewable energy has a very strong growth potential, and the prices of renewable energy have been decreasing substantially.<sup>148,149</sup> While some may argue that shareholder activism is the better alternative to this issue, the problem with the fossil fuel industry is the product itself, and no amount of shareholder activism will persuade these companies to stop producing oil and gas. Additionally, the political influence the fossil fuel industry has at best conjured has caused climate change agendas to be set aside by politicians when creating new laws and policies, and at worst has led to the funding of climate denial "science", an activity that directly conflicts with Penn's commitments to both academic rigor and honesty as well as environmental research.

#### 4.1 Benefits of Reinvestment

Given that Penn has made a strong commitment to benefit the environment and climate, the university should make the best decisions to maximize its positive impact given its finite resources. Reinvesting some of the endowment holdings into clean energy would allow Penn to maximize this impact, and would allow Penn to position itself as a participant in the necessary societal transition from fossil fuels to clean energy.

<sup>&</sup>lt;sup>147</sup> Penn Green Campus Partnership. "University of Pennsylvania: Climate Action Plan 2.0". 2011. Accessed September 21, 2015.

<sup>&</sup>lt;sup>148</sup> Patel, Tara. "Fossil Fuels Losing Cost Advantage Over Solar, Wind, IEA Says." Bloomberg Business. August 31, 2015. Accessed October 30, 2015.

<sup>&</sup>lt;sup>149</sup> International Energy Agency. "Technology Roadmap: Solar Photovoltaic Energy - 2014 edition." September 2014. Accessed October 31, 2015.

In addition to campus sustainability and research, Penn has the power as a large institutional investor to make positive climate impacts. Financial investment in renewables is direly needed. According to the International Energy Agency, in order to limit climate change to 2°C, "investments in low-carbon energy technologies will need to at least double, reaching \$500 billion annually by 2020, and then double again to \$1 trillion by 2030."<sup>150</sup> Similarly, the think tank Ceres concludes that an additional \$36 trillion must be invested in clean energy by 2050, an average of an additional \$1 trillion every year beyond a "business as usual" scenario of current investments.<sup>151</sup>

However, governments are severely constrained in their ability to make such investments, especially in the presence of anti-climate lobbying by fossil fuel companies. Therefore private actors like Penn, who have already made an institutional commitment to help solve this issue, have a significant role to play. Specifically, investing in clean energy increases the deployment of these solutions while simultaneously decreasing their costs through learning-by-doing effects.<sup>152</sup> Thus, reinvestment into clean energy allows Penn to make a positive climate impact as well as address the problem of energy poverty. Each marginal dollar of reinvestment into clean energy would create massive benefits to society.

#### 4.2 Lack of Fossil Fuel Companies' Climate Benefits

On the other hand, investing in fossil fuel companies would make relatively small contributions to advancing renewable and alternative solutions. In fact, the largest fossil fuel players have been quitting renewables en masse. Chevron exited its solar and geothermal business in 2014, along with units that performed solar and efficiency installations.<sup>153</sup> Similarly, Shell exited the solar industry in 2006,<sup>154</sup> with BP following in 2011. ExxonMobil never significantly invested in renewables, preferring to actively fund climate change denial.<sup>155</sup> Reinvesting in clean energy companies, where all investments directly support clean energy, has an obviously higher impact on improving the climate compared to the lip service and abandonment by oil companies.

Statistics reinforce the fact that fossil fuel companies' climate-destroying activities far outweigh any of their climate benefits. As shown in the following table based on company

<sup>&</sup>lt;sup>150</sup> "Energy Technology Perspectives 2012: Pathways to a Clean Energy System." International Energy Agency. 2012. Accessed October 30, 2015.

<sup>&</sup>lt;sup>151</sup> Fulton, Mark, and Reid Capalino. "Investing in the Clean Trillion: Closing The Clean Energy Investment Gap." Ceres. 2014. Accessed September 21, 2015.

<sup>&</sup>lt;sup>152</sup> Learning-by-doing is a standard economic concept where productivity gains are achieved through incremental innovations from practice, such that cumulative production volume is a driving factor for costs. In context, this implies that deploying more renewables would make these solutions even more affordable.

<sup>&</sup>lt;sup>153</sup> Gallucci, Maria. "Chevron Finalizes Sale Of Its Clean Energy Subsidiary, Marking Latest Oil Industry Move Away From Renewables." *International Business Times*, September 3, 2014, Companies sec.

<sup>&</sup>lt;sup>154</sup> "SolarWorld Acquires Shell's Solar Business." *RenewableEnergyWorld*, February 2, 2006.

<sup>&</sup>lt;sup>155</sup> Goldenberg, Suzanne. "Exxon Knew of Climate Change in 1981, Email Says – but It Funded Deniers for 27 More Years." *The Guardian*, July 8, 2015. Accessed September 27, 2015.

financial reports, oil-gas companies are usually exactly that: oil-gas companies with only very small portions of their businesses related to non-fossil fuel activities (coal companies are not known to make significant alternative energy investments either). For example, for \$1.00 of Chevron's economic productivity, \$0.007 comes from activities unrelated to fossil fuel production. In fact, most of this amount currently comes from Chevron's conventional power generation assets.

Company	2014 non-fossil fuel % of total segment
Gazprom	8.13% <sup>157</sup>
Rosneft	0.51%
PetroChina	(already divested)
ExxonMobil	0.05%
Lukoil	1.09%
BP	5.07%
Petrobras	8.52%
Royal Dutch	0.02%
Chevron	0.70%
Novatek	0.00%

These facts represent a fundamental decision for Penn in terms of opportunity costs: if the Trustees are in fact committed to supporting an energy transition away from fossil fuels, should Penn spend \$1 directly on investments with high positive climate benefits, or should it continue to spend the dollar on companies whose insignificant climate benefits, often abandoned when inconvenient, are heavily outweighed by the aforementioned and undeniable harms?

<sup>&</sup>lt;sup>156</sup> For these values we calculate the percentage of revenues from any segments that are not related to oil or gas exploration, production, processing, and marketing. The total segment revenues include intersegment effects in order to capture the total economic magnitudes of each company's segment operations.

<sup>&</sup>lt;sup>157</sup> The vast majority of non-fossil segment revenues for Gazprom arises from their natural gas power generation business.

#### Appendix

#### A. Company-Specific Moral Evils

In addition to the above systematic moral evils wrought by fossil fuel companies, the following list provides a non-exhaustive sampling of social injuries committed by individual target companies, including illegal pollution, violation of indigenous rights, and deaths and injuries of workers due to company negligence. The nexus to the moral evil of each specific case is undeniably clear.

#### **Coal Corporations**

**Coal India** - According to Comptroller and Auditor General (CAG), Coal India was operating 239 coal mines without prior environmental clearances in 2011 and was thus in total violation of Ministry of Forest and Environment instructions.<sup>158</sup>

**China Shenhua** - According to a 2013 Greenpeace report, China Shenhua has drained more than 50 million tons of groundwater from the Haolebaoji region in Inner Mongolia.<sup>159</sup> The report additionally found high levels of toxic chemicals in discharged wastewater, including carcinogens.<sup>160</sup>

**Adani** - Adani was found in February 2014 to have failed to gain proper environmental approval for construction of India's largest private port, located in Gujarat, which destroyed mangroves and displaced local villages. Adani is seeking to build a \$16 billion coal export facility in Australia to export coal to India.<sup>161</sup>

**Shanxi Coking** - Seventy-four people died and 114 were injured in a 2009 explosion at a Shanxi Coking Coal Group mine in northern China.<sup>162</sup>

**Peabody Energy** - Peabody Energy is strongly connected to the effort to deny climate science. Fred Palmer, Peabody's main lobbyist as senior vice president of government relations, was a founding member of the Greening Earth Society, which actively promoted the idea that climate change would be a net positive for the planet.<sup>163</sup>

**Datong Coal** - In April of 2015, 21 Datong Coal Mine Group workers were killed when the shaft in which they were working at the Jiangjiawan mine near the city of Datong, China filled with water that had accumulated in a "mined-out area of the colliery." <sup>164</sup>

<sup>&</sup>lt;sup>158</sup> "Coal India operating 239 mines without environment clearance: CAG." *The Economic Times*. September 7, 2011. Accessed October 27, 2015.

<sup>&</sup>lt;sup>159</sup> "China's Shenhua drains groundwater for coal project." *Reuters*. July 23, 2013. Accessed October 24, 2015.

<sup>&</sup>lt;sup>160</sup> Greenpeace. "Thirsty Coal 2: Shenhua's Water Grab." 2013. Accessed September 23, 2015.

<sup>&</sup>lt;sup>161</sup> Koutsoukis, Jason and Daniel Flitton. "Concerns at Barrier Reef contractor's humanitarian, environment record." *The Sydney Morning Herald*. September 5, 2014. Accessed October 24, 2015.

<sup>&</sup>lt;sup>162</sup> Wong, Edward. "At Least 74 Miners Are Killed in China Blast." *New York Times*. February 22, 2009. Accessed September 25, 2015.

<sup>&</sup>lt;sup>163</sup> Goldenberg, Suzanne. "The truth behind Peabody's campaign to rebrand coal as a poverty cure." *Guardian*. May 19, 2015.

<sup>&</sup>lt;sup>164</sup> "21 confirmed dead in north China coal mine flood". *Al Jazeera*. April 23, 2015. Accessed October 23, 2015.

**Arch Coal** - After committing hundreds of Clean Water Act violations related to illegal discharges of pollutants at and near its mines in West Virginia, Kentucky, Pennsylvania, Maryland and Virginia, Arch Coal and its subsidiaries agreed to pay a settlement of \$2 million to federal and state governments and to conduct comprehensive upgrades of their operations.<sup>165</sup>

**Alpha Natural Resources** - Alpha Natural Resources Incorporated agreed to pay \$27.5 million in fines and spend close to \$200 million to implement wastewater treatment systems as part of a settlement with the U.S. government over toxic discharges from its mines in Kentucky, Pennsylvania, Tennessee, West Virginia and Virginia in 2014.<sup>166</sup>

**Evraz** - The U.S. Department of Labor cited Evraz for several worker safety violations in 2014, with proposed fines totalling \$49,900.<sup>167</sup>

**Raspadskaya** - In 2010, two explosions at a Raspadskaya coal mine in Kemerovo Oblast claimed the lives of 68 miners and rescue workers. Poor compliance with safety regulations led to the explosions, which were caused by accumulation of methane underground and a concealed underground fire. Russian officials blamed Raspadskaya for basing wages on output and offering productivity bonuses that encouraged suppression of methane detection systems. Prosecutors initiated a criminal case against the mine's director, contending that he violated safety regulations.<sup>168</sup>

**Teck** - Admitted in 2012 as a result of lawsuit that they had polluted hazardous effluent and other pollutants into the Columbia River in the U.S. from 1896 to 1995.<sup>169</sup> A judge in U.S. District Court in Yakima found them liable under U.S. environmental law for contaminating the Columbia River.<sup>170</sup>

**Whitehaven Coal** - In 2014, Whitehaven coal blocked access to sites considered sacred by Australian Aborigines, despite that reasonable access of the land for the Aborigines is required of the company.<sup>171</sup>

**Banpu** - Owner of Centennial Coal, responsible for major release of coal fines into the Wollangambe River and World Heritage listed areas of the Blue Mountains National Park.<sup>172</sup>

<sup>&</sup>lt;sup>165</sup> U.S. EPA. "Arch Coal, Inc. and International Coal Group Subsidiaries Settlement." August 6, 2015. Accessed October 23, 2015.

<sup>&</sup>lt;sup>166</sup> Pearson, Sophia. "Alpha Natural Resources Agrees to \$27.5 Million Fine." *Bloomberg Business*. Accessed October 23, 2015.

<sup>&</sup>lt;sup>167</sup> U.S. Department of Labor Occupational Safety & Health Administration. "US Department of Labor's OSHA cites Evraz Rocky Mountain Steel in Pueblo, Colo., for safety violations following inspection of seamless tube mill Proposed penalties total nearly \$50,000." March 9, 2011. Accessed October 23, 2015.

<sup>&</sup>lt;sup>168</sup> U.S. Department of State Bureau of Democracy, Human Rights, and Labor. "2010 Human Rights Report: Russia." April 8, 2011. Accessed October 23, 2015.

<sup>&</sup>lt;sup>169</sup> Teck. "Teck Resources Announces Agreement as to Certain Facts in Upper Columbia River Litigation." September 10, 2012. Accessed October 23, 2015.

<sup>&</sup>lt;sup>170</sup> State of Washington Department of Ecology. "Official Ecology statement on U.S. District Court finding that Teck Metals liable for contamination in Columbia River." December 14, 2012. Accessed October 23, 2015.

<sup>&</sup>lt;sup>171</sup> Lamacraft, Tim. "Whitehaven Coal warned to respect aboriginal traditions at Maules Creek Mine." *ABC*. September 3, 2014. Accessed October 23, 2015.

<sup>&</sup>lt;sup>172</sup> Belmer, Nakia, Carl Tippler, Peter Davies, and Ian A. Wright. "Impact of a coal mine waste discharge on water quality and aquatic ecosystems in the Blue Mountains World Heritage area." *7th Australian Stream Management Conference*. July 2014. Accessed October 23, 2015.

**Consol Energy -** Agreed to pay a \$5.5 million civil penalty for Clean Water Act violations that took place between 2007 and 2009 at six of its mines in West Virginia in 2011. One such violation was the discharge of mining wastewater containing chloride in excess of its National Pollutant Discharge Elimination System (NPDES) permit limits.<sup>173</sup>

**Mitsui & Co** - Accepted partial blame for the Deepwater Horizon Oil Spill in 2010. In 2012 they agreed to pay a \$90 million settlement for alleged violations of the Clean Water Act.<sup>174</sup>

**Allete** -In 2014, Minnesota Power, an Allete company, agreed to pay civil penalties of \$1.4 million due to violations of the Clean Air Act at three of its coal-fired power plants.<sup>175</sup>

**Marubeni** - In 2014 Marubeni was sentenced by the U.S. Department of Justice for violating foreign bribery laws in Indonesia and agreed to pay \$88 million as a result.<sup>176</sup>

**Walter Energy** - Walter Coke, owned by Walter Energy, was fined \$171,500 by the U.S. Department of Labor for 30 worker safety violations in 2010, including "failure to provide proper machine guarding."<sup>177</sup>

**Arcelor Mittal** - The Ministry of the Environment laid 13 charges against the company for violations at its coke-making plants in March 2013; in May 2014 the company pleaded guilty to six of the charges and was fined \$390,000.<sup>178</sup>

**Fortune Minerals** - They are seeking to build a coal mine on Mount Klappan in Canada, which is within traditional Tahltan First Nation territory, without the support of the Tahltan.<sup>179</sup>

**Zhengzhou Coal** - Fifteen miners died in a coal explosion in 2006 in Henan, China at a Zhengzhou Coal mine. 148 miners were killed after a gas explosion at Zhengzhou's Daping Coal Mine in Xinmi City in Henan Province in 2004.<sup>180</sup>

**Jingyuan** - An explosion at a Jingyuan mine Northwest China's Gansu Province in 2006 killed 29 workers. http://www.chinadaily.com.cn/china/2006-11/01/content\_721452.htm

**James River** - Their Bledsoe Coal Corporation's Abner Branch Rider Mine in Kentucky was cited for multiple violations by the Mining Safety and Health Administration, which targets mines with chronic health and safety violations.<sup>181</sup>

 <sup>&</sup>lt;sup>173</sup> U.S. EPA. "Consol Energy Clean Water Act Settlement." March 14, 2011. Accessed October 23, 2015.
 <sup>174</sup> Fowler, Tom. "Mitsui Unit Settles With U.S. on Deepwater Spill." *Wall Street Journal*. February 18, 2012.
 Accessed October 23, 2015.

<sup>&</sup>lt;sup>175</sup> U.S. EPA. "Minnesota Power Settlement." July 16, 2014. Accessed October 20, 2015.

<sup>&</sup>lt;sup>176</sup> Department of Justice Office of Public Affairs. "Marubeni Corporation Sentenced for Foreign Bribery Violations." May 15, 2014. Accessed October 20, 2015.

<sup>&</sup>lt;sup>177</sup> Piper, Ben. "Walter Coke penalized for safety violations." *Birmingham Business Journal*. August 24, 2010. Accessed October 20, 2015.

<sup>&</sup>lt;sup>178</sup> "ArcelorMittal Dofasco fined after guilty pleas to 6 pollution charges." *CBC News*. May 26, 2014. Accessed October 20, 2015.

<sup>&</sup>lt;sup>179</sup> "First Nation bans Fortune Minerals from mining Mount Klappan." *Vancouver Sun*. April 24, 2014. Accessed October 20, 2015.

<sup>&</sup>lt;sup>180</sup> "15 miners die in coal mine explosion in Henan." *China Labour Bulletin*. February 13, 2006. Accessed October 20, 2015.

<sup>&</sup>lt;sup>181</sup> Chuanjiao, Xie. "Gansu mine blast kills 29, 19 injured." *China Daily*. November 11, 2006. Accessed October 20, 2015.

**Alcoa** - The Alcoa Anglesea in Australia, before being shut down, "cost the public more than \$231m a year in health and environmental" costs according to Environment Victoria, who cited recent research conducted by Harvard University.<sup>182</sup>

#### **Oil and Gas Corporations**

**Gazprom** - Gazprom's Kolskaya floating oil rig capsized and sank in the Sea of Okhotsk in the Arctic off the coast of Russia. The accident caused the deaths of 53 crew members and the project represented the first time a Russian oil company tried to operate in the Arctic, where storms are frequent and ice ridges often yards deep.<sup>183</sup>

**Rosneft** - Roseneft's east Siberian Achinsk oil refinery in Russian Siberia experienced a fire and explosion in 2014 that caused the deaths of seven people.<sup>184</sup>

**Petrochina** - Petrochina's Dalian oil refinery in China was the site of fires in July and August 2011. Their oil storage depot nearby in Dalian's Xingang port was additionally the site of an explosion in July 2010 which caused China's worst oil spill up to that time, with 1,500 metric tons of oil spilling into the Yellow Sea.<sup>185</sup>

**Exxon Mobil** - Exxon Mobil first learned of climate change and fossil fuels' role in 1977 due to research conducted by their scientists, yet spent \$30 million starting in the mid-1980s to discredit anthropogenic climate change.<sup>186</sup>

**BP** - In 2015 the U.S. Justice Department announced that BP will pay \$20.8 billion for its role in the Deepwater Horizon oil spill in 2010, making it the largest environmental settlement in U.S. history. This settlement includes civil claims under the Clean Water Act, natural resource damages under the Oil Pollution Act, economic damages to state and local governments, and restoration costs.<sup>187</sup>

**Royal Dutch Shell** - As of 2011, Royal Dutch Shell has admitted liability in oil spills that have taken place in the Ogoni region of the Niger Delta in Nigeria, and faces damages estimated by experts that run into the hundreds of millions of dollars. They have additionally been accused by industry watchdog group Platform in a 2011 report of human rights abuses in Nigeria, including having "paid government forces who have attacked, tortured and killed Nigerians living in the creeks and swamplands of the Niger Delta."<sup>188</sup>

**Chevron** - Chevron's facilities and operations experienced a series of accidents in 2011 and 2012, including an explosion at an oil refinery in Wales in June 2011 which killed four workers,

<sup>&</sup>lt;sup>182</sup> Hjalmarson, Dori. "MSHA issues pattern-of-violations notice for Leslie mine." *Kentucky Lexington Herald-Leader*. April 13, 2011. Accessed October 20, 2015.

<sup>&</sup>lt;sup>183</sup>. "Drill in Arctic Seas? Rig That Sunk, Killing 53, Casts Doubt." Msnbc.com. December 23, 2011. Accessed October 30, 2015.

<sup>&</sup>lt;sup>184</sup>Vasilyeva, Nataliya. "Rosneft Halts Achinsk Oil Refinery After Explosion Kills Seven | News." The Moscow Times. June 17, 2014. Accessed October 30, 2015.

<sup>&</sup>lt;sup>185</sup> Foster, Peter. "Fire at Dalian Oil Refinery Raises Tensions in China." The Telegraph. August 29, 2011. Accessed October 30, 2015.

<sup>&</sup>lt;sup>186</sup> Shekhtman, Lonnie. "Exxon Knew about Climate Change Decades Ago, Spent \$30M to Discredit It." The Christian Science Monitor. September 17, 2015. Accessed October 30, 2015.

<sup>&</sup>lt;sup>187</sup> Davenport, Coral, and John Schwartz. "BP Settlement in Gulf Oil Spill Is Raised to \$20.8 Billion." The New York Times. October 5, 2015. Accessed October 30, 2015.

<sup>&</sup>lt;sup>188</sup> "Shell Fuelled Human Rights Abuses in Nigeria." Reuters. October 3, 2011. Accessed October 30, 2015.

an oil spill in November 2011 off the coast of Brazil which prompted criminal investigations and fines, and a fire in August 2012 at their refinery in Richmond, California that sent 9,000 surrounding residents to the hospital.<sup>189</sup>

**Total** - In 1999, a Total chartered oil tanker sank off the coast of Brittany in France, releasing 30,000 barrels of heavy fuel oil into the Atlantic Ocean. In 2008, Total was convicted of negligence for overlooking maintenance problems with the tanker and was ordered to pay 375,000 Euros in fines and nearly 200 million euros in damages to the French state and the local fishing industry.<sup>190</sup>

**ConocoPhillips** - ConocoPhillips been forced to pay millions of dollars for its involvement with the Bohai Bay spill which polluted over 6,200 square kilometers of water in the Ocean in northern China in 2011. ConocoPhillips and CNOOC, the two companies responsible, have settled with the Ministry of Agriculture and Chinese State Oceanic Administration to pay 2.683 billion Yuan for damages.<sup>191</sup>

ENI - ENI reported causing 349 oil spills in Nigeria in 2014 and over 500 in 2013.<sup>192</sup>

**Statoil** - Norway-based Statoil was fined \$190,000 for violating water regulations in 2011 at its oil sands site in northern Alberta after it contravened its water license and provided false information in relation to water withdrawals taken from its facility near Conklin in northern Alberta in 2008 and 2009.<sup>193</sup>

**SinoPec** - A 2013 explosion at a SinoPecs oil pipeline in Qingdao caused by an oil leak in 2013 which killed 35 people and injured 166.<sup>194</sup>

**CNOOC** - China's largest producer of offshore crude oil and natural gas, CNOOC was implicated in U.S. Treasury Department sanctions on the Burmese government in 2008, allegedly cooperating with a company run by a family involved in heroin trafficking activities in Myanmar.<sup>195</sup>

**BG Group** - The Karachaganak Oil and Gas Fields project, operated by a consortium which includes a BG Group called KPO, was fined \$21 million for environmental violations in Kazakhstan, including for an excessive amount of waste dumping.<sup>196</sup>

<sup>&</sup>lt;sup>189</sup> Baker, David. "Chevron's Safety Record Hit by Accidents." SFGate. August 16, 2012. Accessed October 30, 2015.

<sup>&</sup>lt;sup>190</sup> "France Upholds Total Verdict over Erika Oil Spill - BBC News." BBC News. September 25, 2012. Accessed October 30, 2015.

<sup>&</sup>lt;sup>191</sup> "Green Group Sues ConocoPhillips, CNOOC over China Oil Spill." Reuters. July 26, 2015. Accessed October 30, 2015.

<sup>&</sup>lt;sup>192</sup> "Nigeria: Hundreds of Oil Spills Continue to Blight Niger Delta." Amnesty International. March 19, 2015. Accessed October 30, 2015.

<sup>&</sup>lt;sup>193</sup> "Statoil to Pay Alberta Fine for Improper Water Use." Financial Post. November 1, 2011. Accessed October 30, 2015.

<sup>&</sup>lt;sup>194</sup> Aizu, Chen. "Sinopec Oil Pipeline Blast Kills 35 in Eastern China." Reuters. November 22, 2013. Accessed October 30, 2015.

<sup>&</sup>lt;sup>195</sup> Wai-yin Kwok, Vivian. "Treasury Sanctions On Myanmar Traffickers Implicate CNOOC." Forbes. February 27, 2008. Accessed October 30, 2015.

<sup>&</sup>lt;sup>196</sup> Reiner, Karen. "Most Environmentally and Socially Conscious Companies of 2010." Reprisk. December 15, 2010. Accessed October 30, 2015.

**Canadian Natural Resources -** Canadian Natural Resources was sentenced to C\$125,000 in penalties in March 2015 as a result of an oil spill that took place in May of 2010 in northern Alberta.<sup>197</sup>

**Andarko Petroleum** - The federal government reached a settlement with Andarko Petroleum in 2014 for \$5.15 billion for claims relating to the cleanup of thousands of sites that had been tainted with hazardous chemicals over the last several decades in communities throughout the United States.<sup>198</sup>

**Ecopetrol** - Thirty-three people were killed and numerous homes were destroyed when an Ecopetrol pipeline ruptured in Dosquebradas in Colombia, which the Colombian comptroller ruled was caused by negligence.<sup>199</sup>

**Suncor Energy** - Six months after a spill from a Suncor oil refinery in Colorado that contaminated the South Platte River and subsequent cleanup efforts, benzene levels are still six times higher than the national safety standard in the South Platte River.<sup>200</sup>

**Marathon Petroleum Corporation** - Marathon violated Clean Air Act standards for 40 tons of excess emission of pollutants, including toxins "known or suspected to cause cancer or other serious health or environmental effects" and was ordered to pay a civil penalty of \$2.9 million in 2015 as a result.<sup>201</sup>

**Continental Resources** - Continental Resources' oil extraction operations in North Dakota have been the site of 11 oil well blowouts between 2006 and November 2014.<sup>202</sup>

**OMV** - OMV was fined for \$28,600 for 500 liters of oil spilled in the Cotmeana River in Romania in 2012.<sup>203</sup>

**Antero Resources** - The West Virginia Department of Environmental Protection issued a notice of violation to Antero Resources for a well drilling accident in 2014 that could have released methane gas into 12 personal water wells in West Virginia, with the Office of Oil and Gas additionally citing Antero Resources with a cease and desist order.<sup>204</sup>

<sup>&</sup>lt;sup>197</sup> Blais, Tony. "Calgary Oil Company Fined for Releasing Oil into Northern Alberta Creek." Edmonton Sun. March 13, 2015. Accessed October 30, 2015.

<sup>&</sup>lt;sup>198</sup> Tucker, Eric, and Dinah Cappiello. "US Reaches \$5.15 Billion Environmental Settlement." Yahoo! News. April 3, 2014. Accessed October 30, 2015.

<sup>&</sup>lt;sup>199</sup> Hall, Marc. "Negligence Caused Fatal Ecopetrol Explosion: Comptroller." Colombia Reports. March 6, 2012. Accessed October 30, 2015.

<sup>&</sup>lt;sup>200</sup>Finley, Bruce. "Suncor Spill Still Taints South Platte, Proves Benzene a Tough Mop-up." The Denver Post. May 15, 2013. Accessed October 30, 2015.

<sup>&</sup>lt;sup>201</sup> "Marathon Petroleum Corporation Clean Air Settlement." EPA United States Environmental Protection Agency. May 19, 2015. Accessed October 30, 2015.

<sup>&</sup>lt;sup>202</sup> Sontag, Deborah, and Robert Gebeloff. "The Downside of the Boom." The New York Times. November 22, 2014. Accessed October 30, 2015.

<sup>&</sup>lt;sup>203</sup> Timu, Andra. "OMV Petrom in Romania Fined for Oil Spill in Cotmeana River." BloombergBusiness. May 22, 2012. Accessed October 30, 2015.

<sup>&</sup>lt;sup>204</sup> "WV DEP Issues Notice of Violation to Antero over Doddridge County Drilling Incident." The State Journal. October 5, 2015. Accessed October 30, 2015.

**Linn Energy -** In 2009 the EPA cited Linn Energy with a cease and desist order for violations of the federal Clean Water Act for unauthorized discharge of oil field brine into waterways in Osage County, Oklahoma from a Linn oil production facility.<sup>205</sup>

**PTT** - During a faulty transfer between a seabed pipeline and a tanker of PTT a 50,000 liter oil spill occurred in Thailand on the island of Koh Samet in 2013.<sup>206</sup>

**Pioneer Natural Resources** - Pioneer Natural Resources paid a fine of \$10,000 to the Alaska Oil and Gas Conservation Commission for injecting an unapproved chemical, glycol, into its oil reservoir on Alaska's North Slope in 2010. The violations were reported by a whistleblower in the company who left Pioneer after making the allegations.<sup>207</sup>

**SK Innovation** - A 164,000-litre oil spill occurred in February 2013 as a result of a leak in one of their pipelines, with the oil leaking off of South Korea's southern coast.<sup>208</sup>

**Ultra Petroleum** - According to a 2012 shareholder rebuttal filed by As You Sow, Ultra Petroleum has more than 200 alleged violations in the five years leading up to 2012 in Wyoming and Pennsylvania, and has failed to provide little if any information on fines and enforcement actions for its operations. Information showed that they had spent tens of millions of dollars in mitigation efforts in Wyoming in response to their emission of air pollutants.<sup>209</sup>

**Maersk Group** - According to a 2004 report by the Institute for Global Labour and Human Rights, Maersk maintained abusive working conditions in El Salvador, including 16-hour shifts, and repression of freedom of expression and unionization campaigning, including forcing workers to take lie detector tests regarding union activity.<sup>210</sup>

**Energen** - Energen does not participate in the Carbon Disclosure Project (CPD) as many oil and gas corporations do and generally has poor public disclosure of carbon asset risk.<sup>211</sup>

**Energy XXI** - Energy XXI is responsible for 105 health and environmental violations that took place between 2007 and 2012, according to the House Committee on Natural Resources Democrats' report, which was released in 2013.<sup>212</sup>

<sup>&</sup>lt;sup>205</sup> "EPA Orders Linn Energy, LLC to Cease Discharge of Pollutants." EPA United States Environmental Protection Agency. June 29, 2009. Accessed October 30, 2015.

<sup>&</sup>lt;sup>206</sup> Stevens, Andrew. "Thailand Oil Spill: Tourists Abandon Blackened Koh Samet Beach." CNN. August 1, 2013. Accessed October 30, 2015.

<sup>&</sup>lt;sup>207</sup> "Pioneer Natural Resources Fined for Violation." Oil & Gas Financial Journal. September 24, 2010. Accessed October 30, 2015.

<sup>&</sup>lt;sup>208</sup> "UPDATE 1-S.Korea Completing Sea Cleanup 164,000 Litres Oil Leak-Coast Guard." Reuters. February 3, 2014. Accessed October 30, 2015.

<sup>&</sup>lt;sup>209</sup> "SHAREHOLDER REBUTTAL TO THE ULTRA PETROLEUM OPPOSITION STATEMENT REGARDING HYDRAULIC FRACTURING RISKS." EDGARPro. May 10, 2012. Accessed October 30, 2015.

<sup>&</sup>lt;sup>210</sup> "Maersk Drivers Face Repression and Abuse in El Salvador." INSTITUTE FOR GLOBAL LABOUR AND HUMAN RIGHTS. November 1, 2004. Accessed October 30, 2015.

<sup>&</sup>lt;sup>211</sup> "Energen Carbon Asset Risk 2015." Ceres. 2015. Accessed October 30, 2015.

<sup>&</sup>lt;sup>212</sup> "Dangerous Drillers Offshore Safety Lapses Continue Three Years After BP Spill." Dangerous Drillers Offshore Safety Lapses Continue Three Years After BP Spill. May 10, 2013. Accessed October 30, 2015.

#### **B. Undergraduate Student Referendum Results**

The Nominations and Elections Committee held an undergraduate referendum on fossil fuel divestment and clean reinvestment from February 23rd to February 27th, 2015. It was the first student referendum in six years, and Fossil Free Penn gathered over 500 signatures to initiate the ballot initiative. To ensure a high turnout, Fossil Free Penn mobilized eighty volunteers during the referendum voting period. The results of the referendum demonstrate resounding support for our proposal among the student body, with 87.8% of participants voting in favor.

The results additionally make the referendum's proposition the official position of the Undergraduate Assembly.

Referendum Language:

"We, the undergraduates at the University of Pennsylvania, call upon the Undergraduate Assembly to recommend formally that the Trustees of the University of Pennsylvania:

1. Stop new investments in the fossil fuel industry;

2. Remove direct and commingled holdings in the top 200 fossil fuel companies within 5 years;

3. Reinvest a portion of the extricated funds into clean energy assets."<sup>213</sup>

Votes For	
2866	
Votes Agains	
397	
Voter Turnou	
33%	

<sup>&</sup>lt;sup>213</sup> "Referendum Results." Nominations & Elections Committee. February 27, 2015. Accessed October 31, 2015.

#### C. Alumni Statements in Support of Fossil Fuel Divestment

"Yes! Yes! Yes! I graduated in 2012, and saw the creation of PennGreen, Eco-reps, Green Campus Partnerships, the Sustainability and Environmental Management minor, the Penn Garden, and Bon Appetite brought onto campus during my tenure. It was an exciting time, but the one thing that made it all feel like a farce was that Penn wasn't putting its money where its mouth was. Even from the outside it was apparent: the 2011 Green Report Card from the Sustainable Endowments Institute gave Penn A's in every category, except for 'Endowment Transparency', for which it earned an emphatic D. (citation:

http://www.greenreportcard.org/report-card-2011/schools/university-of-pennsylvania.html). It is a truly a heroic effort from the students, and a statement about Penn's authentic commitment to sustainability if this movement succeeds. As an alum, this means a lot. I might even give to the Penn Fund this year."

-Zachary Bell, College 2012

"Available scientific evidence indicates strongly that most fossil fuels must be left in the ground if there is to be any hope of meeting the 2°C goal regarded as the limit beyond which irreversible climate change can become catastrophic. At the same time, the major energy corporations are quite openly declaring their intentions of exploiting all the reserves available, and unearthing new ones. These decisions are driving the world to disaster. There is everyone reason to take whatever actions we can to divert them from this disastrous course. University disinvestment would be a welcome and significant step in this direction."

-Noam Chomsky, College, College 1949 (B.A.), School of Arts and Sciences 1951 (M.A.), School of Arts and Sciences 1955 (Ph.D.)

"If Penn wants to be able to say it cares about innovation and civic engagement, then it has to divest."

-Laura Cofksy, College 2013

"Penn has always been a thought leader. We only have one planet, one environment. I want my alma mater to be leading the way in ethical action and sustainable investment!"

-Daniel Cohen, Wharton 2010

"What is the purpose of our education if not to create a better world for all? Continuing our reliance on fossil fuels fails to do that."

-Jack Cohen, Wharton 2009

"There are more responsible, sound investments that a university as great as Penn can make. By divesting in fossil fuels and supporting clean energy assets, the University will continue to be a leader in sustainability among campuses nationwide and globally."

-Shannon Macika, College 2014

"I support fossil fuel divestment because it is a contradictory mission for a university to both prepare young men and women for their futures and, at the same time, profit from the industries that are unequivocally killing our planet. Given that the fossil fuel industry plans to exploit the oil that scientists argue must stay in the ground to limit global warming to levels that already threaten to spur catastrophic economic, environmental and social tragedy, it is unconscionable to maintain such investments. While divestment alone will not shut down the fossil fuel industries, the symbolic gesture of divestment will serve to stigmatize this industry and make others reconsider their investments. Some might argue that divestment is not an effective strategy, but one need only look at the example of apartheid to see that divestment can actually have huge political implications. And, luckily, fossil free portfolios are performing well and Penn might actually stand to gain financially from such a move. As a university professor and parent, I care deeply about the issue of climate change and believe strongly that divestment is one of many efforts that need to be taken to help solve this problem of global proportions. I HIGHLY support the work of Fossil Free Penn. Go Quakers!!"

-Anne O'Neil-Henry, College 2002

"I am a student of divinity and religion. If there is anything the wisdom traditions of the world have taught us and have been trying to teach us, it is that our humanity is interconnected. Not only with that of our fellow human beings, but also with the planet on which we rely for life. 'Walk softly on the earth, for when you are walking, you walk on your mother's face,' a professor of mine has said. By not divesting from fossil fuels, we choose instead to stomp on our mother's face. Not only that, but we stomp on the faces of those other human beings and creatures who inhabit this planet with us. We fail to extend ourselves on behalf of others, blind to the ways in which we are complicit in the suffering of those whom our investment in fossil fuels most directly affects. It is a fact that people of color, indigenous communities around the world, and residents of the 'third world' are some of the primary victims of our dependence on fossil fuels. These individuals, affected by generations of systemic oppression and structural violence, are most likely to live in unhealthy environments and have their lands taken away to make way for waste plants and other elements of the fossil fuel industry. Fossil fuel companies and multinational corporations target these communities to locate their facilities, understanding that these groups have historically had little power to resist such exploitation. All the while, climate change is leading to deforestation, mudslides, and drought that are destroying the ways of life of communities who rely on their immediate environments to maintain their livelihoods and their cultural traditions. As part of the 'First World,' we must now bear witness to the ecological and humanitarian crises we ourselves are creating. We must take responsibility. From Rabbi Hillel:

'If I am not for myself, who will be for me? If I am not for others, what am I? And if not now, when?'"

-Shrestha Singh, College 2012

#### D. February 2013 Speech to University Council Regarding Fossil Fuel Divestment

Divestment at Penn (DAP) University Council Speech Wednesday, February 20, 2013

Good afternoon, my name is Sara Allan and I am representing Divestment at Penn. In addition, my viewpoint comes as a college sophomore majoring in environmental studies; the co-chair of the Student Sustainability Association at Penn, the umbrella organization of environmentally-related student groups; and a member of the Penn Haven Housing Co-Op.

Divestment at Penn (DAP) is Penn's local chapter of a national movement calling on universities to divest their financial holdings in fossil fuel companies. Penn is one of over 250 colleges and universities, including all of the ivy's, currently campaigning for fossil fuel divestment.

Climate change is accelerating. We are witnessing the increasing impacts of a warming planet more and more consistently; in this last year alone our country experienced record-breaking heat, droughts, and hurricanes, which impacted hundreds of thousands of people and cost our country hundreds of billions of dollars. Hurricane Sandy alone caused \$50 billion in damages. Experts agree that global warming caused by humans burning fossil fuels will continue to accelerate and intensify these tragic climate disasters. The scientific consensus is clear and overwhelming; we cannot safely burn even a quarter of global fossil-fuel reserves without dangerously warming the planet for several thousand years.

As public pressure to confront climate change builds, we call on The University of Pennsylvania to immediately freeze any new investment in fossil-fuel companies, and to divest within five years from direct ownership and from any commingled funds that include fossil-fuel public equities and corporate bonds. We believe such action on behalf of The University of Pennsylvania will not only be a sound decision for our institution's financial portfolio, but also for the wellbeing of its current and future graduating classes, who deserve the opportunity to graduate with a future not defined by climate chaos. As an educational institution, Penn should be focusing on long-term investment horizons.

Scientists estimate that humans can only pour 565 more gigatons of carbon dioxide into the atmosphere while staying below two degrees of global warming. However, fossil fuel corporations have 5 times more oil, coal, and gas than that in known reserves, equivalent to 2,795 gigatons of CO2. In other words, we have to keep 80% of fossil fuel reserves underground to keep the earth in livable shape.

At the present time, Divestment at Penn is meeting as a student group on campus, collecting signatures for a petition supporting divestment, and planning actions to raise awareness for the issue. We ask Penn to form a task force committee to determine a course of action for divestment. According to the Office of Investments, "The Associated Investments Fund is

invested in accordance with the policies set out by an Investment Board appointed by the trustees of the university." We ask the university to include environmental concerns in these policies.

In signing the ACUPCC, President Gutmann committed to "exercise leadership in [the] community and throughout society by modeling ways to minimize global warming emissions..." As the first Ivy president to sign the commitment, President Gutmann set a precedent for Penn to be a leader in combating climate change. With one of the largest endowments in the nation, Penn is poised to take national leadership on this issue and divest financial holdings in fossil fuel industries.

Thank you.

#### E. Endorsements from Campus Organizations

Organizations Endorsing Fossil Free Penn's Proposal:

- Asian Pacific Student Coalition (APSC)
- CityStep Penn
- The Daily Pennsylvanian Editorial Board
- Democracy Matters at Upenn
- Earth and Environmental Science Graduate Advisory Board
- Engineers Without Borders, Upenn Chapter
- J Street U Penn
- Mex@Penn
- Penn Environmental Group (PEG)
- Penn for Immigrant Rights (PIR)
- Penn Korean Student Association (KSA)
- Penn Microfinance
- Penn Outdoors Club
- Penn Students for Justice in Palestine
- Penn Student Labor Action Project (SLAP)
- Penn Students for Sensible Drug Policy (SSDP)
- Shira Chadasha @ Penn
- University of Pennsylvania Democrats
- Upenn Consciousness Club

Presentation to Ad Hoc Advisory Committee

April 20, 2016 Fossil Free Penn "The major energy corporations are quite **openly declaring** their intentions of **exploiting** all the reserves available, and unearthing new ones. These decisions are driving the world to **disaster.** There is **every reason** to take whatever actions we can to divert them from this disastrous course.

University disinvestment would be a welcome and significant step in this direction."

Noam Chomsky

# Roadmap

- New context for divestment since original document
  - COP21
  - Peer institutions
  - Penn lost substantial endowment value by not divesting
- Criteria for Ad Hoc Committee's decision analysis
- Evaluating alternatives using criteria

# Global commitment to climate action strengthened.

December 2015: World leaders finalize agreement to limit temperature rise to maximum of 2°C

COP21

Consisted of 185 countries, including U.S. and China, the two largest emitters

November 12th, 2014: President Obama and General Secretary Xi Jinping signed agreement to lower greenhouse gas emissions



# Global assets committed to divest: \$2.6 trillion

FIGURE 1:

AS OF SEPTEMBER 2015, 436 INSTITUTIONS AND 2,040 INDIVIDUALS FROM 43 COUNTRIES REPRESENTING \$2.6 TRILLION IN ASSETS HAVE COMMITTED TO DIVEST FROM FOSSIL FUELS<sup>5</sup>



#### Sources:

Alex Nussbaum. "Fossil-Fuel Divestment Tops \$3.4 Trillion Mark, Activists Say". Bloomberg December 2, 2015.

Arabella Advisors. "Measuring the Growth of the Global Fossil Fuel Divestment and Clean Energy Investment Movement". September

# Educational Institutions Committed to Divest: 61

Goddard College, VT 1 2 Sheffield Hallam University 3 Australian Academy of Science 4 **Brevard College, NC** 5 California Institute of the Arts, CA 6 **Chalmers University of Technology** 7 Chico State University, CA 8 College of the Atlantic, ME 9 College of the Marshall Islands 10 ESF College Foundation, Inc., NY 11 Foothill-De Anza Community 12 Green Mountain College, VT 13 Hampshire College, MA 14 Naropa University, CO 15 **Oxford Brookes University** 16 Peralta Community College District, CA 17 Pitzer College, CA 18 Rhode Island School of Design, RI 19 SOAS, University of London 20 Sterling College, VT 21 Stockholm University

22	Students' Society of McGill University, QC
23	Syracuse University, NY
24	The New School, NY
25	Unity College, ME
26	University of Bedfordshire
27	University of Dayton, OH
28	University of Glasgow
29	University of Hawaii, HI
80	University of Otago Foundation Trust
31	University of Sheffield
32	University of Surrey
33	University of the Arts London
34	University of Warwick
35	Victoria University of Wellington
86	Warren Wilson College, NC
37	Australian National University
88	Georgetown University
39	Humboldt State University, CA
10	Lund University
11	Prescott College, AZ
12	University of Sydney

43	Birmingham City University
44	Cranfiled University
45	Heriot-Watt University
46	London School of Economics
47	Oxford University
48	San Francisco State University Foundation, CA
49	University of California, CA
50	University of Edinburgh
51	University of Hertfordshire
52	University of Portsmouth
53	University of Westminster
54	Wolfson College
55	George School
56	London School of Hygiene & Tropical Medicine
57	Monash University
58	Stanford University, CA
59	University of Maine System, ME
60	University of Massachusetts Foundation
61	University of Washington, WA

Legend:

 Fossil Free
 Full
 Partial
 Coal & Tar Sands
 Coal

Commitments reported on: http://gofossilfree.org/commitments/

Why did they divest?



Jagdeep Singh Bachher Chief Investment Officer, University of California System



Craig Calhoun Director, London School of Economics



John J. DeGioia President, Georgetown University



John L. Hennessy President, Stanford University

# Yale

April 2016

\$10 million of the endowment removed from two fossil fuel producers

"A few managers held positions we felt were **inconsistent with our principles**." Yale Chief Investment Officer David Swensen



"The Investments Office believes the **risk of climate change**, like any risks, should be **incorporated** in the **evaluation of** investment opportunities. Initiating and continuing a dialogue with our managers about those risks results in **more** thoughtful consideration of investment opportunities, higher quality and lower risk portfolios for Yale, and better environmental outcomes."

Yale Chief Investment Officer David Swensen



"Thank you very much for that divestment... I know that your university has already begun divestment. I am very much grateful for your leading by example... A low carbon economy is inevitable"

> United Nations Secretary General Ban Ki-Moon Speech at Yale, April 12th 2016

## Penn lost substantial value by not divesting

- Over three years, Penn lost 80 million US dollars by not divesting.
  - Conservative lower bound because it ignores investments outside of United States equities.



Returns: Clean Energy vs. Fossil Fuel Stocks

Image taken from: http://www.fossilfreepenn.org/po wer-down-the-endowment.html

### Divestment does not hurt endowment returns

### Divestment outperforms benchmark across different commodity prices

Data source: Bloomberg Terminal, EIA



Cumulative Returns: 2013-2016 April

### Divestment does not hurt endowment returns

### Divestment outperforms benchmark across different commodity prices



# Underlying Concerns Must be Addressed

Alternative actions must be evaluated on which best addresses: "underlying concerns that motivate the call for divestment"

Source: Penn Trustee David Cohen, "Statement Regarding Trustees of the University of Pennsylvania Position On Tobacco Divestment." *Almanac* July 15, 2014, Volume 61, No. 01.

Specific concerns that "motivate" FFP's "call for divestment":

- 1. Local impacts on human rights + environment (2.1, 2.4)
- 2. Climate denial + anti-climate lobbying (2.3)
  - a. Direct funding
  - b. Social license
- 3. Stranded asset risk to endowment (3)
- 4. Investments-linked emissions (4)
  - a. Moral responsibility
  - b. Hypocrisy with campus sustainability
- 5. Promoting clean energy adoption (4.1)
- 6. Combating energy poverty (2.5)
- 7. Investing in the future we want to live in





Each concern:

- Is specific
- Is non-fungible
- Is a criterion for decision analysis
- Must be addressed



# Local impacts on human rights + environment

# Human Rights Abuses



Photo taken after swimming in Lake Michigan following the Gulf of Mexico oil spill.



Photo of a Nigerian farmer after the 2011 oil spills from Royal Dutch Shell. Image taken from: http://www.theguardian.com/environm ent/2013/jan/30/shell-acquitted-nigeriapollution-charges

# Local environmental impacts: Coal

Examples of impacts (more in Appendix A)



Adani Coal: destroyed mangroves, displaced population



Shanxi Coking: water contamination and depletion

## Local environmental impacts: Tar Sands



Irreversible damage to First Nations culture, Canadian Boreal forest

These impacts are *independent* of the climate damage



# Climate denial + anti-climate lobbying
# Lobbying

 Exxon Mobil spent \$16 Million US dollars between 1998 and 2005 to fund groups that encourage climate change denial and disseminate disinformation about climate change.



Image taken from: https://www.opensecrets.org/lobby/indusclient.php ?id=E01



### Stranded asset risk to endowment

### Fossil fuels are risky investments.



### Penn should not divest... by value destruction.

On tobacco divestment, Trustees issued following statement:

"our current direct holdings in tobacco are negligible and are **likely to diminish** even further due to the **fundamental headwinds** facing the tobacco industry."

Source: Almanac July 15, 2014

Translation: "our stocks are becoming worthless anyway, so we should ignore them"

 $\rightarrow$  This may constitute a **violation of fiduciary duty**: knowingly and willfully allowing the endowment to suffer value destruction.

#### $\rightarrow$ Penn should divest by choice.



Sources: Meinshausen et al, WRI, Carbon Tracker/LSE

### Is there carbon bubble risk to the endowment?

#### Dillon Weber, Penn Sustainability Review, 2015:

"the <u>efficient market hypothesis</u> tells us that these risks are already incorporated into the company's stock price and returns"

#### Dillon Weber, The Statesman, 2013:

"investment decisions - something the University has a cadre of staff for and devotes no small amount of resources to"

Suggests we must listen to "trained professionals with degrees and past experience" How do trained professionals view:

- Carbon bubble risk?
  - $\rightarrow$  In original document
- Efficient market hypothesis?

### Is there carbon bubble risk to the endowment?

The Efficient Market Hypothesis is highly flawed

- Sanford J. Grossman and Joseph Stiglitz (1980). "On the Impossibility of Informationally Efficient Markets". American Economic Review 70 (3): 393–408.
- Investors consistently beat the market, e.g. value investors, **Penn's own endowment**



Warren Buffett Wharton 1947-1949

Sanford Grossman, PhD Wharton 1989-1999

Peter H. Ammon, MBA, CFA Penn Chief Investment Officer

### Forecasts are systematically biased to status quo.



Source: IEA; Ecofys, Bloomberg New Energy Finance

Implication: Cannot completely rely on forecasts that fossil fuel demand will remain strong.

### Are fossil fuels good investments?

Assumption: Fossil fuel stock pay good dividends / buybacks.

**Reality**: 1. Penn investments have a very long time horizon.

2. Penn does not 100% rely on endowment for operating budget, usage is limited by spending rule.

Penn Chief Investment Officer Peter Ammon: university endowment should "take a time horizon longer than the vast majority of investors can"

Sources: <u>http://www.evp.upenn.edu/investments/annual-report.html</u> <u>http://www.thedp.com/article/2014/10/penns-investment-performance-in-middle-of-the-pack</u>

Implication: Penn doesn't need to rely on short-term fossil fuels stock income.

### Are fossil fuels good investments?

Assumption: Fossil fuel stock are uncorrelated with market so help diversify.

**Reality**: Fossil fuel stocks are highly correlated relatively (worse than renewables)

Industry	Unlevered beta	Rank (out of 96)
"Oil/Gas (Production and Exploration)"	0.95	38
"Green & Renewable Energy"	0.84	58

Source: Aswath Damodaran. "Total Betas by Sector." NYU Stern. January 2016.

Implications:Fossil fuels stocks aren't inherently good for diversification.Clean energy stocks may better help diversification.



### **Investment-linked emissions**

# Emissions reductions are part of institutional mission.

Not a transient, fringe group issue:

"I signed the American College and University President's Climate Commitment in 2007 and pledged that Penn would develop plans to **reduce our emissions of greenhouse gases**."

- President Amy Gutmann, University of Pennsylvania Climate Action Plan, 2009



#### Institutional commitment to emissions reductions:

- 1. Green Campus Partnership
  - a. Eco-Reps
  - b. Power Down Challenge
  - c. Green Labs, etc.
- 2. Penn Century Bond program



### Century Bond program drives long-lasting savings.

Penn's Century Bond program is funded by a **\$300M bond** issued in spring 2012 that has a **100-year term**. Of that total, \$200M is directed towards **financing energy efficiency** upgrades in lighting and HVAC systems and deferred maintenance. The program will help Penn fulfill its goal of reducing the institution's carbon footprint as outlined in its Climate Action Plan. Of the \$200M directed towards energy efficiency upgrades and deferred maintenance, approximately \$8.5M has been invested in energy efficient lighting upgrades and \$190M is planned for HVAC improvements. The remaining funds will be used for other strategic priority projects.

Source:

http://www.pennconnects.upenn.edu/find\_a\_project/alphabetical/century\_bond\_alpha/century\_bond\_projects\_overview.php

**Implication 1**: Somebody has to invest in these bonds.

Implication 2: Penn currently has the institutional ability to significantly reduce emissions.

### Penn's campus sustainability outperforms peers.



Sources

Penn (most recent report was 2013): Climate Action Plan Progress Report, Climate Action Plan 2.0, email correspondence with Dan Garofalo data from TC Chan Center

Harvard: http://report.green.harvard.edu

#### Yale:

http://sustainability.yale.edu/sites/default/files/2009gh gbrochurefinal.pdf,

http://sustainability.yale.edu/sites/default/files/2013\_g reenhouse\_gas\_reduction\_strategy.pdf

Princeton (most recent report was 2011): https://www.princeton.edu/reports/2011/sustainability/ greenhouse/campus-energy

### But: Correct accounting includes investment GHGs.

Penn's emissions accounting "carbon calculator" uses **World Resources Institute, Greenhouse Gas Protocol Source**: Penn Green Campus Partnership. "5.1 Carbon Reduction Action Plan". *University of Pennsylvania Climate Action Plan*. 2009. 37.

BUT WRI's GHG Protocol was updated...

#### World Resources Institute, Greenhouse Gas Protocol:

"Investments are categorized as a downstream scope 3 category because providing capital or financing is a service provided by the reporting company."

"If relevant, companies should also account for the scope 3 emissions of the investee or project. For example, ... [t]he financial institution should account for the scope 3 emissions of the light bulb producer (e.g., scope 3 emissions from consumer use of light bulbs sold by the manufacturer) when scope 3 emissions are significant compared to other source of emissions or otherwise relevant."
Source: World Resources Institute. "Category 15: Investments". Technical Guidance for Calculating Scope 3 Emissions. Greenhouse Gas Protocol. April 2013. 136.

### Penn's investment-linked emissions are massive.

800 Lower Bound: 700 Ignores hedge fund and direct Metric Tons CO2E natural resource investments. 600 500 400 300 Thousand 200 100 0

Penn's Yearly Emissions...

#### As a consumer As an investor

\*Calculations shown in Fact Sheet

- As an equity investor, Penn owns a proportional share of each company.
- True: "scope 3 emissions are significant compared to other source of emissions"
- So need to account under WRI GHGP

Penn's share of fossil fuels emissions as	Magnitude	What are we doing about it?
User	Decreasing	Measured, Being reduced
Owner	3X larger, Not decreasing	Ignored

### Concerns 5, 6

# Promoting clean energy adoption Combating energy poverty

### What is the net benefit/harm of fossil fuels?

For developing countries who require growing energy usage, *must balance trade-offs* between:

A. The cheapness of fossil fuels, relative to alternative sources

B.Local health, human rights, environmental impacts

C.Global climate change impacts  $\rightarrow$  health, HR, environment



Cost-benefit analysis:

- Calculations in original document
- For harms, only considers climate change (HR abuse hard to monetize)
- Harms outweigh benefits

### Investing in clean energy combats energy poverty.

Divesting from fossil fuels unlikely to substantially impair fossil fuel companies' operations

Fossil fuels public market cap = \$4.65 trillion (2014)

Reinvesting in clean energy is direly needed to substantially increase and improve clean energy operations

Clean energy investments in 2015 = \$321 billion

Marginal benefit to clean energy >> marginal harm to fossil fuel companies



### Investing in the future of Penn students



# Underlying Concerns Must be Addressed

Alternative actions must be evaluated on which best addresses: "underlying concerns that motivate the call for divestment"

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Each concern:

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- Is a criterion for decision analysis
- Must be addressed

# Evaluating alternatives using criteria

Divest addresses	Shareholder Resolutions	Campus sustainability	Increase research
Local impacts	Unlikely: 6.6% success [1]	No	Maybe
Lobbying	Unlikely	No	No
Carbon bubble	Unlikely	No	No
Investment footprint	No	No - <mark>in fact it</mark> increases our hypocrisy	No
Clean energy	Unlikely	Yes	Yes
Energy poverty	Unlikely	No	Maybe
Our future	No	Yes	Yes

Observations:

- No alternative addresses all of the underlying concerns.
- These are not mutually exclusive.
- A combination may be the best option.

Presentation to Ad Hoc Advisory Committee

April 20, 2016 Fossil Free Penn

#### 10-27-2013: Coal Divestment Update

#### October 27, 2013

Dear Members of the Brown Community,

Over the last year, the Brown University community has engaged in an expansive and thoughtful discussion of whether or not to divest the Brown endowment from holdings in a set of U.S. companies that mine coal or use coal in the generation of electricity. Brought forward originally by students through Brown Divest Coal, considered and discussed by Brown's *Advisory Committee on Corporate Responsibility in Investment Policy* (ACCRIP), further reviewed by an *ad hoc* committee of the Corporation, and discussed fully by the Corporation as a whole at two separate meetings, the issues have been thoroughly taken up by this campus. Th context for this discussion, which has reflected the very best of Brown, is the moral and social imperative of confronting and addressing in a responsible and immediate manner the devastating impacts of global climate change. There is no question in my mind that human-caused environmental change and the threat it poses to sustaining life on earth is among the most pressing issues of our time. Brown University must, consistent with our mission of teaching and research, be a leader in this arena.

How Brown can best lead is a complex and multifaceted question, without one correct answer or unanimity of opinion. Some have made the case that, in addition to conducting cutting-edge research, promoting sustainability on campus, and educating members or our community about climate change, the University should lead through divestiture. Others have made the case that divestiture does not reflect the complexity of issues associated with the use of coal and society's efforts to reduce our reliance on coal and, as such, should not be included among the strategies we follow. The serious, thoughtful and robust discussion in the Corporation covered the full range of perspectives. The conclusion of this discussion is that Brown will not divest from coal. I agree with this decision and I am writing to explain why.

Brown's guidelines for incorporating ethical and moral issues into investing have supported previous divestiture decisions. For example, in 2003, Brown divested from tobacco companies. The charter of ACCRIP notes that divestiture may be recommended when a company's actions produce social harm, and (if social harm exists) when either (1) "divestiture will likely have a positive impact toward correcting the specified social harm" or (2) the company "contributes to social harm so grave that it would be inconsistent with the goals and principles of the University to accept funds from that source." In addition, the charter emphasizes th need for balanced judgment when making divestiture decisions. To divest in response to anything but the most clear-cut and widely acknowledged cases of social harm would violate our duty to maintain a sound financial policy. Even more important, divestiture must be consistent with Brown's central mission of the "discovery, communication and preservation of knowledge."

Given our guidelines for divestiture, the first question to be addressed is whether companies that produce coal or use it in power generation cause social harm. I think it is clear that they do.

Brown Divest Coal was particularly effective at raising awareness of the dangers of coal to the environment and human health. Further, it is undeniable that fossil fuels are a significant driver of climate change. Given current technology, coal contributes more t the production of greenhouse gases per unit of electricity generated than other fossil fuels.

The existence of social harm is a necessary but not sufficient rationale for Brown to divest: Once social harm is established, divestiture may be warranted if either divestiture is likely to help reduce the harm or the harm is sufficiently grave. Taking the secon of these criteria first, is it the case that the social harm from coal is so grave that divestiture is warranted? Absent a bright-line threshold for gravity, this is a judgment call, and a difficult one at that. I believe that although the social harm is clear, this harm is moderated by the fact that coal is currently necessary for the functioning of the global economy. Coal is the source of approximately 40 percent of the world's electricity, and it provides needed energy for millions of people throughout the world. In many regions, there are serious technological impediments to transitioning away from coal. In addition, coal is used in the production of other products, such as cement and steel, which are central to the economies of both developed and developing countries. The comparison to tobacco is instructive. Unlike tobacco, which arguably has no social value, a cessation of the production and use of coal would itse create significant economic and social harm to countless communities across the globe.

The second question to consider is whether divestiture would help correct the social harm by speeding the transition away from coal It is clear that divestiture would not have a direct effect on the companies in question. Brown's holdings are much too small for divestiture to reduce corporate profits. Furthermore, because the profits of these companies are determined primarily by the deman for their products rather than their stock prices, divestiture would not reduce profits even if Brown's holdings were orders of

magnitude larger.

Some have argued that the symbolic statement of divestiture might decrease the harm from coal by galvanizing support for policies or practices that reduce coal's production and use. I agree that symbolic statements can be powerful drivers of social change when they support clearly defined actions. For example, the lunch-counter sit-ins in the southern United States signaled a vivid and unambiguous demand for an immediate end to segregation. The case of coal is different. Divestiture would convey only a nebulous statement—that coal is harmful—without speaking to the technological and policy actions needed to reduce the harm from coal—actions where Brown can make real and important contributions through teaching and research. It is unclear what message divestiture would convey about the timing of the transition from coal in different regions of the country and the world; the development of alternative fuels, such as natural gas, nuclear power, and renewables; the value of investments in new technologies that may reduce the harm from coal; the effectiveness of different strategies for regulating U.S. coal companies and electric utilities; and the development of U.S. policies toward countries that are increasingly reliant on coal. As a university, Brown has a responsibility to grapple with the world's problems in all their complexity. As I and others considered the matter, it became apparen that the symbolic statement of divestiture would not elucidate the complex scientific and policy issues surrounding coal and climate change and, for this reason, it would run counter to Brown's mission of communicating knowledge.

Our consideration of divestiture is over, but our work on stemming the progression of climate change and mitigating its effects will continue and expand. Brown takes seriously its responsibility to be a leader in addressing climate change, and we can be proud of or long-standing commitment to sustainability. In 1990, President Vartan Gregorian launched*Brown is Green*, an environmental education and advocacy initiative. In 2008, under President Ruth Simmons, the University established ambitious goals for greenhouse gas reductions on campus, and in 2010 it signed the Sustainable Campus Charter. Most recently, Brown's Sustainability Strategic Planning Committee presented an interim report that proposed to expand and broaden our sustainability efforts . Brown reduced its energy-related carbon footprint by 30.6 percent between 2007 and 2013, and we have plans for further reduction

Our commitment to sustainability is also reflected in the University's strategic plan, Building on Distinction, which identifies "Sustaining Life on Earth" as a major theme for research and education. Building on Brown's Environmental Change Initiative, this new program will feature research on three challenges that come with climate change: food and water security, human health and well-being, and equity and development. These efforts will complement our long-standing and distinguished educational programs directed through the Center for Environmental Studies and support the active engagement of students and faculty in domestic and international environmental policy issues. This is an academic area where Brown has great strength, and the advocacy of students and others on these issues has helped make this theme a priority in the new strategic plan.

We can and should do even more. I have asked the Provost to form a Task Force on Brown's Response to Climate Change, which will supplement the work of our standing committee on campus sustainability. My hope is that this committee of faculty, students and staff will identify bold and aggressive ways that Brown as an institution and community members as individuals can lead and contribute to the societal response to climate change. This Task Force will be charged with recommending significant and impactful initiatives to position the University as a leader in combating climate change locally, nationally and around the globe.

Although I do not believe that divestiture is the right tool to achieve the societal goals to which we all aspire, I recognize that some of our donors have strong feelings about the role of coal in climate change. Since 2008, Brown has had asocial choice fund through which donors can make gifts to the University's endowment. Currently, Brown's social choice fund is invested in a mutual fund that applies a negative screen for fossil fuel-related companies. No investments are made in companies involved in the extraction or production of coal, oil or natural gas. However, because of the role of natural gas in the transition to renewable energy, the fund will invest in companies involved in the transmission and distribution of natural gas as well as utilities that use natural gas in their generation. The portfolio is coal-free and, with this one exception, fossil-fuel free. I hope that donors will consider this option when making endowed gifts to Brown.

On behalf of myself and the University community, I thank the members of Brown Divest Coal for their efforts. I respect their commitment and purpose, and I recognize the important role Brown Divest Coal has played in highlighting the issue of coal and climate change on campus. I also want to thank members of ACCRIP for their thoughtful attention to this issue over the last year.

Sincerely,

Christina H. Paxson

#### **Response of the ACSRI to the CDCJ Proposal of October 2015**

#### **Executive Summary**

The Advisory Committee on Socially Responsible Investing ("ACSRI" or "the Committee") has decided not to recommend to the Trustees a proposal of the student group Columbia Divest for Climate Justice ("CDCJ") calling for divestment from the Columbia endowment of all stocks or bonds in firms listed in the Carbon Underground 200<sup>TM</sup>. The more the Committee has deliberated over the possibility and the scope of a possible divestment recommendation, however, 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 Committee has also become acutely aware that it is the wrong forum to debate and then propose the specifics of a Columbia University action plan. In light of the grave threats posed by climate change and the University's capacity to play a national leadership role, the ACSRI thus recommends that President Bollinger appoint a representative committee to formulate a Plan of Action that contemplates engagement across the University. We expect that such a Plan of Action 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 climate change and the risks, (v) support for legal, economic, and regulatory analysis of the current US and international approaches to climate change.

Precisely because the science regarding climate change has been disputed on nonscientific grounds and because the public policy issue, the looming threat of climate change, is so serious, ACSRI may well recommend, as matter of socially responsible investing, a targeted fossil fuel divestment/no-investment policy that are aimed at "standing up for the science." This would mean targeting for divestment (or non-investment) publicly traded firms that engage in climate change denialism whether by "word" or by "deed." Such an approach responds to the particular role and responsibility of a university in a democratic society. The Committee would of course also consider a differently targeted divestment petition from the CDCJ or other group.

A principal basis for the Committee's decision not to support the CDCJ petition is that it calls for broad-based divestment without regard to whether such divestment would affect the future behavior of any particular firm. Divestment would be undertaken solely as a matter of symbolic speech. The strategy draws no distinctions based on the conduct of the firms in question, even where differences in conduct materially affect the firm's carbon burden.

In rejecting broad-based divestment as a requirement of socially responsible investment, the ACSRI wants to be clear that its negative recommendation would not conflict with a decision

by the Trustees acting as financial fiduciaries that fossil fuel investments, in whole or in part, present unacceptable risks of value erosion and that it is appropriate to adopt investment strategies designed to minimize exposure to such risk. The Committee also invites the Trustees to consider sending a letter to its investment managers similar to the one sent by David Swensen, head of the Yale Investment Office, which stated that "Yale asks [its investment managers] to avoid companies that refuse to acknowledge the social and financial costs of climate change and that fail to take economically sensible steps to reduce greenhouse gas emissions."<sup>1</sup>

The ACSRI also believes that the University should continue its policy of active engagement through the proxy process for energy firms that remain in the endowment. This would be facilitated by the University's signing onto the Carbon Disclosure Project,<sup>2</sup> CERES,<sup>3</sup> or another appropriate forum that requires full disclosure on climate change. We will make a specific recommendation shortly.

In light of support for divestment expressed by some alumni, the ACSRI recommends that the University establish a separate "fossil free" investment vehicle to receive the contributions of alumni who would prefer such investment management for their contributions to the University's endowment.

We think the efforts of the CDCJ to call the University community's attention to the grave threat presented by climate change are commendable and much to be praised. In the Committee's view, galvanizing a broader, deeper response by the University should have greater impact than divestment, which would operate in the symbolic realm only.

#### Report

In fall 2013 the student group "Columbia Divest for Climate Justice" ("CDCJ"<sup>4</sup>) presented a petition to the Advisory Committee on Socially Responsible Investing ("ACSRI" or "the Committee") requesting that Columbia University divest from the 200 companies on the "Carbon Underground 200<sup>TM</sup> list.<sup>5</sup> In May 2014 the ACSRI declined to recommend the requested action to the Trustees on the grounds that it did not meet the three criteria for

<sup>&</sup>lt;sup>1</sup> See Letter of David Swensen to Yale Investment Managers, reprinted in Financial Analysts Journal (May/June 2015), pp 11-12, available at <u>http://www.cfapubs.org/doi/full/10.2469/faj.v71.n3.3</u> [visited on Nov. 5, 2015].

<sup>&</sup>lt;sup>2</sup> <u>https://www.cdp.net/.</u>

<sup>&</sup>lt;sup>3</sup> <u>https://www.ceres.org/.</u>

<sup>&</sup>lt;sup>4</sup> In the 2014-15 academic year the group changed its name from Barnard/Columbia Divest for Climate Justice because of the formation of a specific Barnard group targeting the independently managed Barnard endowment.

<sup>&</sup>lt;sup>5</sup> The Carbon Tracker Initiative is led by Jeremy Leggett, a geologist and former executive in the fossil fuel industry who developed the concept of "stranded assets." The original list of 100 coal and 100 oil and gas companies who hold the largest fossil fuel reserves is being kept up to date by fossilfreeindexes.com [visited on Nov. 5, 2015], an investment firm led by Stuart Braman, a Columbia alumnus and adjunct research scientist at the Lamont-Doherty Earth Observatory.

divestment: (1) that there must be broad consensus in the Columbia community, (2) that the merits must lie clearly on one side, and (3) that there be no feasible alternative to divestment. However, the Committee also decided that the issue warranted further investigation and thus established a standing subcommittee on fossil fuels. The ACSRI report to the community on the original CDCJ proposal is found on its website, <u>http://finance.columbia.edu/content/socially-responsible-investing</u>. The initial ACSRI report, which this Committee endorses, explicitly applied the three divestment criteria, which reflect a strong presumption against divestment in favor of engagement and other alternatives that pursue the same objective.

During the 2014-2015 academic year ASCRI devoted considerable time to developing an approach that could lead to targeted divestment, focused on a singular feature of the fossil fuels divestment debate, namely, a denial in some circles of the underlying scientific facts of climate change. That is, in addressing divestment questions relating to South Africa or Sudan, the underlying facts of apartheid or Sudanese government participation in the genocidal violence in Darfur were not in dispute. Rather, the divestment decision turned on socially responsible investment behavior in light of such facts. In the case of fossil fuels, however, the serious threshold problem is that the core facts of anthropogenic influence on global climate are denied by important governmental leaders and are regarded as highly contestable within mainstream political discourse despite the overwhelming scientific consensus. This is partly because energy companies engaged in fossil fuel extraction can exert significant leverage on public policy formation and have in various ways fostered denial of climate change science.<sup>6</sup> Actions to avert climate change ultimately depend upon the concerted actions of governments, especially legislatures, and will entail tough choices, trade-offs, and compromises by political leaders, as they balance private economic interest and public environmental concern. Thus the denial of human agency in climate change is a first order problem in the climate change debate. The consensus scientific evidence indicates that climate change is, in effect, an on-rushing train, and we stand in the tracks. It's the denial of the science that keeps us frozen on the tracks rather than engaged in the concerted actions necessary to jump away.

These considerations led us to work on an approach that we call "standing up for the science." Columbia University is the producer of some of the key research in the climate change domain;<sup>8</sup> the social function of the University generally is to foster research that produces new knowledge and to help assure that this research guides the important public policy questions of the day. Precisely because the science regarding climate change has been disputed on non-scientific grounds and because the public policy issue, the looming threat of climate change, is so serious, ACSRI may well recommend, as matter of socially responsible investing, a targeted

<sup>&</sup>lt;sup>6</sup> The possible role of particular firms in promoting materially misleading assessments of climate change risk has recently come under investigation by the New York State Attorney General and other governmental actors.

<sup>&</sup>lt;sup>8</sup> A list of centers consulted during the 2014-2015 academic year, with links to their websites, can be found in Appendix A to this document.

fossil fuel divestment/no-investment policy, and other strategies, that are aimed at "standing up for the science." This would mean targeting for divestment (or non-investment) publicly traded firms that engage in climate change denialism whether by "word" or by "deed." Such an approach responds to the particular role and responsibility of a university in a democratic society.

A "stand up for the science" approach shares the focus on the energy sector, specifically on companies engaged in fossil fuel extraction,<sup>9</sup> of broader calls for divestment, but attempts to discriminate on the basis of the companies' specific behavior and action. These are possible parameters:

- First, a company's role in stirring up popular confusion about the scientific conclusions regarding anthropogenic influence on global climate by sponsoring and publicizing specious research or overemphasizing small differences in the scientific community. This we call "denying the science by word."
- Second, a company's attention to alternative solutions as measured by credible investment in low-carbon/renewable energy or carbon capture technology. This can be called "affirming the science by deed."
- Third, a company's investment in high carbon-content resource exploration and development, resources that can never be consumed in light of the climate change concern. This can be called "denying the science by deed."

In short, the strategy would be to distinguish among firms on a list like the Carbon Underground 200<sup>TM</sup> between those companies whose deeds and actions bespeak a rejection of climate change science and those whose deeds and actions indicate acceptance of the science. As with the Sudan divestment approach adopted by the Trustees, the goal would be to produce a list of "divest/do not invest" companies. The impact would be measured not just in a decision to "divest" from a particular company but rather to call attention to company behavior that "denied the science."

Our work plan for the 2015-16 included an effort to see if this approach could be operationalized through various public metrics so as to provide a basis for a specific recommendation to the Trustees.

In September 2015 the CDCJ student group asked us to consider anew the petition for divestment from the Carbon Underground 200<sup>TM</sup>, asserting that various procedural flaws meant that the proposal had never been squarely addressed by the ACSRI notwithstanding the specific response in May 2014.<sup>10</sup> Rather than debate the procedural claims, the Committee decided to

<sup>&</sup>lt;sup>9</sup> The approach could also include companies like coal-burning electricity generators that could switch to a lower carbon fuel source like natural gas but resist doing so.

<sup>&</sup>lt;sup>10</sup> The 2015 CDCJ Proposal is Appendix B to this document.

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consider the CDCJ Proposal de novo. There has been substantial Committee turnover since 2013-14 and it was worth testing whether views had evolved since the last consideration.

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

The Committee has decided not to recommend the CDCJ Proposal. While accepting climate change science and the grave risks associated with global warming, the ACSRI does not believe that such an across-the-board divestment approach would satisfy the demanding criteria for a divestment recommendation. The Carbon Underground 200<sup>TM</sup> list consists of "the top 100 coal companies globally and the top 100 public oil and gas companies globally, ranked by the potential carbon emissions content of their reported reserves."<sup>11</sup> Divestment on the basis of identification on this list would not distinguish among firms on the basis of their current conduct (e.g., the rate to which they are adding to reserves or the extent of research and development investment in renewables or in carbon-reducing technologies). The list includes natural gas companies as well as coal-mining companies, yet the substitution of natural gas for coal is one immediate way of reducing the carbon footprint of energy production. The list also omits electric utilities that generate a disproportionately high share of electricity from coal despite the opportunity to shift to natural gas.

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

<sup>&</sup>lt;sup>11</sup> <u>http://fossilfreeindexes.com/research/the-carbon-underground/</u> [visited Nov. 5, 2015].

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

The Committee does not believe that its consideration of a more tailored approach to the divestment question would undercut a broad-based movement that seeks to deprive fossil fuel firms of a "social license" and thereby to hasten legislative engagement with the underlying climate change issue. For example, thus far no major research university has signed onto broad-based fossil fuel divestment from its endowment. Harvard, Yale, Princeton, MIT, and the University of California have rejected divestment outright.<sup>12</sup> Stanford and Oxford have taken a more targeted approach, undertaking to avoid direct investments in coal companies and tar-sands development.<sup>13</sup>

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 Committee has also become acutely aware that it is the wrong forum to debate and then propose the specifics of a Columbia University action plan, which presumably 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) fostering research into new technologies related to renewable energy as well as atmospheric carbon abatement, (iv) support for legal and regulatory analysis of the current US and international approaches to climate change. Thus we recommend that President Bollinger appoint a representative committee charged with making recommendations for a Columbia University response to the challenge of climate change with the goal of producing a Plan of Action that engages efforts and capacities across the University.

ACSRI appreciates that its charter extends to "social responsibility" in investing, not the economics, and is also mindful of the disputed economic case, from an endowment management perspective, for divestment from companies that produce fossil fuels. While we ultimately

<sup>&</sup>lt;sup>12</sup> The University of California recently disposed of its direct holdings in coal and tar sands companies as a matter of investment strategy not divestment policy.

<sup>&</sup>lt;sup>13</sup> A list of actions by other universities as of October 30, 2015 is provided in Appendix C.

believe that a successful solution to climate change will need to marry economic and environmental/social welfare arguments, we have not attempted to resolve the economic case from the University's perspective. In rejecting broad-based divestment as a requirement of socially responsible investing, we want to be clear that our negative recommendation would not conflict with a decision by the Trustees acting as financial fiduciaries that fossil fuel investments, in whole or in part, present unacceptable risks of value erosion and that it is appropriate to adopt investment strategies designed to minimize exposure to such risk. The Committee also invites the Trustees to consider sending a letter to its investment managers similar to the one sent by David Swensen, head of the Yale Investment Office, which stated that "Yale asks [its investment managers] to avoid companies that refuse to acknowledge the social and financial costs of climate change and that fail to take economically sensible steps to reduce greenhouse gas emissions."<sup>14</sup>

The ACSRI also believes that the University should continue its policy of active engagement through the proxy process for energy firms that remain in the endowment. This would be facilitated by the University's signing onto signing on to CDP,<sup>15</sup> CERES,<sup>16</sup> or another appropriate forum that requires full disclosure on climate change. We will make a specific recommendation shortly.

Subsequent to the filing of the CDCJ Proposal, the ACSRI has received emails and phone messages of support for the Proposal from various alumni. The Committee proposes that the University establish a separate "fossil free" investment vehicle to receive the contributions of alumni who would prefer such investment management for their contributions to the University's endowment.

We think the efforts of the CDCJ to call the University community's attention to the grave threat presented by climate change are commendable and much to be praised. In the Committee's view, galvanizing a broader, deeper response by the University should have greater impact than divestment, which would operate in the symbolic realm only.

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November 17, 2015

<sup>&</sup>lt;sup>14</sup> See Letter of David Swensen to Yale Investment Managers, reprinted in Financial Analysts Journal (May/June 2015), pp 11-12, available at <u>http://www.cfapubs.org/doi/full/10.2469/faj.v71.n3.3</u> [visited on Nov. 5, 2015].

<sup>&</sup>lt;sup>15</sup> <u>https://www.cdp.net/.</u>

<sup>&</sup>lt;sup>16</sup> <u>https://www.ceres.org/.</u>

#### Appendix A

#### **Response of the ACSRI to the CDCJ Proposal of October 2015**

Over the course of the 2014-2015 academic year, we consulted with colleagues from:

#### CDP, www.cdp.net

Center on Capitalism and Society, http://capitalism.columbia.edu/

Center on Global Energy Policy, http://energypolicy.columbia.edu/

Center for International Earth Science Information Network (CIESIN), http://www.ciesin.org/

Lamont-Doherty Earth Observatory (LDEO) and Department of Earth and Environmental Sciences in the Graduate School of Arts and Sciences, <u>http://www.ldeo.columbia.edu/</u>

Columbia Center on Sustainable Investment, http://ccsi.columbia.edu/

The Sabin Center for Climate Change Law and Environmental Law Clinic, <u>http://web.law.columbia.edu/climate-change</u>

#### Proposal for Divestment from the Top 200 Publicly-Traded Fossil Fuel Companies

Authored by Columbia Divest for Climate Justice and published on October 6, 2015

Columbia Divest for Climate Justice (CDCJ) presents the following proposal for fossil fuel divestment to the Board of Trustees and President Lee Bollinger.

#### 1. Summary.

Given that the international community has agreed upon 2°C as the maximum 'safe' limit for global warming, and given that communities of color and low-income communities who have historically contributed the least to the problem will be affected the most;

Given that 80% of proven fossil fuel reserves must stay in the ground in order for that limit not to be exceeded;

Given that the fossil fuel industry instead continues to explore for new reserves, obstruct regulation that would reduce society's use of fossil fuels, and fund climate denial to obscure the importance of such action;

Given that the fossil fuel divestment movement is growing at a rapid pace – with \$2.6T of assets under management committed to divestment, as of September 2015 – and has proven to be effective in revoking the social license of the fossil fuel industry;

And given that the Columbia University community has shown a significant level of support for the petition of Columbia Divest for Climate Justice over the past three years;

The Board of Trustees of Columbia University must:

- Immediately implement a freeze on any new investments in the top 200 publicly traded fossil fuel companies currently holding the vast majority of the world's proven coal, oil and gas reserves defined in the Carbon Underground 200<sup>TM</sup> list.<sup>i</sup>
- 2) Publicly commit to divesting the Columbia University endowment from direct ownership of fossil fuel holdings and from any commingled funds that include fossil fuel public equities and corporate bonds, in advance of the COP-21 conference taking place in December 2015.
- 3) Ensure the divestment of these funds within 5 years' time after the initial commitment, allowing for fund managers to evaluate reinvestment strategies and minimize transaction costs in a gradual process.

Columbia has a moral obligation to stop funding an industry that undermines the safety of its students' futures and the integrity of its own climate scientists' ground-breaking research. By immediately committing to divest from the fossil fuel industry, Columbia will join hundreds of universities, cities and countries, religious congregations, and other mission-oriented institutions that have already issued bold commitments for climate justice. Columbia will also have the chance to stand out in history as a leader among Ivy League institutions.

#### 2. Fossil fuels and climate change

In 2009, over 100 countries including the United States and China signed the Copenhagen Accord.<sup>ii</sup> The Accord affirms that **global warming must stay below 2°C** in order to avert "dangerous anthropogenic interference with the climate system," even though low-lying nations are projected to disappear at an increase of 1.5°C.<sup>iii</sup> After only a 0.8°C rise in temperatures in the 20th century, the impacts of climate change are already being seen in the form of increasingly intense natural disasters, melting glaciers, ocean acidification, increasing conflicts over food insecurity, spreading tropical disease, and more.<sup>iv</sup> Scientists are asserting that a 2°C rise in average global temperature may trigger disastrous nonlinear processes, such as the melting of the Greenland and West Antarctic ice sheets and a faster rise in sea levels than ever expected.<sup>v</sup> The effects of climate change are, however, not far in space or time – tremendous storms like Hurricanes Irene and Sandy have already devastated the Northeast and New York City itself.

Under a business-as-usual (BAU) scenario for carbon emissions, the United Nations' Intergovernmental Panel on Climate Change (IPCC) projects global temperatures to rise between **3.7-4.8°C by 2100**.<sup>vi</sup> Meanwhile, the World Bank has reported that "there is no certainty that adaptation to a 4°C world is possible."<sup>vii</sup>

To stay within the 2°C limit of global warming, we can only afford to emit 565 more GT of carbon dioxide.<sup>viii</sup> However, current global proven reserves of fossil fuels amount to a massive 2,795 GT of carbon dioxide – nearly fives times the 'carbon budget' we are allotted.<sup>ix</sup> **The fossil fuel industry plans to burn those reserves and irreversibly change our planet and humanity as we know it.** 

Estimates give us 16-28 years before we exceed our 'carbon budget' to stay with 2°C.<sup>x</sup> Meanwhile, carbon emissions from burning coal, oil, and gas are currently rising to record levels, not falling,<sup>xi</sup> and the top 200 fossil fuel companies spent \$674B in 2012 alone on exploring for new reserves.<sup>xii</sup>

Meanwhile, fossil fuel companies also continue to fund climate denial – for example, Exxon pledged to stop funding climate denial in 2007 but has since contributed \$2.3M to members of Congress who deny climate change and the American Legislative Exchange Council (ALEC), a corporate lobbying group that denies climate change.<sup>xiii</sup> At the same time, a report by the Union of Concerned Scientists (UCS) revealed an internal memo indicating that Exxon has been factoring climate change into its own operating decisions since 1981.<sup>xiv</sup> As shown by the UCS report, fossil fuel companies have specifically recycled the techniques of Big Tobacco to fund an intentional campaign of disinformation and inaction on climate change, despite knowing its devastating risks. Fossil fuel companies suggest in their publicity platforms that they are investing into renewable energy in order to soften their images, but their operational budgets show that they do not, in fact, invest significantly into renewable energy development. For example, BP tried to change its image by renaming itself Beyond Petroleum; however, they sold off their solar energy division in 2011.<sup>xv</sup>

Columbia University must divest our endowment from the fossil fuel industry, because transitioning from fossil fuels to renewable energy is central to the work necessary for a sustainable future. However, fossil fuel companies have refused to act in the best interest of humanity.

#### 3. Fossil fuel extraction is unethical; climate change is a social justice issues

While climate change is and will be affecting us all, it disproportionately affects low-income communities and people of color – both on a global and local scale, even though these communities have historically contributed the least to the problem. **Climate justice** is the framework for considering and a call to action for addressing this paradox.

For example, in the last 25 years, 95% of deaths that resulted from natural disasters occurred in developing nations.<sup>xvi</sup> While a major drought in the US can lead to higher food prices, a major drought in a country like Sierra Leone that relies heavily on subsistence agriculture can trigger mass starvation. As sea levels rise, low-lying countries like Bangladesh will experience extreme flooding and simply not have the infrastructure or resources to support their populations. In both of these examples, what is clear is that climate change will continue to be something that people of privilege consider a threat to "their grandchildren," while it has already been a reality for frontline communities across the world (predominantly in the Global South)<sup>xvii</sup>.

Here in New York City, the aftermath of Hurricane Sandy in 2012 demonstrated how class and racial divides influence the distribution of the worst effects of climate change. For example, the New York Environmental Justice Alliance has documented how major industrial areas that are populated mostly by people of color are in storm surge areas, making the residents vulnerable to toxic pollution from increasing numbers of natural disasters.<sup>xviii</sup>

The climate justice framework sheds light on climate change as a grave public health issue.<sup>xix</sup> Warming and increased flooding also lead to increased spread of disease, particularly in countries with poor sanitation.<sup>xx</sup> Between 2030 and 2050, climate change is expected to cause approximately 250,000 additional deaths per year, from malnutrition, malaria, diarrhoea and heat stress.<sup>xxi</sup> More recent estimates have put the number at 300,000 deaths and suggest that an additional 325 million people are seriously (though non-fatally) affected by climate change.<sup>xxii</sup>

As UN Secretary-General Ban Ki Moon has said, "Climate change is the single greatest threat to sustainable development."xxiii

**Fossil fuel divestment requires consideration of the same racial, social, and economic inequities that inspired the Board to take leadership by divesting from private prisons.** Columbia must now divest from fossil fuels and take a moral stand for the people who will most significantly and immediately be affected by unchecked climate change – from Red Hook to Bangladesh.

For Columbia to divest from the fossil fuel extraction industry is to announce to the world that we are committed to fighting for human rights, on behalf of all of our current and future students. The fossil fuel industry is actively contributing to the release of carbon into the atmosphere and has no foreseeable plans to halt its activity. By remaining complacent on this issue, Columbia is, in fact, assisting highly immoral and unethical activities.

#### 4. Divestment is an effective tactic for social change

Divestment has been used as a powerful catalyst for change in cases when other tools were proven ineffective. A particularly instructive example is that of apartheid in South Africa. The apartheid divestment campaign began at Stanford and Michigan State in 1977. It eventually led over 150 universities to divest from companies involved with South Africa's oppressive regime. In 1978, following a year-long student campaign, Columbia agreed to stop investing in bonds and financial institutions directly involved with the South African regime. From 1982-1985, student organizers such as the group Coalition for a Free South Africa (CFSA) continued organizing for full university divestment from companies with major South African interests. In 1982, after a blockade of Hamilton Hall and protests by thousands of students, the University committed to full divestment and withdrew their funds by 1991.<sup>xxiv</sup> Studies suggest that while the direct economic impact of this large-scale divestment was minimal, the long-term social impact was substantial. By demonstrating that participation in apartheid South Africa was unacceptable, these universities sparked a national movement. The US government soon followed suit, passing sanctions against South Africa.xxv When Nelson Mandela was released from prison and he made a speaking tour across America, his organizers said the Bay Area was "a must stop" for Mandela, as he had to personally thank the University of California system and the surrounding cities for divesting, an action that he saw as a turning point for the anti-apartheid movement internationally.<sup>xxvi</sup>

Columbia's Board has recently shown leadership by voting for Columbia to become the first university in the nation to divest from private prisons, following the inspiring organizing work of the student group Columbia Prison Divest.<sup>xxvii</sup>

By divesting from fossil fuel companies, Columbia can help remove the veneer of respectability from those who seek to profit from fueling climate change.

#### 5. Fossil fuel divestment is a successful, global movement

The first fossil fuel divestment campaign in the US started at Swarthmore College in 2010. The movement snowballed in November 2012, when Bill McKibben and 350.org spread the call for divestment campaigns through a public speaking tour called "Do the Math."

As of September 2015, according to a report published by Arabella Advisors, 430 institutions and 2,040 individuals across 43 countries and representing **\$2.6 trillion** in assets have committed to divest from fossil fuel companies. An estimated 3-8% of these funds are invested in fossil fuels, representing anywhere from **\$78 billion to \$208 billion**.

The divestment movement has grown exponentially since Climate Week in September 2014, when Arabella Advisors last reported that 181 institutions and 656 individuals representing over \$50 billion in assets had committed to divest (\$1.56 billion to \$4.16 billion divested). At that time, divestment advocates pledged to triple these numbers by the December 2015 Paris UN climate negotiations. Three months before the negotiations, we have already witnessed a **fifty-fold increase** in the total combined assets of those committed to divest from fossil fuels.
The organization 350.org/Go Fossil Free<sup>xxviii</sup> lists more than 20 American universities that have committed to varying forms of divestment, including Stanford, which pledged to divest direct holdings from 100 coal companies in May 2014 and has an endowment valued at \$18.7B.<sup>xxix</sup> Locally, The New School voted in February to divest its \$220M endowment from all fossil fuel holdings and explore reinvestment opportunities into renewable energy.<sup>xxx</sup>

From May to June alone, the University of Washington<sup>xxxi</sup> system pledged to divest its \$2.8B endowment from direct holdings in coal, becoming the largest public university to do so; the University of Hawaii<sup>xxxii</sup> system pledged to divest its \$66M endowment from all fossil fuel holdings; Georgetown University<sup>xxxiii</sup> pledged to divest its direct holdings from coal; and the Rhode Island School of Design<sup>xxxiv</sup> pledged to divest its \$330M endowment of its direct holdings in fossil fuel stocks, valued at \$6M.

On September 9, the University of California system announced that it has disinvested its \$100 billion endowment and pension fund from investments in coal and oil sands companies worth \$200 million.<sup>xxxv</sup>

Divestment campaigns are also active at universities across the globe. In October 2014, Glasgow University<sup>xxxvi</sup> became the first European university to divest its \$27M of fossil fuel holdings; most recently, the University of Oxford<sup>xxxvii</sup> pledged not to make future direct investments in coal and oil sands in June. On the frontlines of climate change, the College of the Marshall Islands voted to divest from fossil fuels in December 2014.<sup>xxxviii</sup>

On the governmental front, action has ranged from Norway divesting its \$890B sovereign wealth fund<sup>xxxix</sup> from companies that rely more than 30% on coal for their revenues (thereby implicating utilities, as well) to the 41 city governments that have pledged to divest (as of March 2015).<sup>xl</sup> On July 7, New York State Senator Liz Krueger and Assembly Assistant Speaker Felix W. Ortiz announced the new bill Krueger is sponsoring: the Fossil Fuel Divestment Act(S.5873/A.8011).<sup>xli</sup> The bill would require the State Comptroller to divest the Common Retirement Fund (CRF) from coal within one year and from all fossil fuel holdings by 2020.<sup>xlii</sup> There are divestment bills in the pipeline in other states, including for Massachusetts'<sup>xliii</sup> \$62.3B pension fund and California's pension funds.<sup>xliv</sup>

## On September 29, 2015, Mayor Bill de Blasio announced a proposal to divest New York City's \$160 billion pension fund from coal.<sup>xlv</sup>

International financial services firms have taken action as well – in 2013, Norwegian pension fund and insurer Storebrand (with \$74B in assets) divested from 19 fossil fuel companies, and French insurance company AXA announced it will divest more than \$500M of coal-related assets and reinvest into renewables this past May<sup>xlvi xlvii</sup>.

Assets by philanthropic foundations that have pledged to divest represent \$5B according to Divest-Invest Philanthropy, a platform calling on foundations to sign onto a commitment letter and begin the processes of divestment and reinvestment in low-carbon alternatives<sup>xlviii</sup>. At this time, 103 foundations have become signatories since January 2014. One notable signatory is the Rockefeller Brothers Fund, with more than \$860M in assets, which pledged to divest from fossil fuels in September 2014<sup>xlix</sup>.

In light of the Pope's recent encyclical on climate change Laudato si', the growing number of religious congregations divesting from fossil fuels is seen by some commentators as positioning climate change more strongly as a moral issue<sup>1</sup>. The Vatican itself is considering divestment, but the first to act was the United Church of Christ, which voted to divest from all fossil fuels in stages in 2013 <sup>li, lii</sup>. In 2014, the World Council of Churches – which represents half a billion Christians – voted to divest from all fossil fuels<sup>liii</sup>. In May, the Church of England announced it had dropped \$18M worth of oil sands and thermal coal investments<sup>liv</sup>. At the end of this June, the Lutheran World Federation announced a policy of not investing in fossil fuels<sup>lv</sup>. The leadership of the Episcopalian Church voted last week to divest \$380M of holdings from fossil fuels and towards renewable energy<sup>lvi</sup>. The neighboring Union Theological Seminary voted to divest their \$108.4M endowment from all fossil fuels in 2014<sup>lvii</sup>. While Christian denominations have been the center of divestment activity so far, there is broad momentum from a spectrum of religious groups calling for a strong COP-21 agreement.

Divestment has also drawn attention from public health, development, and scientific experts. The British Medical Association became the first health organization to divest from all fossil fuels in 2014, and an organization representing more than one million medical students signed a petition calling for the Bill and Melinda Gates Foundation and the Wellcome Trust to divest <sup>lviii</sup>, <sup>lix</sup>. They claim fossil fuel investments contradict the Hippocratic Oath. Academics Stand Against Poverty (ASAP), an association of 2,000 researchers, have issued a statement calling for divestment, as well<sup>lx</sup>.

Finally, *The Guardian* has become a strong voice in the divestment campaign with their "Keep It In the Ground" campaign, calling on the Bill & Melinda Gates Foundation (and the Wellcome Trust) to divest from the Carbon Underground list of top 200 fossil fuel companies<sup>lxi</sup>. Despite not yet winning the campaign, they have raised serious questions in the United Kingdom; two-thirds of UK survey respondents now view fossil fuel investments as 'risky' <sup>lxii</sup>.

Many actors that have made divestment pledges have cited a study by the Stranded Assets Programme at the University of Oxford's Smith School of Enterprise and the Environment completed in 2013.<sup>lxiii</sup> It suggests that the number of campaigns in the fossil fuel divestment movement is growing faster than in any previous divestment campaign, such as the campaign against apartheid in South Africa in the 1960s and 1970s.

#### 6. Why divestment from the Carbon Underground 200 is necessary

The Carbon Underground 200<sup>TM</sup> list was created by Fossil Free Indexes – founded by Columbia alumnus, adjunct associate research scientist at the Lamont-Doherty Earth Observatory, and financial services professional Stuart Braman, Ph.D.<sup>lxiv</sup>

The list identifies the top 100 public coal companies and the top 100 public oil and gas companies globally ranked by the potential carbon emissions content of their reported reserves. Fossil Free Indexes have assessed that "the reserves of these companies total 555 gigatons (Gt) of potential CO2 emissions, almost five times more than [their proportion of the carbon budget that] can be burned for the world to have an 80% chance of limiting global temperature rise to  $2^{\circ}C$  ( $3.6^{\circ}$  F)."<sup>lxv</sup>

Our campaign's focus on divesting from the Carbon Underground 200<sup>TM</sup> list is echoed by hundreds of fossil fuel divestment campaigns around the globe. Using a list of pre-selected companies to define the "fossil fuel industry" makes the task of divestment clearer for fund managers.

Some institutions have recently committed to divesting from the coal industry, including Stanford and Norway's sovereign wealth fund. Divesting from coal is clearly important; coal is the most carbon-intensive fossil fuel and the industry is undergoing structural decline.<sup>lxvi</sup>

However, the science makes it clear that an end to coal would not keep us within  $2^{\circ}$ C of warming – we must leave the majority of *all* fossil fuel reserves in the ground if we are to ensure a stable climate system. Divesting from coal sends the wrong message about the change that we need.

As Fossil Free Stanford has written to their Trustees as they continue to advocate for full fossil fuel divestment, **"No amount of action against coal can mitigate the impacts of oil and gas enough to protect the hundreds of millions of people, countless species, and trillions of dollars threatened by climate change."** This is why we urgently call for divestment from the top 200 fossil fuel companies. Columbia has the opportunity to lead, rather than follow, other major educational institutions by divesting from the Carbon Underground 200<sup>TM</sup> list.

#### 7. Support for fossil fuel divestment at Columbia

Since our founding in Fall 2012, Columbia Divest for Climate Justice has garnered incredible support for fossil fuel divestment across the university. In October 2013, 73.7% of Columbia College voted in favor of fossil fuel divestment in the first-ever ballot referendum at Columbia College.<sup>lxvii</sup> The Columbia College Student Council (CCSC) then adopted the referendum as its official position and pledged to advocate for divestment. Support has not been confined to Columbia undergraduates. In September 2014, Columbia Divest mobilized more than 300 students from Barnard, the Law School, Mailman, SIPA, and the Graduate School of Arts and Sciences, among other schools, to attend the People's Climate March.<sup>lxviii</sup> The March was the largest climate demonstration in global history, with more than 300,000 people gathered here in NYC. Columbia was the largest university contingent.

A petition signature calling on the Board to divest has more than 2,000 signatures from students and alumni, representing almost all of the undergraduate and graduate schools across campus. This winter, Professors Todd Gitlin and Paige West co-authored an open faculty letter to the Board, which currently has over three hundred signatures from faculty across all departments, including many scientists from Lamont-Doherty Earth Observatory. *The Guardian* covered the letter in the spring.

We have engaged with all possible channels of administration, from working for years through the Advisory Committee for Socially Responsible Investing process to meeting, of course, with members of the Board of Trustees. President Bollinger has been supportive of our campaign, stating that it is accepted that **divestment would have no significant impact on the endowment**.

There is also strong alumni support. In addition to many petition signatures from alumni, we work with a number of individuals who have remained active in the Columbia community by attending our weekly meetings and organizing their classmates. On Monday, October 5, alumni called President Bollinger and Professor Gordon of the ACSRI to voice their support for divestment.

This spring, Divest Barnard launched its own campaign across the street. They have already met with President Spar, and they have organized students on their campus. The neighboring Union Theological Seminary voted to divest their \$108.4M endowment from all fossil fuels in 2014<sup>lxix</sup>, and the Jewish Theological Seminary's List College just launched a divestment campaign including a unanimously endorsed letter from their student governing board to their chancellor.<sup>lxx</sup>

Graduate students have been organizing their peers at the Law School, School of International and Public Affairs, Mailman School of Public Health, and in the Graduate School of Arts and Sciences. We are building exciting cross-university coalitions and doing the work of educating and engaging with the university about climate justice, in general, rather than only fossil fuel divestment.

Our campaign and members have been featured in or written for media outlets from *The Nation, Yahoo! Finance, MSNBC, Columbia Spectator, Bwog, The Christian Science Monitor, Huffington Post,* and more. We are connected to the Divestment National Network, and a coalition of New York City schools campaigning for fossil fuel divestment including Divest NYU.

We are committed to ensuring that Columbia stands up for students and a future free of climate chaos by divesting from fossil fuels, and our campaign has seen unprecedented levels of interest and recruitment – with more than 100 new members coming to our first meeting this fall. We are confident that our campaign will continue until Columbia divests fully from the fossil fuel industry.

#### Endnotes:

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viihttp://www.worldbank.org/en/news/feature/2012/11/18/Climatechange-report-warns-dramatically-warmer-world-this-century

This estimate refers to the amount of CO2 that can be emitted prior to 2050 in order to maintain an 80% chance of avoiding 2°C of warming. The IEA and the IPCC present slightly different carbon budgets based on different timeframes and levels of certainty. However, all estimates suggest that a significant fraction of fossil reserves must be left in the ground.

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#### Fossil Fuel Divestment & Disinvestment as of October 2015

#### IVY Peer Group

School	Divestment Request	Action Taken	Date
Brown	Request to divest from coal only	Rejected	October 2013
Columbia	Request to divest from Carbon Tracker 200 Companies	Rejected, but original proposal was resubmitted in October 2015. Current proposal is under review	May 2014
Cornell	Request to divest from fossil fuels; strong faculty support	Rejected	May 2014
Dartmouth	Request to divest from fossil fuels	No Final Action Taken (College President Phil Hanlon asked the Advisory Committee on Investor Responsibility to prepare a report that details the implications of withdrawing the College's investments in publicly-traded fossil fuel companies)	September 2014
Harvard	Request to divest from fossil fuels; strong faculty support	Rejected	October 2013
U. Pennsylvania	Request to divest from fossil fuels	Undergraduate student referendum passed in February 2015. Motion now needs to go through six additional steps of approval.	February 2015
Princeton	Request to divest from fossil fuels	Rejected	July 2015
Yale	Request to divest from fossil fuels	Rejected	August 2014

#### University Endowments >\$1 billion

School	Divestment Request	Action Taken	Date
Amherst	Request to divest from coal only	No action taken	March 2015
Cambridge University	Request to divest from fossil fuels	The University Council has voted to support a wide- ranging investigation of the University's £2.2 billion endowments fund. Aiming to make investment more "environmentally and socially responsible", the review plans to last a year and involve collaboration from students, academics and staff	May 2015
Duke	Request to divest from fossil fuels	Rejected	January 2015
Georgetown	Request to divest from fossil fuels	Divested from coal	June 2015
Middlebury	Request to divest from fossil fuels	Rejected	August 2013
МІТ	Request to divest from fossil fuels	Rejected	October 2015
Oxford University	Request to divest from fossil fuels by students, academics and alumni	Rejected Ruled out future investments in coal and tar sands in endowment, but said it would not divest from all fossil fuels as demanded by thousands of students, academics and alumni	May 2015
Stanford	Request to divest from fossil fuels	Divests only from companies that mine coal	May 2014
Swarthmore	Request to divest from fossil fuels	Rejected	May 2015
Tufts	Request to divest from fossil fuels; strong faculty support	Rejected Divestment Pursue the establishment of a Sustainability Fund, both as a statement of the direction in which we would like to see the University move eventually and to test the feasibility of this kind of investment.	February 2014

University of	Request to divest from fossil fuels	Sold off about \$200 million of direct holdings in coal	September
California		and oil sands companies in 2015 however "there has been no official change in University of California policy with regard to coal mining or oil sands companies"	2015
University of Washington	Request to divest from fossil fuels	Voted to prohibit direct investment of endowment funds in publicly traded companies whose principal business is the mining of coal for use in energy generation	May 2015
University of Wisconsin	Request to divest from fossil fuels	No action taken	February 2014
Vassar	Request to divest from fossil fuels	Rejected	February 2013
Wellesley	Request to divest from fossil fuels	Rejected	March 2014
Williams	Request for divestment from coal	Rejected Williams is investing up to \$50 million over the next five years in efficient buildings, renewable energy projects and climate change education aiming to achieve carbon neutrality by the end of 2020. Committed to reduce our net greenhouse gas emissions to 35 percent below 1990 levels by 2020"	September 2015

#### FOSSIL FUEL ITEM AS AMENDED AND APPROVED BY THE BOARD OF TRUSTEES January 29, 2016

PROPOSED STANDARD AND PROCESS FOR REVIEW OF DIVESTMENT REQUESTS: Voted, upon recommendation of the Executive Committee, that the Board of Trustees adopt guidelines that will assist the President and the Board in making divestment decisions regarding social responsibility, and campus groups in advancing divestment recommendations. The guidelines are set forth below and are entitled "Standard and Process for Board of Trustees Consideration of Divestment Recommendations."

#### <u>"Standard and Process for Board of Trustees Consideration of Divestment</u> <u>Recommendations</u>"

The following guidelines are designed to assist the President and the Board in making decisions regarding social responsibility. The standard and process set forth below shall supersede any previously adopted administrative protocols or procedures on this subject.

#### I. Standard to Guide Divestment Consideration

Divestment should be considered only when a company's actions or inactions are "morally reprehensible" (i.e., deserving of condemnation because of the injurious impact that the actions or inactions of a company are found to have on consumers, employees, or other persons, or which perpetuate social harms to individuals by the deprivation of health, safety, basic freedom, or human rights. Morally reprehensible activities include apartheid, genocide, human trafficking, slavery, and systemic cruelty to children, including violations of child labor laws).

In addition, divestment should only be considered when:

- The divestment will likely have a meaningful impact toward correcting the specified harm, and will not result in disproportionate offsetting negative societal consequences; or
- The company in question contributes to harm so grave that it would be inconsistent with the goals and principles of the University.
- ✤ NOTE: Many activities that cause social harm do not descend to the level of being morally reprehensible; they are legal, often widely practiced, and in most cases pursued by members of the Cornell Community. Moreover, other avenues besides divestiture may be more effective. Universities best serve their educational mission by research, teaching, and outreach on key policy issues, including heightened educational initiatives; and appropriate professional and scholarly consultation by faculty and students with regulatory agencies, corporations, or other bodies.

#### II. Process for Review of Divestment Recommendations

A. In the event that the Board considers divestment based on social responsibility, irrespective of a constituent governance body resolution, the procedure is as follows:

- 1. The Executive Committee, with input from the Investment Committee and the President, deliberates on whether the criteria for divestment are met, then makes a recommendation to the full Board of Trustees.
- 2. The full Board of Trustees considers the resolution, then votes on whether to divest. This decision is final.
- B. In the event that a constituent governance group(s) passes a relevant resolution proposing divestment, the recommended procedure is as follows:
  - 1. The resolution is submitted to the President, with statement of position and reasoning. The reasoning must clearly document the nature and magnitude of the policies or practices of the company or companies that are asserted to cause a substantial harm.
  - 2. The process will proceed only:
    - a. if the President agrees with the resolution; or
    - b. if the resolution is supported and passed by the Employee, Graduate and Professional Student, Undergraduate Student, and University Assemblies, and the Faculty Senate governance groups or their successor bodies (with or without the President's agreement).
  - 3. If the resolution proceeds, it is submitted to the Executive and Investment committees of the Board of Trustees, with statement of position and reasoning. Notice of the submission is given to the full Board.
  - 4. The Executive Committee, with input from the Investment Committee and the President, deliberates on whether the criteria for divestment are met, then makes a recommendation to the full Board of Trustees.
  - 5. The full Board of Trustees considers the resolution, then votes on whether to divest. This decision is final.

RECOMMENDED COURSE OF ACTION IN RESPONSE TO FACULTY, STAFF, AND STUDENT SHARED GOVERNANCE GROUPS' REQUEST THAT THE UNIVERSITY DIVEST FROM FOSSIL FUEL ENERGY INVESTMENTS: Cornell's five shared governance groups recommend that the University divest from the top 100 fossil fuel companies' energy-related investments in its Long Term Investments (LTI). This recommendation reflects the deep wish on the part of many members of the Cornell community that the University exercise prudent environmental stewardship.

Voted, upon recommendation of the Executive Committee, the Board of Trustees adopted the following resolution:

**WHEREAS**, Cornell University, consistent with its mission, is committed to providing a fair and unbiased forum for scholarship, research and teaching, rather than institutional advocacy; and

**WHEREAS,** the Board of Trustees declared in its 1971 Investment Policy Statement that "the fundamental objective of Cornell University's investment policy is to strengthen Cornell's financial ability to fulfill its basic function as an educational institution" and that "responsibility for accepting, preserving and managing the funds entrusted to Cornell rests by law with its Board of Trustees"; and **WHEREAS,** the Board further stated in its 1971 Investment Policy Statement that it welcomed points of view relating to investment matters from members of the University community which will be given thorough consideration by those charged with the responsibility for financial decisions; and

**WHEREAS,** there has been only one occasion when the University decided to totally divest certain investments: in 2006, when the University divested from certain companies doing business in Sudan because of that country's illegal and morally reprehensible engagement in genocide; and

WHEREAS, in order to guide the President and the Board in making divestment decisions regarding social responsibility, and campus groups in advancing divestment recommendations, the Board of Trustees adopted at its January 2016 meeting guidelines entitled "Standard and Process for Board of Trustees Consideration of Divestment Recommendations" and

WHEREAS, Cornell's five constituent governance groups have jointly recommended that the University divest from the top 100 fossil fuel companies' energy-related investments in its Long Term Investments pool (LTI), such recommendation reflecting the deep wish on the part of many members of the Cornell community that the University exercise prudent environmental stewardship; and

WHEREAS, Cornell University and every member of the Cornell community has some direct or indirect connection with energy companies, including: gifts from energy companies and from alumni who work for them; enhanced endowment payouts due to investments in energy companies; University units seeking these companies' advice on sustainability, scientists working with them in research, and students seeking jobs with them; and

WHEREAS, Cornell University, recognizing the urgent need for action to protect the environment, has taken a leading role and continues to take proactive steps toward that end, including, among other very noteworthy endeavors: engineering and employing Lake Source Cooling; changing the University's primary fuel source from coal to natural gas; installing a solar farm; raising construction standards resulting in 17 LEED awards; and purchasing power from a wind farm; and

**WHEREAS**, the Board's Investment Committee has long sought to be mindful of the issues surrounding sustainability and climate involving the LTI, having carefully considered portfolio managers for the LTI who participate in investments related to renewable energy, technological advances in the area of climate change and remediation, and appropriate husbanding of natural resources; and

WHEREAS, in applying the divestment standard of "morally reprehensible" as defined in the "Standard and Process for Board of Trustees Consideration of Divestment Recommendations", energy companies with activities related to oil and natural gas do not meet this divestment standard because: the activities specified in the constituent governance groups' shared resolution are legal, widely practiced, and pursued by members of the Cornell Community, and are practiced by an entire industry, rather than solely a specific company. Moreover, divestiture will not likely have a positive impact toward correcting the perceived harm, and divestiture may have unacceptable negative consequences on the endowment;

**NOW, THEREFORE, BE IT RESOLVED** that in accordance with the process set forth in the "Standard and Process for Board of Trustees Consideration of

Divestment Recommendations", the Board of Trustees has determined that the University will refrain, at this time, from divestment from any fossil fuel energy investments; and

**BE IT FURTHER RESOLVED** that the University's Chief Investment Officer is instructed to continue to actively seek investment managers with alternative energy investment strategies that meet the return and risk parameters as defined by the Investment Policy; and

**BE IT FINALLY RESOLVED** that the Board of Trustees expresses its deep appreciation to the five constituent governance groups for their thoughtful advice on this important environmental issue.

#### Duke University Durham North Carolina 27708-0001

Office of the President BOX 90001 TELEPHONE (919) 684-2424 FACSIMILE (919) 684-3050

January 27, 2015

To the Members of Divest Duke:

I write in response to your proposal regarding fossil fuel divestment. In keeping with the university's policy regarding ethical investment and the Duke University endowment, I forwarded the proposal and supporting materials to the Advisory Committee on Investment Responsibility (ACIR). As you know, the ACIR is a group with wide representation across the Duke community, including four students, chaired by Professor of Law James Cox. The ACIR has now sent me its report, which is publicly available at <a href="http://today.duke.edu/showcase/reports/2014-11-24\_ACIR\_Report.pdf">http://today.duke.edu/showcase/reports/2014-11-24\_ACIR\_Report.pdf</a>. I agree with the report's recommendations. I have discussed the recommendations with the Executive Committee of the Board of Trustees, which has governance responsibility for DUMAC. The Executive Committee agrees with the proposed course of action as well.

The ACIR and I share your deep concern regarding human-induced climate change and the disruptions it poses to the human and natural worlds. The committee gave careful consideration to the arguments you put forward and consulted with several Duke faculty experts before coming to its conclusion. At the end, however, the ACIR does not recommend divestiture from fossil fuel companies at this time on the terms proposed.

I urge you to read the report carefully, as it clearly articulates the reasoning of the ACIR. Duke's ethical investment policy specifies a level of community consensus as a precondition for divestiture; the committee did not feel that this degree of consensus had yet been reached, and it noted that other intermediate steps have not yet been taken. The committee was also not persuaded that divestiture by this university would have the impact on company conduct or the world climate and energy consumption that the proposal envisions.

The proposal by Divest Duke makes a strong point regarding symbolic impact, and the ACIR recognizes the significance of such a gesture. However, Duke has even more potent means than divestment for expressing the institution's ethical commitments on climate and energy issues. These include, among others, the major investments Duke University has made to reduce energy use on campus and to wean Duke from the most environmentally damaging forms of fossil fuels. The prominence of the Nicholas School of the Environment, the Nicholas Institute for Environmental Policy Solutions, the Energy Initiative, and the energy theme in Bass Connections dramatize Duke's commitments in other ways. These important initiatives represent the primary means by which Duke and other universities create impact in the world: through teaching, research, and training in real-world problem solving.

Members of Divest Duke Page 2 January 27, 2015

Duke will continue to be committed to creating a sustainable campus and to training future leaders for a sustainable world. The ACIR report will chart a path for Duke to pay new attention to the climate implications of investment decisions. Going forward, DUMAC will continue to disclose its direct holdings in this category to ACIR. The Executive Committee of the Board of Trustees, in overseeing DUMAC's investment strategies, will be mindful of this issue and will discuss periodically with the DUMAC leadership opportunities for investment in clean energy technologies. The university's Sustainability Committee will be asked to consider ways of engaging with companies where Duke has investments to urge better corporate practices. And the University Treasurer will be urged to vote proxies for university holdings where that is judged appropriate.

Divest Duke has done this university a significant service in raising the question of how our investments should be governed by ethical values regarding climate change. I'm grateful for the research and the commitment that undergirded your proposal. Please know that the depth and thoughtfulness of the proposal contributed greatly to the conversation of the ACIR and informed its suggestions. I thank you for helping your university with this progress.

Sincerely,

Rich H. Broghes A

Richard H. Brodhead President About Harvard Gazette News Admissions & Aid Events Schools Harvard Campaign On Campus Give

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# Office of the President

## **Fossil Fuel Divestment Statement**

## October 3, 2013

CAMBRIDGE, MASS.

Dear Members of the Harvard Community,

Climate change represents one of the world's most consequential challenges. I very much respect the concern and commitment shown by the many members of our community who are working to confront this problem. I, as well as members of our Corporation Committee on Shareholder Responsibility, have benefited from a number of conversations in recent months with students who advocate divestment from fossil fuel companies. While I share their belief in the importance of addressing climate change, I do not believe, nor do my colleagues on the Corporation, that university divestment from the fossil fuel industry is warranted or wise.

Harvard is an academic institution. It exists to serve an academic mission — to carry out the best possible programs of education and research. We hold our endowment funds in trust to advance that mission, which is the University's distinctive way of serving society. The funds in the endowment have been

given to us by generous benefactors over many years to advance academic aims, not to serve other purposes, however worthy. As such, we maintain a strong presumption against divesting investment assets for reasons unrelated to the endowment's financial strength and its ability to advance our academic goals.

We should, moreover, be very wary of steps intended to instrumentalize our endowment in ways that would appear to position the University as a political actor rather than an academic institution. Conceiving of the endowment not as an economic resource, but as a tool to inject the University into the political process or as a lever to exert economic pressure for social purposes, can entail serious risks to the independence of the academic enterprise. The endowment is a resource, not an instrument to impel social or political change.

We should also be clear-sighted about the risks that divestment could pose to the endowment's capacity to propel our important research and teaching mission. Significantly constraining investment options risks significantly constraining investment returns. The endowment provides more than one-third of the funds we expend on University activities each year. Its strength and growth are crucial to our institutional ambitions — to the support we can offer students and faculty, to the intellectual opportunities we can provide, to the research we can advance. Despite some assertions to the contrary, logic and experience indicate that barring investments in a major, integral sector of the global economy would — especially for a large endowment reliant on sophisticated investment techniques, pooled funds, and broad diversification — come at a substantial economic cost.

Because I am deeply concerned about climate change, I also feel compelled to ask whether a focus on divestment does not in fact distract us from more effective measures, better aligned with our institutional capacities. Universities own a very small fraction of the market capitalization of fossil fuel companies. If we and others were to sell our shares, those shares would no doubt find other willing buyers. Divestment is likely to have negligible financial impact on the affected companies. And such a strategy would diminish the influence or voice we might have with this industry. Divestment pits concerned citizens and institutions against companies that have enormous capacity and responsibility to promote progress toward a more sustainable future.

I also find a troubling inconsistency in the notion that, as an investor, we should boycott a whole class of companies at the same time that, as individuals and as a community, we are extensively relying on those companies' products and services for so much of what we do every day. Given our pervasive dependence on these companies for the energy to heat and light our buildings, to fuel our transportation, and to run our computers and appliances, it is hard for me to reconcile that reliance with a refusal to countenance any relationship with these companies through our investments.

I believe there are a number of more effective ways for Harvard both to address climate change and to enhance our commitment to sustainable investment.

Our teaching and research on environmental and climate issues is significant and growing, and it is a priority in The Harvard Campaign.

We offer some 250 courses in the broad domain encompassing environmental studies and energy. We support some 225 faculty who work in the area, as well as a graduate consortium that involves more than 100 students and seven Schools.

We have a thriving University Center for the Environment. Outstanding faculty in chemistry, biology, earth and planetary sciences, engineering, and beyond are making profoundly important contributions to envisioning the future of energy and shaping the relevant science and technology. The Kennedy School's Belfer Center has won international acclaim for its influential work on climate change economics and policy. Harvard scholars in design are on the frontier of thinking about sustainable cities; scholars in law, business, economics, and public policy are leaders in addressing regulatory, commercial, and economic aspects of energy and the environment; scholars in public health do vital research on environmental health and its relation to energy use. Indeed, the foundation of our current national clean air regulations was a study undertaken more than two decades ago by faculty at the Harvard School of Public Health.

We also have a strong institutional commitment to sustainability in how we live and work. Our Office for Sustainability is doing outstanding work. We are making substantial progress in reducing our greenhouse gas emissions. We have become much more conscious of sustainable design principles in all of our physical planning and construction. We have created awards to recognize "heroes" who are helping to make Harvard green. And Harvard has earned an array of honors to recognize various sustainability efforts. I am very proud of all that our students and faculty and staff are doing on this front, and those efforts will continue and grow.

As a long-term investor, we need to strengthen and further develop our approach to sustainable investment. This is no small undertaking, and it will present challenges along the way. Especially given our long-term investment horizon, we are naturally concerned about environmental, social, and governance factors that may affect the performance of our investments now and in the future. Such risks are complex, often global in nature, and addressing them effectively often entails collaborative approaches. Generally, as shareholders, I believe we should favor engagement over withdrawal. In the case of fossil fuel companies, we should think about how we might use our voice not to ostracize such companies but to encourage them to be a positive force both in meeting society's long-term energy needs while addressing pressing environmental imperatives. And, like other investors, we should consider how to obtain further, better information on how companies not only in the energy industry but across all sectors take account of sustainability risks and opportunities as part of their business strategies and practices. To help us pursue this path, Harvard Management Company has recently brought on its first-ever vice president for sustainable investing. She will help us think in more nuanced, forward-looking ways about sustainable investment, including the consideration of environmental, social, and governance factors. And, in concert with colleagues, she will play a central role in considering how Harvard can achieve superior investment returns as it fulfills a university's distinctive responsibilities to society.

Harvard has a strong interest in marshaling its academic resources to help meet society's most important and vexing challenges, and there is no question that climate change must be prominent among them. We will continue to do so, through the energy and ideas of our faculty, students, and staff, in ways that are true to the purposes of our endowment and that best take advantage of the University's distinctive capacities as an academic institution.

Sincerely, Drew Faust

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### A Plan for Action on Climate Change

October 21, 2015

A joint statement President L. Rafael Reif Provost Martin Schmidt, SM '83, PhD '88 Vice President for Research Maria Zuber Chancellor Cynthia Barnhart, SM '85, PhD '88 Executive Vice President & Treasurer Israel Ruiz, SM '01

### **Executive Summary**

This statement outlines a plan for the MIT community to address climate change. This plan is the result of intensive discussions in our community led over the last year by the Climate Change Conversation Committee. It embodies the broad, fundamental agreement across our community that climate change demands society's urgent attention; that MIT has a responsibility to lead; and that MIT's moment to act is now. The plan describes risks presented by climate change and MIT's record as a leader on climate science and energy innovation. It then describes our plan for action over the next five years. Finally, the plan responds to a campus petition that we divest from fossil fuel companies. We choose not to divest. We believe that divestment is incompatible with the strategy of engagement with industry to solve problems that is at the heart of this plan.

#### I. What is the problem, and what is our stand?

Overwhelming evidence shows that the Earth is warmer than it was in the pre-industrial age and that most present-day climate change is associated with human activity — the emission of greenhouse gases (GHG). Primary energy use worldwide is projected to increase 60% by 2050. This will drive further warming, which could lead to unplanned migrations, competition for food and water, and societal conflict. A warming of about 2°C (3.6°F) above pre-industrial levels marks a threshold after which the resulting damage to societies and natural systems becomes increasingly grave. Protecting against this risk is known as "the 2°C challenge." To avoid the 2°C threshold in the long term, human-driven emissions must decrease greatly by 2050 and must eventually reach zero. The world needs an aggressive but pragmatic transition plan to achieve a zero-carbon global energy system.

Our mission charges us to advance knowledge, educate students, and bring knowledge to bear on the world's great challenges. Our community is equipped to make important new contributions on climate change. Our mission tells us we must.

From MIT's inception, it has collaborated with industry (including, since the 1920s, the fossil fuel industry) to solve complex problems. Today, we support development of low- and zero-carbon technologies, guide the design and regulation of new power systems, and help MIT entrepreneurs bring clean energy solutions to market faster. The Institute has also worked closely with governments around the world on projects of great consequence. Our engagement with industry and government puts us in an effective position to accelerate climate progress.

#### II. What has MIT done so far?

For decades, MIT has built a record of influential climate research and of advancing the communication and policy of climate science. The MIT Energy Initiative (MITEI), launched in 2006, is one of the world's largest and most successful academic energy programs. More than two-thirds of MITEI's research portfolio focuses on renewables and energy efficiency. MIT's contributions extend far beyond MITEI to include building energy efficiency; industrial energy efficiency; transportation and mobility; and economic policy analysis and design.

#### III. How will MIT intensify its impact?

Academia, industry and government will need to work together to imagine the future as informed by research; to establish the policy and economic incentives to achieve that future; and to develop clear technological goals that will focus and accelerate the research and development required for success. We hope MIT can make a significant contribution to designing and jumpstarting this crucial convening work. The objective of our plan is to minimize GHG in the atmosphere and to devise pathways for adaptation to climate change. Our plan outlines the direct actions MIT will undertake to achieve this objective. Through broad consultation across the MIT community, we found these actions, described below, to have consensus support.

## Improve our understanding of climate change and advance novel, targeted mitigation and adaptation solutions

As part of our Environmental Solutions Initiative (ESI), MIT is providing \$5 million to seed new research and will seek outside support for promising new work. Going forward, ESI will fast-track a portfolio of projects focused on novel solutions for mitigation and adaptation. In addition, ESI's Jameel World Water and Food Security Laboratory will provide grants to support technologies, programs, and policies for supplying water and food for the world's growing population.

#### Accelerate progress towards low- and zero-carbon energy technologies

MIT will collaborate with a diverse group of companies to launch eight Low-Carbon Energy Centers, enabling close to \$300 million in new energy research over five years. The eight centers are: Solar; Energy Storage; Materials for Energy and Extreme Environments; Carbon Capture, Use and Sequestration; Nuclear Energy; and three others to be developed over the next year focused on nuclear fusion, energy bioscience, and the electrical grid. We will also advance research on power systems, mobility, air transportation, and cities, and conduct an ambitious study on how best to overcome the challenges of staying within the 2°C limit.

#### Educate a new generation of climate, energy and environmental innovators

MIT will develop an Environment and Sustainability degree option; develop an *MITx* Climate Change and Sustainability credential; and explore ways to inject principles of "benign and sustainable design" throughout MIT's engineering and design curricula.

#### Share what we know, and learn from others around the world

MIT will provide new short courses and executive seminars for leaders in industry and government; create a public web portal to provide accurate and timely information on climate change; expand the capacity of MIT's Climate CoLab to crowdsource priorities and solutions and engage MIT alumni;

accelerate the activities of the ESI; and pursue solutions through "Solve," an effort to convene influential thinkers and doers to drive progress on a set of great global challenges.

#### Use our community as a test bed for change

To improve campus sustainability and provide ways for faculty, students and staff to use the campus as a test bed for their ideas, MIT will reduce campus GHG emissions at least 32% by 2030; actively pursue new carbon-cutting strategies in campus design, construction and rehabilitation projects; eliminate the use of fuel oil in campus power generation by 2019; enact "carbon shadow pricing"; deploy an open data platform for campus energy use; and activate our campus as a living lab.

#### **IV. The Question of Divestment**

The student-led group Fossil Free MIT has presented a petition calling on MIT to divest any holdings in a group of 200 fossil fuel companies whose identified reserves, if burned, would send the global climate over the 2°C limit. We conclude that divestment and its core tactic of public shaming are incompatible with the strategy of engagement that forms the heart of today's plan. In our judgment, a symbolic public move to divest is not the most effective way for MIT to drive progress on climate, and pursuing it would interfere with two promising strategies: active engagement and bold convening.

We find that the best way for MIT to accelerate action on the climate challenge is active engagement with organizations of many kinds, including industry partners that range from the most disruptive solar startups to fossil fuel giants that have mastered the challenges of delivering energy to millions of households. Furthermore, acceleration will depend on our ability to help industry and government understand each other, on the road to designing sound policy incentives. We also see a unique opportunity for MIT to serve as a convener of widely different voices and sectors to help shift the public dialogue from deadlocked argument to a constructive conversation about solving problems.

We are not naïve about the pernicious role of some segments of the fossil fuel industry in creating the current policy deadlock. We deplore the practice of "disinformation," through which some industry players and related groups have obstructed public understanding of the climate problem. We will continue to advocate frankly with industry allies as we all work together for climate solutions, including a price on carbon; such a policy shift would change the incentives for us all and make fossil fuel companies, a rich source of technical talent, a central source of progress. We judge that we may be seeing a tipping point in that policy dynamic now. This month, the CEOs of ten of the world's largest oil and gas companies, including six MITEI members, declared their "shared ambition" for a 2°C future.

We step up to the climate challenge with this plan. We hope everyone in our community—including those who wish we had divested—will work with us to help this vital effort succeed.

#### **V.** Conclusion

Climate change and its many interrelated problems present risks too grave to gamble with. To solve this global problem, humanity must reorder the global energy status quo. To make a serious difference, we are eager to engage everyone we can.



#### Oxford University and fossil fuel divestment

Oxford University is a world leader in the battle against climate change.

Our researchers have played a large part in developing the understanding of climate change and its link to man-made carbon emissions. Today, the Oxford Energy Network, an interdisciplinary group of more than 180 senior researchers, works to tackle the social, economic and political challenges of sustainable energy for all. Meanwhile, the University's Environmental Sustainability Policy has been shrinking the carbon footprint of our considerable estate since 2008. We have set ourselves the target of reducing our carbon emissions by one third by 2021 and have ring-fenced £14.6 million to be spent on carbon reduction targets.

Last year, Oxford University Student Union (OUSU) asked the University to consider on what else could be done to counter climate change through the management of its endowment fund.

The endowment, or the Oxford Funds, exists to invest donations to the collegiate university for education and research, now and in the future. The Funds are managed by a University subsidiary, OU Endowment Management (OUem), which is supervised by the University's Investment Committee. The University is the legal trustee of the Funds, making investment policies on behalf of itself, the 27 colleges and other collegiate University members who are investors.

The University's executive governing body, Council, as trustee, has consulted on the issue and now considered the results. It has concluded that OUem already has robust mechanisms to ensure environmental and social factors are fully and properly considered in its investment decisions. However, given the risk of climate change to the environment and society, Council has decided to strengthen further OUem's engagement with and reporting of the issue.

The Council has therefore agreed the following:

• Council encourages OUem to maintain its rigorous assessment of potential investments across a number of risk criteria, particularly social and environmental impacts, alongside other investment criteria. Council recognises that OUem's Governance Policy is designed to avoid investments in sectors with the highest environmental and social risks, leading to its present situation of no direct holdings in coal and oil sands companies – one of the key points in the OUSU representation. Council has asked OUem to maintain this position and avoid any future direct investments in coal and oil sands.

• Council supports the continued inclusion of a broad range of energy investments with The Oxford Funds, where financially prudent. The Investment Committee will report annually on its voting decisions and how OUem has engaged with fund managers across all sectors.

• Council has asked OUem to continue to improve reporting on and communication of its investment strategy, including on its website and in its annual report.

As a further action, Council has also asked its Environment Sustainability team to report annually on the carbon usage of sample groups of university members and on the progress towards institutional carbon emissions targets.

The Council was clear that OUem already has a careful and considered approach to climate change. It has thorough screening and due diligence processes designed to select investments that produce long term high returns but also avoid high social and environmental risks. For this reason, the Oxford Funds already hold no direct investments in coal and oil sands. Further, the Funds hold no direct investments in the energy sector.

OUem prefers investing in fund and investment groups with holdings in a concentrated number of portfolios. Once investments have been made, OUem maintains close and frequent engagement with fund managers on range of issues, which include social, environmental and reputational concerns. As a consequence, OUem has a thorough understanding of the sector exposure of the Funds. As at 31 December, the Oxford Endowment Fund stood at £1.7 billion, with an estimated 3 per cent exposure to the wider energy sector. This comprised 1.7 per cent in exploration and extraction, 0.2 per cent in refining and marketing, 0.4 per cent in storage and transportation and 0.7 per cent in equipment and services. A full breakdown of all sector exposures will now be included in OUem's annual report in June and every year following.

OUem is also already a member of the Institutional Investors' Group on Climate Change, another key recommendation of the OUSU representation. Group members collaborate to encourage public policies, investment practices and corporate behaviour that tackle the risks of climate change. As a member, OUem also has access to the latest research on monitoring carbon exposure in investments.

Given its long term outlook, OUem can take global challenges into account when deciding on investments. In 2010 for example, the team thoroughly researched carbon emissions and investment possibilities in reduced dependence on fossil fuels. As a result, OUem invested in Osmosis Investment Management, which has an innovative approach to analysing the resource efficiency of quote companies and their use of energy, water and waste.

Oxford University believes this balanced investment policy strongly complements its wide-reaching research into climate change and its ambitious sustainability targets.



March 17, 2015

President Christopher L. Eisgruber Princeton University 1 Nassau Hall

Via email

Dear Chris,

This year has been an exceptionally busy one for the Resources Committee of the CPUC. We have received a proposal to divest endowment holdings from fossil fuel companies; two conflicting petitions regarding investments in companies doing business in the occupied territories of Israel; and a request to develop sustainable investment strategies to guide endowment investment practices. In discussing all of these submissions, questions have arisen about the values, goals, and ethical standards the University applies in making investment decisions. In each case, petitioners have expressed a clear desire for consistency between what they perceive to be the core values of the University and its practices in all domains, including investment choices.

The committee had a very helpful conversation with Andy Golden about the principles that guide the selection and oversight of the managers who are engaged by the University to make investment decisions, Mr. Golden also outlined the rigorous standards applied by the Princo board and staff to investment decisions and described the negative impact investment constraints would have on endowment returns.

The committee has deliberated on all of the issues raised by the community. Our members have a variety of opinions about how to address the trade-off between the ideal of consistency between values and practices and the desire to maximally fund our core activities of teaching and research. We appreciate the interests of the campus community for consistency in applying the University's basic values and in better understanding the various elements of the University's investment standards. To that end, the committee believes that it would be very helpful for the University and Princo to clarify for the campus community the guidelines, policies, and principles that are applied in managing the investment of the endowment. We recognize that the Princo directors, Princo staff, and our outside investment managers adhere to a set of best practices that aim to produce outstanding returns while protecting the University from reputational risk, illegal or unethical behavior, and unintended or ancillary risk of any particular long-term investment. We believe the community would welcome an articulation of how these best practices are determined and applied, and of the range of goals that the University seeks to achieve. The proposal submitted by the Princeton Sustainable Investment Initiative (PRII) may illustrate the situation as we observe it through the committee's lens. PRII points to the University's comprehensive Sustainability Plan and our commitment to mitigate the effects of climate change both through research and teaching, and through ongoing efforts to change operational practices to reduce the campus carbon footprint. PRII interprets these commitments as a demonstration of a core University value, and proposes the development, by an ad hoc committee, of a set of guidelines that would be used to apply similar commitments in making investment decisions (such guidelines might recommend divestment). In addition, PRII recommends becoming a signatory of the Principles for Responsible Investment (PRI) and the Carbon Disclosure Project (CDP). The petitioners argued that such signatures, while primarily symbolic, would provide a useful framework for good practices and would enhance the University's standing in a world that is increasingly concerned with adherence to ethical and responsible principles that go beyond legal obligations.

With regard to divestment, the University's existing and well-articulated guidelines for assessing proposals regarding divestment and dissociation have been invaluable in informing the committee's consideration of proposals of this kind. As we have discussions with members of the University community about a broader range of investment-related issues, it would be helpful to be able to make reference to an articulation of the guiding principles that undergird the University's overall investment practices and to clarify the application of the principle of disassociation.

The committee is well aware that the University has a strong tradition of not taking political stances and does not use its investment decisions to try to influence the behavior of others. At the same time, we learned that some of Princo's managers do consider environmental, social and governance factors in assessing the business risk of their investments. The committee believes that it would be helpful to have clarity about how Princo considers these factors so that the community better understands and appreciates these efforts.

As you know, the Resources Committee is asked to "consider questions of general policy concerning the procurement and management of the University's financial resources" and to consider issues related to investment responsibility and socially responsible investment in the context of investment objectives that aim to provide financial support for the teaching and research that are at the heart of the university's mission. We believe that clarifying the process for selecting and interacting with managers, articulating the characteristics deemed most important in managers, describing the elements of best practices that Princo takes into account, and elaborating on the ethical and reputational goals that are of concern to the Princo board and staff would be of interest to the University community, and helpful to us as we carry out our responsibilities.

In summary, we observe a sincere interest on the part of the University community for clarification of our standards and principles, for a better understanding of when the University takes action and is willing to incur costs for the sake of such principles, and for a more thorough examination of the trade-offs involved in making such decisions as well as an evaluation of the transparency with which they are made. Our committee therefore conveys to you a request for clarification and guidance, and is willing to support this effort as you may see appropriate.

We would be happy to answer any questions you may have about the nature of our request and about why we believe this would be an opportune time to make such an effort.

With best wishes,

Marc Fleurbaey Chair of the Resources Committee

CC: Professor Lynn Loo Professor Denise Mauzerall Mr. David Schwartz GS Mr. Jacob Cannon '17 Mr. Dallas Nan '16 Ms. Carolyn Ainslie Ms. Jennifer Birmingham Ms. Leila Shahbender Ms. Karen Jezierny



President's Room Nassau Hall Princeton, New Jersey 08544-0015

April 15, 2015

Professor Marc Fleurbaey Woodrow Wilson School Robertson Hall

Dear Marc,

Thank you for your letter of March 17. I appreciate that the Resources Committee has been busier than usual this year, and I am grateful to you and to the other committee members for addressing issues so thoughtfully and conscientiously. These issues are important to the University, and I accordingly welcome the opportunity to respond to the questions raised in your letter.

I take the heart of the letter to be the request, articulated most fully in its penultimate paragraph, for

"clarification of our standards and principles, for a better understanding of when the University takes action and is willing to incur costs for the sake of such principles, and for a more thorough examination of the trade-offs involved in making such decisions as well as an evaluation of the transparency with which they are made."

As I understand the question, it goes well beyond decisions about the endowment. The University takes politically controversial positions in multiple contexts, including, for example, when it formulates campus policies and when it engages in legislative advocacy. I agree with the committee's apparent thinking that issues about the endowment are best viewed in light of a much more general vision of the University's mission and purposes, and so I hope that you will not mind if I begin by mentioning some basic ideas that may perhaps be obvious, but that are in any event fundamental to my answer.

Princeton, like any great research university, aims to influence society principally by the scholarship we generate and the people we educate, not through economic clout or institutional position-taking. A commitment to robust debate and freedom of inquiry is essential to the quality and credibility of the scholarship and teaching that we do. Because the University seeks to provide an open and unbiased forum for scholarly contestation about key issues of the day,

Princeton must be very careful about when and why it takes an institutional position about contested issues.

#### A General Presumption against Taking Stands on Political Issues

We accordingly maintain a general presumption against taking stands about political issues, and we make exceptions only in a narrow range of circumstances. One exception involves circumstances in which the University must resolve a contested moral or political question because of an obligation to people (including applicants, faculty, students, and staff) or entities (including the environment on and around our campus) where we exercise direct authority or control or have specific responsibilities. For example, race-conscious admissions practices are controversial, but we must nevertheless decide whether to take racial and ethnic diversity into account when selecting among applicants. Gay rights are controversial, but we must decide whether to provide the same benefits to gay couples that we provide to heterosexual ones. Environmental policy is controversial, but there is widespread scientific consensus that carbon emissions do damage to the environment, so we must decide whether we will take actions to reduce the carbon emissions from our campus.

In one respect these choices may not count as a genuine "exception" to the University's general presumption against taking political stands. We make them not for symbolic reasons or in order to send a message, but rather because they present choices we have to make in carrying out the activities and operations of our institution and our campus. For example, Princeton has no way to remain neutral about the value of racial and ethnic diversity in its own admissions process: we either attach a positive value to it or we do not. We recognize that while we do not make such choices for the purpose of taking political stands, one can infer political and moral positions from them. We try to be as transparent as we can in communicating the positions we take and why we take them.

The second exception is advocacy on behalf of policies that directly affect our core activities of research and education. Princeton actively takes positions in support of funding for research and education, academic freedom, the right of colleges and universities to pursue racial and ethnic diversity, and other policies that affect our ability to carry out our mission. We believe that our distinctive expertise and our obligation to serve the best long-term interests of this University justify our advocacy regarding issues directly affecting higher education even if they are controversial, and we recognize that if we did not take a stand in public debates about them, we could not count on others to do so on our behalf.

The third exception, and the one that has proven most relevant to questions about investment policy, is that we refuse to allow the University to benefit from activities or practices that the University community as a whole regards as seriously inconsistent with a core university value. Because of the University's deep regard for diversity of opinion and for the positive value of association, we have construed this exception narrowly. For example, we maintain relationships with other institutions of higher education around the world, including institutions in countries that do not share the same respect for values of academic freedom and free speech that we believe essential to scholarly inquiry. But when a sustained moral consensus of the

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University community has existed—for example, against apartheid in South Africa and against genocidal violence in Darfur—the University has appropriately acted to disassociate itself from the immoral practice itself and from those who sought economic benefit from it (the University's guidelines regarding divestment and dissociation are well described on your website, <u>http://www.princeton.edu/vpsec/cpuc/committees/rc/guidelines/GUIDELINES-FOR-RESOURCES-COMMITTEE.pdf</u>).

#### The Presumption against Political Stands Applies to Management of the Endowment

The University's presumption against taking political stands applies with full force to the management of its endowment. Alumni and friends make gifts to Princeton's endowment to support the University's mission. We are fortunate to receive gifts from people who have fundamentally differing political views, but who share a commitment to free inquiry and to the value of research and education. We are obliged to use and invest their funds on behalf of the mission for which they are given. Our donors might hope, for example, that their gifts will produce leaders and generate research that alleviate the suffering caused by poverty in the world, but it does not follow that we may transfer their money to charities that fight poverty, or that we may use it for political advocacy on behalf of welfare programs or foreign aid. Our donors could have made their gifts to those causes had they wished to do so. They placed their trust in us because they believed in the power of teaching and research, and we are obliged to keep faith with them.

All other things being equal, we have an obligation to invest the endowment in ways that maximize its capacity to support Princeton's teaching and research mission over the long term. As Andrew Golden explains in the memorandum attached to this one, PRINCO's long-term perspective requires the incorporation of ethical perspectives on decisions: to generate the durable returns that the University is seeking, our managers must pursue sustainable strategies that take full account of legal, reputational, and political considerations. In general, however, we do not apply any political overlay of our own to these judgments. That approach is consistent with the basic principle that I mentioned at the outset of this letter, a principle holding that Princeton should influence the world through the quality of the scholarship it generates and the people it educates, rather than through economic clout or institutional advocacy.

Of the three exceptions to the University's general presumption against taking political stands, the first two have no application to its investment policy. First, the University has no direct authority or control over the interests in which it invests, and it need not take political stands about them in order to manage its endowment. I have sometimes heard people deny the latter proposition. They say that if *divesting* takes a political stand, then *not divesting* must involve an equal and opposite political stand. I do not agree. A decision to divest from, for example, energy companies requires a political judgment about the morality of what energy companies are doing. So, too, would a decision to favor energy investments over other investments on political grounds. Except when there is a sustained moral consensus on campus, as I cited earlier, we would not instruct PRINCO to refuse to make investments, or to make investments, on political grounds. In following a policy that asks managers to maximize long-term investment value, subject to the

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considerations that Mr. Golden describes, we make no political judgment, positive or negative, about energy companies or overall environmental policy.

We take this position with full appreciation for the importance of scientific and policy issues related to the environment; in fact, we have significantly expanded our commitment in recent years to research and teaching in these areas. As I said earlier, we are committed to the idea that the University should exert influence by providing an unbiased forum for teaching and research of unsurpassed quality, not by trying to exercise economic clout or institutional advocacy.

Unlike the choices I described earlier (about, for example, whether to take race and ethnicity into account when admitting applicants to Princeton, or how much carbon we are willing to emit into the atmosphere), the arguments made in favor of divestment often focus entirely on the messages that the University would send by its decision. Proponents of divestment usually recognize that even the largest university investments are tiny by comparison to the overall capital markets. Universities have no special control over the companies in which they or their managers invest; other investors will seize economic opportunities that universities abandon. The argument for divestment depends on sending a symbolic message, and that is precisely what we cannot do without jeopardizing the free exchange of ideas and freedom of inquiry on campus, except in those rare circumstances when there is a widespread and sustained consensus of the University community that association with a particular company or set of companies, or with a particular activity, seriously conflicts with a core University value.

The third exception—which pertains when the University community as a whole determines that the activities or practices of a company or companies are seriously inconsistent with a core university value—is the one that has been applied in the past with regard to the University's investment portfolio; it has the support of the trustees (who have the ultimate responsibility for deciding how the endowment is invested) and should continue to govern our conduct in the future. When we make such a judgment, its implications reach beyond the management of our endowment. If we believe that we should not be associated with a company or an activity as a matter of our investment policy, then so too we ought to disassociate from it in all other aspects of our operations—we ought not to purchase products or accept gifts from it, nor should we form partnerships with it or facilitate its recruitment activities.

#### Further Observations Related to Energy and the Environment

I would like to close with some further observations related to issues about energy and the environment, since that is the topic that seems most to have prompted your letter. Given this university's commitment to influence the world by providing a fair and unbiased forum for scholarship and teaching, rather than by using its economic clout or institutional advocacy, it would be a profound mistake to create an investment policy that took political stands regarding the business activities of energy companies. These companies do not meet the disassociation standard. Every member of the Princeton community associates with energy companies and benefits from what they do. We all purchase their products. The University accepts gifts from them and from the alumni who work for them. Our scientists partner with them. Our students

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seek jobs with them and we welcome their recruiters. We seek their advice on issues of sustainability. Questions about energy, the environment, and sustainability are among the most important that the world faces—but they are questions that arise not out of the conduct of a few bad actors but rather out of the conduct of all of us. We must all find ways to reduce the damage that we cause to the environment—and that is why the University, which shares in this ethical obligation, seeks to reduce damage to the environment from its campus and other activities under its control.

The University's reputation as a fair and unbiased forum for teaching and research is as important in this area as in any other. Our scientists' research is making a powerful case about the urgent need for action to protect the environment, and about what the world must do to meet that need. The persuasiveness of that research depends both on its rigor and on the integrity of the scholarly forums in which it is developed and tested. If the University itself behaves in a manner that is politically partial, we weaken our capacity to contribute to this debate in the way that is most needed, and as we are uniquely capable of doing—by providing authoritative and impartial scholarly expertise.

I hope that these reflections help to answer the questions posed in your letter. Please let me close where I began: by thanking you for the time and consideration that you have devoted to these topics, and for the opportunity to address issues that are fundamental to this University.

With best wishes,

Sincere hristopher L. Eisgruber

Attachment

P.S. As noted in my letter, I append a memorandum from Andrew Golden, the president of PRINCO, that offers helpful perspectives on the role that social responsibility considerations play in the PRINCO investment program.

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#### Princeton University Investment Company 22 Chambers Street, Suite 300 Princeton, New Jersey 08542

Phone: 609-258-4136

Fax: 609-258-1880

April 13, 2015

To: President Eisgruber

From: Andrew Golden

Re: The role of social responsibility in PRINCO's investment program

Thank you for the opportunity to illuminate the role of social responsibility considerations in the day-to-day management of the PRINCO investment program. While there is much information available on the CPUC Resources Committee website and in other places on the protocols (and the reasoning behind them) for considering proposals related to divestment and disassociation, and there has been much discussion of actions taken by the University with respect to apartheid in South Africa and genocide in Darfur, there is much less awareness in the broader University community about the ways in which PRINCO takes social responsibility considerations into account on a regular basis in overseeing the investment of Princeton's endowment.

As you know, PRINCO partners with about 75 external investment management firms, each of which already is, or shows promise to become, a world-class expert in a specific investment specialty. We seek through this approach to produce the very high returns that we must perpetually compound in order to finance excellence in teaching and research, not just for today's Princeton, but for the Princeton hundreds of years from now. The mission of assuring that future Princeton students and faculty will have at least as many resources as the current generation is formidable — a small difference in annual investment gains compounds to an enormous difference in assets over time. For example, if our compound annualized returns during my 20-year tenure here were just one-tenth of one percent less than what they were, the endowment would be about \$700 million smaller, which would require a cut of about \$30 million from today's operating budget.

Optimizing a roster of managers requires science, craft, and art. The process involves qualitative judgment and constructive engagement with our managers so that together we can become better investors and build a superior program. The best decisions can never be made formulaically. They require consideration of social issues as well as purely economic issues, and a fine grain look at facts and circumstances specific to each case.

The endowment's mission, like the University's, is focused on the longest term. Most of the endowment's investments are purchased with the intent of being held for multiple years. As a result, it is natural for our managers, when considering investing in a company, to assess risks and opportunities that will face those companies in the future as well as those facing them today. President Eisgruber April 13, 2015 Page 2

Consistent with this long-term perspective that we expect from our managers, PRINCO itself regularly considers how the quality of an investment might evolve over time. Making this assessment involves a collection of judgments about factors that extend beyond a company's economic positioning today. These factors include potential regulatory changes, technological evolution, alterations to the surrounding economic environment, and reputational risks. Obviously, neither we nor our investors have a crystal ball — we cannot predict how laws or technology or the economy or reputations will evolve. We believe, however, that applying an ethical perspective provides a useful guide to analyze these kinds of issues: we believe that, in many, if not most cases, where a need or an injustice exists, decent social, economic, and political systems will adjust to address it. There is nothing inevitable about this view. We adopt it as a matter of conscious choice. Some people might take a much more cynical view of the human situation. But at PRINCO we believe that these kinds of ethical judgments provide two benefits to us. First, they assure that we are sensitive to moral perspectives concerning a host of important social considerations. Second, they often illuminate considerations that ultimately have economic consequences.

Although we cannot reduce the role of ethical analysis to a simple statement, it is significant. A few examples illustrate how it affects our decision-making.

Sixteen years ago we initiated a program of timber investment. Over the course of developing this program, we had conversations with the PRINCO Board, the Trustee Finance Committee, and prospective timber managers that led us to conclude that the wise choice in this area was to require that our timber managers have their practices certified as sustainable by an external entity such as the Forest Stewardship Council (FSC) or Sustainable Forestry Initiative (SFI). In making that decision we learned that sustainable forestry practices can sometimes involve counterintuitive actions. For example, sometimes cutting more trees is better from an environmental standpoint than cutting fewer would be. While it is not always true, in this particular case having our managers engage an outside certification entity seemed an effective, efficient mechanism to help the pursuit of good stewardship and the management of reputational risk. Although it was not by any means the primary motivation driving the decision, the FSC and SFI certification also made sense economically — consumer demand was and is such that certified sustainably produced wood products result in higher profits, despite higher costs of production.

In other cases we may apply a different set of considerations. For example, consider the question of investing in companies that extract fossil fuels. Given the fact that it is impractical for fossil fuel extraction to completely cease, we might conclude that society would be better off if those who were in the business of extracting fossil fuels did so in a manner that was more environmentally protective and energy efficient, recognizing that fossil fuel extraction is one of the highest energy-intensive business activities. In that regard, let me quote from a memorandum we sent recently to the PRINCO Board, discussing a commitment we are making to an energy manager:

President Eisgruber April 13, 2015 Page 3

> Of note, [XYZ firm] stands out for its close attention to the unique environmental risks of energy investing. The firm makes stringent adherence to all health, safety, and environmental regulations a focal point of company governance... The firm recently began tracking the carbon intensity of its portfolio relative to the fossil fuel industry as a whole, and we are confident that [XYZ] exercises the utmost care in pursuit of its strategy.

I offer this quotation to provide a real-time snapshot of the types of conversations and thoughts that are part of our investment decision-making.

A key criterion in selecting managers is whether or not we can expect them to be good partners with us. We expect that managers will extend this concept of partnership to other aspects of their business, including holding the management of the companies in which they invest to a similar high standard. Our managers recognize that good company managements will consider whether they are acting in good partnership with relevant stakeholders beyond owners, including employees, customers, and the communities in which they operate. We do not expect the considerations of these constituencies to be equally weighted; we do expect though that the various constituencies will be treated fairly.

We and our managers follow the highest business ethics standards. We expect our managers and the management of companies in which they invest to follow, at a minimum, relevant "Best Practices." And while it may go without saying, we expect our managers and the management of companies in which they invest to follow the spirit, not just the letter, of laws and regulations.

Because of the complexity of considerations, it is not possible to create a simple, exhaustive, ongoing listing of dos and don'ts. Rather, what can be done is to assure that thought is given to important issues, and that we discuss these issues with our managers. A recent example of what I mean is a discussion we had with one of our venture capital firms about the fact that some aspects of a particular social network company created risk that the company's app could promote cyber-bullying. The manager identified this risk, and decided to not invest in that company for that reason. This manager is an aggressive, competitive investor, out to create high returns. Yet the firm's partners examine the full consequences of its investing and make reasonable judgments about social responsibility as well as economic return.

We do several things to assure that we are well educated in matters of social responsibility. We are involved in two different networks of peer endowment offices so that we can keep up-to-date on best practices of investor responsibility. We attend conferences on social responsibility topics. To give a sense of our proactivity, in 2003, long before fossil fuel investment attracted significant attention on this campus, I attended the Institutional Investor Summit on Climate Risk at the UN.

President Eisgruber April 13, 2015 Page 4

While it is hard to describe our approach to social responsibility with succinct generalizations, the fact is that our complex, distributed investment process does promote social responsibility, even while making superior returns our primary concern. For example, even though we operate without any requirement to promote environmental sustainability, over the past decade we have made about \$1.5 billion of investments that specifically do so.

I hope the above sheds some light on how matters of investor responsibility are engaged at the micro-level as we pursue our fiduciary responsibility on a macro level to generate the resources that are essential to support the University's mission.
Stanford Report, May 6, 2014

# Stanford to divest from coal companies

Acting on a recommendation of Stanford's Advisory Panel on Investment Responsibility and Licensing, the Board of Trustees announced that Stanford will not make direct investments in coal mining companies. The move reflects the availability of alternate energy sources with lower greenhouse gas emissions than coal.



The Stanford University Board of Trustees has decided to not make direct investments of endowment funds in coal-mining companies.

Stanford University will not make direct investments of endowment funds in publicly traded companies whose principal business is the mining of coal for use in energy generation, the Stanford Board of Trustees decided today. In taking the action, the trustees endorsed the recommendation of the university's Advisory Panel on Investment Responsibility and Licensing (APIRL). This panel, which includes representatives of students, faculty, staff and alumni, conducted an extensive review over the last several months of the social and environmental implications of investment in fossil fuel companies.

Stanford's <u>Statement on Investment Responsibility</u>, originally adopted in 1971, states that the trustees' primary obligation in investing endowment assets is to maximize the financial return of those assets to support the university. In addition, it states that when the trustees judge that "corporate policies or practices create substantial social injury," they may include this factor in their investment decisions.

The analysis of investment in coal was undertaken through this policy lens. In particular, the Board of Trustees concurred with the university's advisory panel that divesting from coal is consistent with this policy given the current availability of alternatives to coal that have less harmful environmental impacts.

"Stanford has a responsibility as a global citizen to promote sustainability for our planet, and we work intensively to do so through our research, our educational programs and our campus operations," said Stanford President John Hennessy. "The university's review has concluded that coal is one of the most carbon-intensive methods of energy generation and that other sources can be readily substituted for it. Moving away from coal in the investment context is a small, but constructive, step while work continues, at Stanford and elsewhere, to develop broadly viable sustainable energy solutions for the future."

The resolution means that Stanford will not directly invest in approximately 100 publicly traded companies for which coal extraction is the primary business, and will divest of any current direct holdings in such companies. Stanford also will recommend to its external investment managers, who invest in wide ranges of securities on behalf of the university, that they avoid investments in these public companies as well.

A student-led organization known as Fossil Free Stanford petitioned the university last year to divest from 200 fossil-fuel extraction companies as part of a national divestment campaign. The request by Fossil Free Stanford was reviewed over the last several months by APIRL's Environmental Sustainability Subcommittee, which met with the group, conducted its own extensive research and took input from other constituencies.

The subcommittee's recommendation was subsequently approved by the full APIRL, the Trustees' Special Committee on Investment Responsibility and the Board of Trustees.

"Fossil Free Stanford catalyzed an important discussion, and the university has pursued a careful, research-based evaluation of the issues," said Steven A. Denning, chairman of the Stanford Board of Trustees. "We believe this action provides leadership on a critical matter facing our world and is an appropriate application of the university's investment responsibility policy."

"We are proud that our university is responding to student calls for action on climate by demonstrating leadership," the Fossil Free Stanford group said in a statement. "Stanford's commitment to coal divestment is a major victory for the climate movement and for our generation."

In its review, the APIRL acknowledged the findings of the U.N. Intergovernmental Panel on Climate Change regarding the role of fossil fuels in contributing to changes in the global climate system. The APIRL also noted that the use of coal for electricity production generates higher greenhouse gas emissions per unit of energy generated than other fossil fuels, such as natural gas, and that alternatives to coal are sufficiently available. Replacing other fossil fuels with renewable energy sources also is a desirable goal, the APIRL said, but fewer alternatives are readily available for these other energy sources on the massive scale that will be required to replace them broadly in the global economy.

"The Board of Trustees greatly appreciates the thoughtful work of the students and of the Advisory Panel on Investment Responsibility and Licensing," said Deborah DeCotis, chair of the Trustees' Special Committee on Investment Responsibility. "This is a considered approach that is consistent with our institutional values and acknowledges the critical sustainability challenges facing our planet."

Stanford does not disclose specific investments in its portfolio nor their individual value, though it provides information on endowment holdings and performance by broad asset category. The total value of the endowment was \$18.7 billion as of Aug. 31, 2013, the close of the 2012-13 fiscal year.

Stanford is active on many fronts in addressing the challenges of global climate change. The university conducts an extensive array of research focused on sustainability and energy efficiency, including work at the School of Earth Sciences, the Stanford Woods Institute for the Environment, the Precourt Institute for Energy and elsewhere. Stanford faculty members have played a key role in the U.N. Intergovernmental Panel on Climate Change process.

The university currently is implementing the Stanford Energy System Innovations (SESI), a new energy system that will reduce campus carbon emissions by 50 percent and reduce water use by about 15 percent above the 21 percent reduction Stanford has already achieved over the last 15 years.

Stanford also has reduced employee drive-alone rates from 72 percent in 2002 to 47 percent today; developed campus facilities with state-of-the-art energy features, such as the Knight

Management Center and the Jerry Yang and Akiko Yamazaki Environment and Energy Building; and launched an effort to accelerate water-recovery technologies at the William and Cloy Codiga Resource Recovery Center to be built on campus.

In the investment context, in addition to the action on coal, Stanford's existing proxy voting guidelines adopted earlier by the Board of Trustees mandate that the university vote "yes" on proxy resolutions asking companies to adopt sustainability principles, reduce greenhouse gas emissions and increase the energy efficiency of their operations.

#### MEDIA CONTACT

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### Stanford News (http://news.stanford.edu/)

#### APRIL 25, 2016 Stanford and climate change: A statement of the Board of Trustees

In a statement, the Board of Trustees underlines Stanford's commitment to battling climate change, highlights university initiatives to address it and responds to Fossil Free Stanford's request to divest from the fossil fuel industry. The trustees have concluded that Stanford's endowment will not divest, based on a review of criteria in the university's Statement on Investment Responsibility and input from the Advisory Panel on Investment Responsibility and Licensing. The trustees also announce a new climate task force that will solicit new ideas from across the Stanford community for addressing climate change. The text follows below.

The Board of Trustees, through its Special Committee on Investment Responsibility, has been evaluating a proposal for Stanford to divest its endowment from the fossil fuel industry. This proposal was put forward by Fossil Free Stanford, a student organization that deserves great credit for its committed efforts to heighten awareness in the Stanford community about the threat of global climate change.

Stanford has placed a major emphasis on combating climate change and works to advance its efforts every day. Climate change is among the most serious challenges of our time, and addressing it requires all organizations, governments and individuals to contribute real solutions. As a research and educational institution with a deep commitment to addressing pressing global challenges, Stanford has embraced sustainability practices and demonstrated leadership in how it operates the university, in its academic programs and in its research initiatives.

#### A record of accelerating progress

As trustees, we believe Stanford has gone well beyond establishing goals and commitments to achieving significant results that have made it a leader in combating climate change. What Stanford has done and is now doing – through its academic mission, research and operations – is a critical part of the climate conversation. Stanford's strategic approach has included:

• A new, greenhouse gas-reducing energy system: With a vision of applying its intellectual resources to provide leadership in climate solutions, Stanford developed a comprehensive Energy and Climate Plan for its campus in 2009. This plan led to creation of the Stanford Energy System Innovations (http://news.stanford.edu/features/2015/sesi/) (SESI) – a completely transformative campus energy system costing nearly \$500 million that began operating in 2015. With SESI, Stanford will achieve a 68

percent reduction in campus greenhouse gas emissions by the end of 2016 and will exceed state, national and international goals for 2020 several years early.

- Clean energy: As part of SESI, Stanford has contracted to build an off-campus solar plant and is finalizing plans to expand the installation of solar panels on campus buildings. By the end of 2016, solar power will provide half of Stanford's electricity, and 65 percent of campus energy will come from renewable sources, including purchases from the California power grid.
- Research leading to climate solutions: Stanford made the environment and sustainability a key initiative in The Stanford Challenge campaign, raising \$433 million that has funded many of the university's new research institutes and facilities in this area. These include the Stanford Woods Institute for the Environment (https://woods.stanford.edu), the Precourt Institute for Energy (https://energy.stanford.edu), the TomKat Center for Sustainable Energy (https://tomkat.stanford.edu), the Stever-Taylor **Center for Energy Policy and Finance** (https://law.stanford.edu/steyer-taylor-center-forenergy-policy-and-finance/), the Jerry Yang and Akiko Yamazaki Environment & Energy Building (Y2E2)

#### **Related** links

<u>PDF of Board of Trustees Statement</u> (http://irsr.stanford.edu/documents/trusteesstatement-042516.pdf)

<u>Finding Climate Solutions: Stanford Climate</u> <u>Research</u> (<u>https://earth.stanford.edu/news/finding-</u> <u>climate-solutions-across-stanford</u>)

<u>Campus Energy and Climate Plan</u> (<u>https://sustainable.stanford.edu/sites/default/files</u> <u>attachments/E C Plan 2015.pdf)</u>

<u>Stanford Energy System Innovations</u> (http://news.stanford.edu/features/2015/sesi/)

<u>Annual report of Sustainable Stanford</u> (http://sustainability-year-in-review.com)

<u>Stanford letter to Paris climate conference</u> (http://news.stanford.edu/news/2015/october/clima change-statement-102815.html)

<u>School of Earth, Energy & Environmental</u> <u>Sciences (https://earth.stanford.edu)</u>

<u>Stanford Woods Institute for the Environment</u> (https://woods.stanford.edu)

<u>Precourt Institute for Energy</u> (https://energy.stanford.edu)

(http://news.stanford.edu/news/2013/august/y2e2-leed-platinum-080913.html) and others. Today, Stanford faculty are international leaders

(https://earth.stanford.edu/sites/default/files/FindingClimateSolutions.4-6-15.lo\_res\_1.pdf) in energy and environmental research – providing scientific leadership for the U.N. Intergovernmental Panel on Climate Change; modeling options for national clean-energy infrastructures; and pursuing strategies for carbon capture, solar cell efficiency, new battery technology, coastal resilience to sealevel rise, and a range of other pressing climate needs. Stanford offers students more than 750 courses addressing sustainability issues, and the Emmett Interdisciplinary Program in Environment and Resources (https://earth.stanford.edu/eiper) trains graduate scholars to address the world's most challenging environmental and sustainability problems.

- **Green transportation:** Half of Stanford employees today commute to campus in ways other than driving alone in a car. To achieve this, Stanford has funded financial incentives for employees, developed partnerships with regional transit agencies and increased infrastructure for bicyclists. In addition, Stanford is expanding the availability of charging stations for electric vehicles and moving more of its fleet vehicles and Marguerite buses toward non-gasoline models.
- Energy efficiency in campus buildings: A campus-wide program, begun in 1993, has now retrofitted more than 500 buildings for energy efficiency. Stanford has allocated another \$30 million for major capital improvements to the most energy-intensive buildings on campus, and 15 of these projects have been completed so far. In its new construction, Stanford has won platinum-level environmental recognition for facilities such as the Knight Management Center and Y2E2.
- Wastewater recovery: Stanford is constructing a pioneering wastewater recovery facility, the Codiga Resource Recovery Center (http://news.stanford.edu/news/2016/april/codiga-recovery-center-040416.html), that will test the extraction of clean water and energy from campus wastewater. This testbed aims to accelerate commercial development of this technology for broader use around the world.
- A sustainability movement and reporting structure: Stanford, in partnership with students and others in the campus community, has made sustainability a campus cause, engaging the community in efforts to change behaviors in ways that reduce its environmental footprint. A sustainability office created in 2007 and Sustainability 3.0 (https://sustainable.stanford.edu/vision) a 2011 collaborative effort involving faculty, staff and student leaders helped chart the present campus strategy. The strategy includes robust annual reporting (http://sustainability-year-in-review.com) of campus progress on a range of sustainability metrics and Cardinal Green

(https://sustainable.stanford.edu/cardinal-green), an ongoing campus-wide outreach initiative that includes four seasonal conservation campaigns each year.

#### A new climate task force

The trustees believe firmly that Stanford's progress must continue across the spectrum – in teaching, in research and in campus operations. The achievements to date are impressive by any measure. But we are committed to continuing our progress, as is demanded by the urgency of the global challenge. One example is a May 6 conference, "Setting the Climate Agenda for the New U.S. President," involving our schools of Law and Earth, Energy & Environmental Sciences, the Woods Institute for the Environment, the Precourt Institute for Energy, and state and federal energy officials.

In addition, to catalyze a new wave of ideas from across the campus community for ways Stanford can combat climate change, we are pleased to announce that the university will be creating a new climate task force.

This task force, with membership to be named including undergraduates, graduate students, faculty and staff, will actively solicit ideas from the Stanford community for ways in which Stanford can further address climate change through campus operations, research and teaching. We believe this task force will further heighten the engagement of the Stanford community on climate issues and generate new ideas for Stanford to combat climate change.

#### The question of divestment

With respect to investments, as background, Stanford's endowment exists to support the university and its students in perpetuity. An annual payout from the endowment helps to fund critical university functions, including teaching, research, student financial aid and libraries. This endowment payout represents one of the largest sources of annual funds for the university's budget – twice as large as Stanford tuition. To meet these needs, the endowment invests broadly in economic activity around the world. Divestment is rare, and consideration of it is reserved for specific cases in which, among other things, the demonstrated social injury by a company substantially outweighs any social benefits it provides.

The university has a Board of Trustees-approved Statement on Investment Responsibility (http://irsr.stanford.edu/documents/Stanford%20University%20Statement%20on%20Investment%20Responses that outlines a specific set of criteria by which the trustees may evaluate whether a company is inflicting social injury in a manner that warrants consideration of divestment. To assist the Board on these matters, the university has established an Advisory Panel on Investment Responsibility and Licensing (APIRL). APIRL is a community panel of students, faculty, staff and alumni that provides a recommendation to the Board's Special Committee on Investment Responsibility (SCIR), which, in turn, provides a recommendation to the trustees as we consider these issues.

SCIR has now received recommendations from APIRL regarding the request to divest from the fossil fuel industry and has given thoughtful consideration to the subject. APIRL considered the issue in two dimensions. APIRL recommended divestment of companies whose primary business is oil sands extraction, a method that studies have found requires more water, and releases more carbon into the atmosphere, than other forms of fossil fuel extraction. However, Stanford Management Company has advised SCIR that the Stanford endowment has no direct exposure to companies whose primary business is oil sands extraction. Therefore, there is no action for the Board of Trustees to take.

Regarding the fossil fuel industry more broadly, APIRL concluded that it could not evaluate whether the social injury caused by the fossil fuel industry outweighs the social benefit it provides, and therefore did not recommend divestment. SCIR has considered this issue carefully and discussed it in full with the Board of Trustees. After extensive consideration and review of the criteria in the Statement on Investment Responsibility, the trustees agree that the criteria are not met and are declining to divest.

As trustees, we are convinced that the global community must develop effective alternatives to fossil fuels at sufficient scale, so that fossil fuels will not continue to be extracted and used at the present rate. Stanford is deeply engaged in finding alternatives through its research. However, despite the progress being made, at the present moment oil and gas remain integral components of the global economy, essential to the daily lives of billions of people in both developed and emerging economies. Moreover, some oil and gas companies are themselves working to advance alternative energy sources and develop other solutions to climate change. The complexity of this picture does not allow us to conclude that the conditions for divestment outlined in the Statement on Investment Responsibility have been met.

We believe the long-term solution is for all of us to reduce our consumption of fossil fuel resources and develop effective alternatives. Because achieving these goals will take time, and given how integral oil and gas are to the global economy, the trustees do not believe that a credible case can be made for divesting from the fossil fuel industry until there are competitive and readily available alternatives. Stanford will remain a leader in developing such alternatives.

It is important to note that the university's investment program does consider the implications of climate change during analysis of the economic attractiveness of various investments. Prudent investors acknowledge that the world is beginning a transition away from carbon-based energy sources and that pricing for fossil fuels will reflect this transition. Stanford Management Company explicitly incorporates this consideration, as well as the prospect for greater carbon legislation in the future, into its energy investment framework. For instance, on the subject of investment in oil sands companies, Stanford Management Company has informed SCIR that without a fundamental change in technology that would significantly reduce the greenhouse gas emissions associated with extracting petroleum from oil sands, these investments will not make sense for Stanford.

In addition, Stanford Management Company works with its investment partners to identify and support industry best practices that, in addition to positively impacting investment results, may pay significant environmental dividends. For instance, methane is recognized as a particularly damaging form of carbon emission. By seeking to work with its investment partners on best practices in limiting the release of methane in the production and transmission of natural gas, Stanford Management Company hopes to improve both investment and environmental outcomes.

We thank the members of Fossil Free Stanford for their work on these issues. Their activism has helped educate and focus the attention of the university community. We welcome opportunities for students and the university to partner in mobilizing our community to further use its strengths in research and education to make a difference on climate change.

#### UC investment plan seeks solutions to climate change

By Jagdeep Singh Bachher September 10, 2015 Updated: September 10, 2015, 8:28pm

#### http://www.sfchronicle.com/opinion/article/Why-UC-doesn-t-embrace-blanket-disinvestment-of-6496833.php?t=28f2ada17fcefdcb88&cmpid=twitter-premium

Years from now, 2015 will be understood as a pivotal year for climate policy in California, in the United States and at the United Nations' upcoming climate meetings in Paris. At the University of California, with investment assets of nearly \$100 billion, we believe the response to this progress on climate policy needs to be more than a divestment-or-nothing reflex. Blanket divestment from fossil fuels grabs headlines but doesn't actively address climate change.

Over the past few months, the university has sold its remaining direct holdings in coal-mining and oil-sands-focused companies. The move is part of our new risk-review process that more comprehensively considers environmental sustainability, social responsibility and governance risks in our investment strategy.

#### Climate change a risk factor

We believe, like our colleagues at the state's pension investment fund CalPERS, that climate change is an active risk factor to consider when we evaluate investment opportunities. We will look at carbon prices when we assess electric utility investments. And we believe that investing in solutions to climate change will have more significant impact than a blanket divestment policy. That's why we are committing \$1 billion toward finding solutions to climate change.

We are also looking at how we can support UC's Global Food Initiative that aims to develop solutions to food security, health and sustainable agriculture.

Our approach to sustainability counters the timeworn trope that institutional investors can adopt a values-based investment strategy only if they can guarantee targeted returns. In our view, institutions that ignore societal values in their investment strategy imperil their bottom line — today and for years to come.

Social media can turn what might have been parochial trends into overnight scandals of national and global scale. The power of social media and big data is so transformational that hedge funds that successfully integrate social media sentiment into financial trading programs are often outperforming traditional market players.

In this new world, environmental, social and governance issues spread so quickly online that they could someday be as crucial as foreign exchange or sovereign risk in calculating an investment's projected internal rate of return.

As a global leader in sustainability research and practice, the University of California has been wary of coal-mining and oil-sands investments for a while. Our sell-off of the small holdings in

our active portfolio acknowledges the growing regulatory and market risks associated with these businesses.

More tellingly, hedge funds that were short-selling coal shares this year have been rewarded handsomely for that choice. Over the same period, Goldman Sachs struggled to write off its \$200 million investment in a Colombian coal mine as labor unrest and other operational challenges racked up substantial losses.

As environmental, social and governance risks turn potential investor profits into huge losses, institutional investors increasingly are adding staff just to field stakeholder inquiries about ethically questionable holdings.

In this new world, fund managers will need to offer services that consider these concerns rather than hide behind Wall Street's old-school "sin" industry profitability argument. While some such industries and poorly governed firms may continue to make money in the short term, many will ultimately pose great financial risks to institutional investors.

We believe that fiduciary duty now requires systematic attention to sustainability factors.

We have learned that when we consider sustainability as a risk factor, our investment analysis improves. We are confident that aligning with UC stakeholder community values that consider climate change, sustainability, diversity, economic fairness and transparency will improve our portfolio's bottom line.

#### **Returns for university, world**

This year, we joined the White House in an effort to help long-term investors such as ourselves — pension funds, endowments, sovereign funds, family offices and foundations — identify, screen, assess and invest in companies that offer the most promising, and potentially profitable, solutions to climate change.

We believe the performance of such investments will unlock billions and potentially trillions of dollars within those key investor communities to help companies bridge the gap between innovation and commercialization, and speed the distribution of technology that reduces global greenhouse gas emissions.

As our students return to campus with the certainty of purpose that divestment is the only solution to society's woes, we are integrating sustainability into our investment framework as a philosophy of long-term investing in and *for* the future, and as a key metric for evaluating risk.

By doing so, we will not only be able to generate competitive, risk-adjusted, long-term investment returns, but also help save the world.

Jagdeep Singh Bachher is the chief investment officer of the University of California regents. To comment, submit your letter to the editor at<u>www.sfgate.com/submissions</u>.

#### Statement of the Yale Corporation Committee on Investor Responsibility

In the last year, the Yale Corporation Committee on Investor Responsibility (CCIR) has considered and discussed with the Advisory Committee on Investor Responsibility (ACIR) the proposal of some Yale students to divest from a number of publicly-traded fossil fuel-producing companies based on their holdings of carbon reserves in the ground. The student group "Fossil Free Yale," citing principles of *The Ethical Investor* (John Simon, et. al., Yale University Press, 1972), has urged the University to take steps to divest should engagement with targeted companies fail to result in fuller greenhouse gas emissions (GHG) reporting by them,<sup>1</sup> or if the companies' reports do not show improvement in the ratio of total GHG emissions per unit of energy produced. The Yale College Council also released the results of a referendum it held last November indicating substantial support among undergraduates for divestment of "fossil fuel companies contributing the most to climate change and associated social harms."

CCIR agrees that climate change is a grave threat to human welfare. We believe, however, that the actions Fossil Free Yale proposes Yale take as an institutional investor divestment or shareholder engagement as a precondition to divestment – are neither the right means of addressing this serious threat nor would they be effective. Yale will have its greatest impact in meeting the climate challenge through its core mission: research, scholarship and education conducted by its faculty and students. Yale should undertake special efforts to increase holistic understanding of the problem and ways individuals and institutions can work effectively on solutions of all kinds, including effective governmental policies and technological innovation. Yale should continue to be a leader in sustainability and sound environmental practices, while helping students, faculty and staff behave in environmentally responsible ways. As an investor, Yale should emphasize that companies, as a matter of sound business practices, should take into account the effects of climate change and anticipate possible regulatory responses with actions that recognize the externalities produced by the combustion of fossil fuels. The Chief Investment Officer is communicating this position to Yale's external investment managers. And as an ethical investor, Yale should support wellconstructed shareholder resolutions that call for company disclosures that address climate change issues, as we state below in policy guidance for ACIR.

<sup>&</sup>lt;sup>1</sup> 1 The emissions data sought are based on the accounting framework developed by the Greenhouse Gas Protocol, specifically a reporting organization's Scope 1, Scope 2 and Scope 3 emissions. More detailed guidance can be found at http://www.ghgprotocol.org/, but the three categories are generally described as follows, according to the Greenhouse Gas Protocol FAQs (http://www.ghgprotocol.org/files/ghgp/public/FAQ.pdf): Scope 1 --direct emissions from owned or controlled sources.

Scope 3 --all indirect emissions (not included in Scope 2) that occur in the value chain of the reporting company, including both upstream and downstream. The 15 categories covered include purchased goods and services; capital goods; fuel- and energy-related activities (not included in scope 1 or scope 2); upstream transportation and distribution; waste generated in operations; business travel; employee commuting; upstream leased assets; downstream transportation and distribution; processing of sold products; use of sold products; end-of-life treatment of sold products; downstream leased assets; franchises; investments.

The Yale Corporation set *The Ethical Investor* as its policy guidepost for the University's approach to investor responsibility over 40 years ago, and the principles contained in it remain relevant and constructive in the many moral debates that could affect the manner in which the University invests its endowment. A premise of *The Ethical Investor* is that Yale's endowment supports the functioning and success of the university as an academic enterprise, and that an institution like Yale must prioritize its commitment to teaching and scholarly work. Taking into account non-economic factors is not a decision to be made lightly, and a decision to divest or refrain from certain investments should be taken only when justified by the presence of grave social injury2 and broad moral consensus concerning that injury,<sup>2</sup> and after carefully confirming it to be a measure of last resort that will not undermine Yale's most central mission.

Under principles of *The Ethical Investor*, in order to justify taking action against a company, Yale's policy requires that the targeted company be causing social injury, and, in the case of divestment, grave social injury, through its actions. The buildup of atmospheric GHG through fossil fuel use is caused by the *combustion* of fossil fuels, not by holding reserves of carbon in the ground for possible future extraction, or even by bringing fuel to market. The fossil fuel extractive industry is involved in combustion mainly as supplier, but carbon dioxide (CO2) emissions are produced by the energy industry and power companies, companies involved in transportation, and many if not most other industrial and commercial firms, as well as individuals and households. Targeting a segment of the fossil fuel extractive industry (the supply side) for potential divestment largely on account of emissions by other actors downstream from them, while ignoring the direct contribution by individuals, businesses, government agencies, non-profit and other organizations that emit CO2 by burning fossil fuels (the demand side), in our view is misdirected.<sup>3</sup> And it does nothing to improve public or private policies that are capable of addressing the problem, either in the United States or globally, including by incentivizing the substitution or development of technologies and behaviors that may ameliorate GHG buildup.

The University's past decisions to divest from certain oil companies doing business in Sudan, and from certain companies doing business in South Africa, were based on a wellidentified set of injurious actors<sup>4</sup>. In contrast, the injury from GHG emissions is complex and the number of contributing actors spans the economy. Effective mechanisms to control the injury necessarily must include those who use fossil fuels as well as those who produce fossil

<sup>&</sup>lt;sup>2</sup> As defined in *The Ethical Investor*, "social injury" means "the injurious impact which the activities of a company are found to have on consumers, employees, or other persons, particularly including activities which violate, or frustrate the enforcement of, rules of domestic or international law intended to protect individuals against deprivation of health, safety, or basic freedoms ...."

<sup>&</sup>lt;sup>3</sup> As described in more detail in Footnote 1 above, Scope 3 emissions attempt to capture all emissions in the company's "value chain" that occur from sources that are neither owned nor controlled by the company. Calculating Scope 3 emissions is extremely burdensome on companies, which would have to investigate, assess and monitor emissions from sources they neither own nor control, both up and down the value chain. The methodology and guidance for Scope 3 is very subjective, so when combined with the logistical challenges of measuring these indirect emissions, self-reported Scope 3 data are of questionable value for comparing the emissions of companies to identify "bad" actors.

<sup>&</sup>lt;sup>4</sup> These companies were identified as providing substantial assistance to governments engaged in extreme injurious conduct (i.e., genocide and apartheid) that violated basic international human rights and freedoms.

fuels, and on a global scale. Of course, the burning of fossil fuels over the centuries has enabled the development of economies and the betterment of human welfare around the world. And at least until alternative energy technologies and infrastructures can be developed and implemented, fossil fuels will remain essential to some degree. How one determines the net socially injurious impact of fossil fuel combustion by particular companies, and how one goes about identifying the companies responsible for the incremental emissions that cause injury (and thus who should be held accountable) are questions fraught with difficulty. We do not believe it a wise use of University resources to try to engage with an impracticably large number of companies, or to do so based on metrics that are not reliable for making the ethical judgment our policy deems necessary to justify consideration for divestment.

Yale's policy guide, *The Ethical Investor*, recognizes that there are some types of social injuries more appropriately corrected by government action, as opposed to company or industrywide action. CCIR believes that the formidable problem of climate change, which rightly deserves the attention and involvement of all, is heavily dependent on government policy interventions, both nationally and internationally. The solution to this problem cannot be identified with a specific set of companies or even companies alone. Sensible and sound governmental policies are essential to reduce the threat of climate change.<sup>5</sup> Yale in exercising its voice as a shareholder should support such policies, and should vote proxies on shareholder resolutions that will demonstrate Yale's support of company behaviors that are consistent with the reality of climate change and the need for a multi-faceted coordinated response from all sectors of the government and the economy. Thus, CCIR has adopted the following policy guideline for implementation by ACIR:

#### **CCIR Proxy Voting Guideline on Climate Change**

Yale will generally support reasonable and well-constructed shareholder resolutions seeking company disclosure of greenhouse gas emissions, analyses of the impact of climate change on a company's business activities, strategies designed to reduce the company's long-term impact on the global climate, and company support of sound and effective governmental policies on climate change.

CCIR invites ACIR to further consult with CCIR should it have questions about the positions presented in those shareholder resolutions on which it may be voting proxies.

CCIR appreciates the involvement by Yale students on this issue of paramount importance for all of us. The considerable devotion of students and members of ACIR to become educated and to educate others, and to engage members of this Committee on the matter of climate change and the role of institutional investors has contributed significantly to our deliberations and we offer our sincere thanks. We encourage continued dialogue between the students and the ACIR as the new guidance is implemented.

<sup>&</sup>lt;sup>5</sup> Some governmental policies, to be effective, will necessarily require better metrics than currently exist for measuring emissions "generated" by each actor. Valuable work is continuing in this area, including here at Yale; however, this problem cannot be the responsibility of the Investments Office, which must focus on its core function of maximizing stable, long-term returns for the benefit of the Yale's students and programs.



University Sustainability Ad Hoc Divestment Committee

May 2016





### Penn's Continuing Commitment





### Current Emissions

### Carbon Reduction

- 20-year steam supply agreement with Veolia (rapid fire boiler installation)
- Leadership in Renewable Energy (wind purchases)
- New chillers use steam to produce chilled water





### ESAC Areas of Focus

- I. Utilities and Operations
- 2. Physical Environment
- 3. Waste Minimization and Recycling
- 4. Transportation
- 5. Outreach and Engagement
- 6. Academics



## Utilities & Operations

### Energy Management

Including:

Central steam/chilled water distribution Temperature/time optimization Peak demand shaving

- Re-commissioning
- Meter Installation
- Temperature occupancy sensors
- Power Down Challenge campus wide energyreduction challenge
- Incentive Programs such as Freezer Replacement (44 Labs and Offices participated in 2016)



Power Down Challenge



## Utilities & Operations

- Financial Incentives
  - Energy Reduction
    Fund
  - Revised Utility Cost charge method
    - Implemented in FY16 (actual steam meter data) and FY17 (chilled water meter data)





## Utilities & Operations

### Achievements

- Carbon Reduction
  - Achieved an 18% reduction in carbon emissions by FY14 relative to FY07 baseline
- Carbon Reduction in Buildings
  - 7% by 2019
  - 18% by 2042





## Physical Environment

- Century Bond Program
- Adopted LEED Silver Certification for new buildings
- Commitment to sustainable landscapes
  - Sustainable SITES Initiative
  - Environmentally appropriate plants
  - Reduced use of pesticides and chemical fertilizers
  - Stormwater runoff reduction strategies





## Physical Environment

### Century Bond

- \$300M hundred year bonds sold in the market
  - Use for deferred maintenance projects having energy savings
  - Energy savings used to pay annual interest
- Lighting -- \$9M, 42 buildings complete; 3 buildings to be completed with HVAC
- HVAC -- \$191M, 2 buildings complete, 6 in construction, 3 in planning
- Remaining used for University Strategic Priorities

## Century Bond Energy Savings

Lighting:

Facilities & Real Estate Services



#### **Overall Average Annual Energy Savings for Lighting:**

51.7%

### Century Bond Buildings Facilities & Real Estate Services



**PSOM - Stemmler** 



**Design - Meyerson** 

**Current Projects** 







SAS - Leidy





#### Vet - Rosenthal





## Century Bond Buildings

#### **Completed Projects**



#### **Projects in Planning**



PSOM - Richards A&B Towers



**Engineering - LRSM** 

#### **PSOM - Richards C&D Towers**



SAS – Chemistry 1973



Library - Dietrich/Van Pelt



#### HVAC:





### LEED Certification



Morris Arboretum Horticulture Center



Joe's Café Weiss Pavilion Golkin Hall Singh Center for Nanotechnology Steinberg Hall – Dietrich Hall West Addition Wharton San Francisco Wharton China







Lerner Center Vance Hall GRW Phase 1 Perelman Center for Advanced Medicine Smilow Center for Translational Research



New buildings and major renovation projects currently under design are registered with the U.S. Green Building Council, and are targeting LEED Silver rating or higher.



### Waste Minimization & Recycling

- Education Campaigns
  - ReThinkYour Footprint (2013, 2014, 2015) replaced Recyclemania
    - Six tons of e-waste collected
- PennMOVES
  - 90,000 lbs of clothing, furniture, appliances, books, sporting goods, etc.
- Composting
  - 112 tons of food waste composted calendar year 2015





### Waste Minimization & Recycling

- Solid Waste Management Working Group
  - Solid Waste Management Plan 2013
  - Bin standards updated
  - Construction Waste 80% of all waste diverted from the landfill
- Recycling at Palestra and Penn Relays since 2010
  - Low waste event
- Business Services Purchasing
  - Less packaging waste
  - Managed Print Program



## Transportation

- Commuters
  - Data from 2009 baseline survey
- Bicycle Committee established
  - Bike parking spaces in 2014 nearly doubled since 2009
  - 2 bike repair stations
  - Indigo bike share
- Charging stations for electric cars
- Bi-fuel transit shuttles and buses
- Car share locations
- Hybrid vehicle parking incentives







## Outreach & Engagement

Established brand, website, social media

### Programs:

- Staff & Faculty Eco-Reps (2014: 130)
- Student Eco-Reps (academic year 2015/16: 49)
- Creating Canopy tree Giveaway (4 years, 1100 trees; 275 this year)
- Move In Green and orientation programs
- Outreach campaigns
  - Power Down Challenge (2009 present), Recyclemania, now ReThink Your Footprint (2013-present)
  - Space Heater Amnesty Day (115 space heaters exchanged in 2016)
- Green Office (2014: 61), Green Living, Green Labs programs
- 30x30 Outdoors program (340 registrants, April 2016)
- Green Fund (51 as of Spring 2016)



## Outreach & Engagement

### www.sustainability.upenn.edu



www.facebook.com/PennGreenCampusPartnership



@pennsustainability







### Climate Plan Action Progress

	Climate Action Plan: 2009-2014	Climate Action Plan 2.0: 2014-2019 (Column reflects FY15 data)	Curren t Status
Greenhouse Gas Emissions	18% reduction (compared to FY2007 baseline)	3.4% reduction (compared to FY2014 baseline)	Ļ
Total Utilities Consumption	<ul><li>Absolute Energy Usage in FY14 is 5.1% more than the FY07 baseline.</li><li>When normalized for weather and campus square footage growth, energy usage in FY14 is 6.6% less than the FY07 baseline.</li></ul>	<ul><li>Absolute Energy Usage as of FY15 is 3.2% less than the FY14 baseline.</li><li>When normalized for weather and campus square footage growth, energy usage in FY15 is 2.5% less than the FY14 baseline.</li></ul>	Ţ
LEED Buildings and Interior Renovations	8 West Philadelphia Campus only	13 West Philadelphia Campus plus the Morris Arboretum, UPHS, and New Bolton Center	1
Commuters that use public transit, bike, or walk	50+%	50+%	<b>→</b>
Waste Minimization	Recycling Rate: 24% Recycling + Compost: 26% Waste per Person:	Recycling Rate: 25% Recycling + Compost: 28% Waste per Person:	1
Outreach & Engagement	Eco-Reps: 120 Green Offices: 50 Green Fund Projects: 48	Eco-Reps: 130 Green Offices: 61 Green Fund Projects: 50	1
Academics	Sustainability-focused Academic Programs: 5 Sustainability Course Inventory courses: 170	Sustainability-focused Academic Programs: 6 Sustainability Course Inventory courses: 290	Ť



### enn CAP 2.0 Recommended Actions
# Utilities & Operations Recommendations



Facilities & Real Estate Services

## Recommendations

- The top 20% highest energy use buildings to be recommissioned on a five-year basis
- The remaining 80% to be recommissioned on a ten-year basis
- Update the *Penn Engineering Guidelines* so that all capital projects meet next generation codes
- Develop a model energy plan for all buildings
- Investigate alternative strategies and costs to achieve the 2042 carbon neutrality goal
- Energy Reduction in Buildings
  - 10% by 2019
  - 27% by 2042



# Physical Environment Recommendations

- Continue LEED Silver minimum for capital projects
- Apply Penn's Green Guidelines for Renovations
- Implement Ecological Landscape Stewardship Plan





# Physical Environment Recommendations





- New Geography
- Extend the Climate Action Plan beyond the core campus
  - The University of Pennsylvania Health System
  - The Morris Arboretum
  - The New Bolton Center
- Institutionalize high-performance sustainability goals for Penn's leased space and real estate projects.



## Waste Minimization Recommendations

- Implement the 2013
   Solid Waste
   Management Plan
  - Create a Recycling Manager position
  - Expand participation of student involvement
  - Data Reporting Tool





## Waste Minimization Recommendations

- Set an aggressive goal to increase Penn's overall waste diversion by 2019:
  - Increase recycling from 24% to 30%
  - Track construction debris diversion Increase the number of LOW waste events across campus





# Transportation Recommendations

- Implement the 2014 University Bike Policy
- The Bicycle Committee will meet quarterly to :
  - New bicycle racks and bicycle repair stations
  - Promote the use of gym locker and shower facilities for commuters
  - New all-inclusive webpage
- Continue to encourage alternative commuting



# Facilities & Real Estate Services Outreach & Engagement Recommendations





- Expand Sustainability Coordinators to all Schools & Centers
- Sustain vibrant Eco-Reps programs
- Enhance collaboration with the Office of Student Affairs
- Maintain a dynamic Faculty/Staff Eco-Rep program
- Support expanded Faculty Sustainability Discussion Forums
- Increase the number of Green Office Certifications
- Promote Penn Green Fund



# Teaching & Research in Climate & Energy & Sustainability related areas at Penn



Irina Marinov, <u>imarinov@sas.upenn.edu</u>, EES Dept., Penn May, 2016

# **Relevant Initiatives at Penn**

- Vagelos Integrated Program in Energy Research (VIPER): <u>https://www.viper.upenn.edu/</u>).
- Penn Institute for Urban Research (IUR): <u>http://penniur.upenn.edu/</u>).
- Kleinman Center for Energy Policy at Design <u>http://kleinmanenergy.upenn.edu/</u>).
- Initiative for Global Environmental Leadership (IGEL) at Wharton (<u>https://igel.wharton.upenn.edu/</u>).
- Risk Management and Decision Processes Center at Wharton: (<u>https://riskcenter.wharton.upenn.edu/</u>).
- Penn Program in Environmental Humanities at SAS: <u>http://www.ppehlab.org/</u>).
- Penn EnerFront (<u>http://www.enerfront.upenn.edu/</u>)

Penn's Commitment to Responding to Climate Change

- The University of Pennsylvania has been a leader in
  - accepting its responsibility in addressing climate change challenges
  - developing a plan (Climate Action Plan 2.0) to comprehensively respond to this global challenge

Penn sustainability staff are highly committed to making the campus more sustainable. Great projects underway.

Penn has some top-level researchers in some areas relevant to climate change across the various schools (policy, engineering, env. science, medicine)





# Penn's Commitment to Responding to Climate Change

- However, there are many additional steps that our committee could propose to
  - enhance Penn's position in the broad field of Sustainability, Climate & clean energy research
  - respond to student concerns





Climate & Sustainability Related science research/teaching:

- Centered in the small Earth&Env Science Dept. (9 faculty, representing wide range of geoscience fields, 1 climate scientist per se). Relatively large number of undergrad Earth Science majors, a popular sustainability concentration.
- Masters programs housed in this department:
  - MSAG (Master of Science in Applied Geoscience)
  - MES (Masters of Env Studies): 130-140 students. The very popular sustainability concentration favored by businesses, most grads find work in sustainabilityoriented jobs in the private sector. Job prospects for other concentrations not nearly as good.
  - Big financial gains from this masters programs
  - Courses taught primarily by adjuncts because the specialized knowledge does not exist with standing faculty at Penn !!!

# A personal view: doing Climate Research at Penn

- Strong interest from Penn students on the topic.
- However, key areas of expertise are not represented at Penn at all, in contrast to all other Ivies and a large group of R1 Universities.
- As a lone climate scientist: I have problems competing for limited research funds, not enough computational resources and even library support.
- Cannot attract top PhD students because we do not have enough specialized faculty and coursework for them.
- Not addressing these gaps leaves Penn unable to compete for the best talent and research funding, and thus to contribute to solving perhaps the most critical problem of this century !

# What do other schools do?

# MIT's Plan for Action on Climate Change

On October 21 2015, the Institute's Senior Officers released MIT's Plan for Action on Climate Change.

This plan embodies the fundamental agreement across our community that the problem of climate change, the subject of serious work at MIT for decades, demands society's urgent attention. Given the Institute's mission, history and capabilities, MIT has a particular responsibility to lead. Yet addressing this global problem will take deep societal change, and that means there is a role – and a personal responsibility – for everyone: every nation, every sector, every institution, every firm, every individual human being.

We hope you will join us in this vital work.



l llii

## TIMELINE: Creation of MIT Plan for Action on Climate Change

Feb. 28, 2014: President Reif meets with members of Fossil Free MIT. They agree to begin a campus-wide conversation.

May 6, 2014: President Reif announces Environmental Solutions Initiative (ESI), and charges founding ESI Director, Prof. Susan Solomon, to launch a campuswide conversation.\*

Sep. 23, 2014: MIT Climate Change Conversation Committee named.

Nov. 2014 to May 2015: Campus-Wide Conversation

June 16, 2015: Committee report released. 30-day comment period opens.

July 15, 2015: Comment period closes. Hundreds of responses received.

Oct. 19, 2015: Prof. John E. Fernández announced as ESI director.

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec 2015

\*"Conversation Leadership" members included: Provost Martin Schmidt, VP for Research Maria Zuber, MITEI Director Prof. Bob Armstrong and ESI Founding Director Prof. Susan Solomon.

Oct. 21, 2015: President Reif announces MIT Plan for Action on Climate Change.

July 2015 to

across community,

recommendations.

Sep. 2015: Conversation Leadership consults broadly

develops

Some points from the MIT Climate Action Plan (in response to the student Divestment request)

- MIT is providing \$5 million as part of its Environmental Solutions Initiative to seed new research, and it will seek outside support for promising new work
- MIT will collaborate with a diverse group of companies to launch eight Low-Carbon Energy Centers, enabling close to \$300 million in new energy research over five years
- MIT will develop an Environment and Sustainability degree option
- Side note: there are 67 faculty & senior researchers in MIT's Earth, Atm & Planetary Science Dept at MIT. (compared to 9 at Penn)

## Harvard (similarly decentralized as Penn)

## **CONFRONTING CLIMATE CHANGE**

Climate change poses a serious threat to people and our planet. Harvard is tackling this global challenge through innovative research that will create substantive solutions, teaching that will foster the next generation of leaders, and sustainability initiatives that are already helping to reduce the University's carbon footprint.

Since 2009, Harvard researchers have been awarded \$71 MILLION to conduct **RESEARCH** on energy and the environment



#### 239 FACULTY

affiliated with the HARVARD CENTER FOR THE ENVIRONMENT teaching and conducting

research on energy and the environment

#### RESEARCHING INNOVATIVE SOLUTIONS

Approximately \$133 MILLION raised for energy and environment research since the start of THE HARVARD CAMPAIGN

#### **RAISING \$20 MILLION FOR CLIMATE CHANGE SOLUTIONS FUND**

Propels research and innovations needed to accelerate progress toward cleaner energy and a greener world



#### **TEACHING AND LEARNING**



#### 243 COURSES

offered on energy, sustainability, and the environment

SECONDARY FIELD IN ENERGY AND THE ENVIRONMENT created for undergraduates

#### BUILDING A SUSTAINABLE COMMUNITY



**REDUCTION** in greenhouse gas emissions including growth and renovation (FY06-FY14)

#### 21% decrease in WATER USE

since FY06





More than 87% of commuters use Harvard-subsidized SUSTAINABLE TRANSPORTATION

#### **NEW ALTERNATIVE ENERGY SYSTEM**

(combined heat and power) will provide 28% of electricity to campus



14% of electricity is purchased **RENEWABLE ENERGY** 

#### 120 LEED CERTIFIED AND REGISTERED PROJECTS, more than any higher

education institution in the world



All Harvard University Police Department patrol cars are **HYBRIDS** 



## HARVARD UNIVERSITY CENTER FOR THE ENVIRONMENT

Provide **comprehensive environmental education** across many disciplines, **raise** Mission environmental research quality, and enable solving the most pressing complex problems of the environment, while **fostering linkages and partnerships** among different parts of Harvard as well as between Harvard and the outside world. Administratively, HUCE is a part of the School of Arts & Sciences Director appointed by the Provost & very active in creating and maintaining productive relationships with deans and faculty everywhere on campus Organizational structure >250 faculty are associated with HUCE – participate in events, workshops, grant programs; subgroups meet regularly in a dedicated space to openly discuss their research and environmental issues more broadly On advisory boards of environment-related organizations in other schools Governed by a Steering Committee 23 professors (including the director) from various departments within 8 schools The number of staff: 8 Director, Managing Director, coordinators for Communications, Educational Programs, Finances (50%), Special Projects, office secretary, and Director's assistant Funding A part of funding comes from the Provost: \$3.5 million Another part is provided by private donations Most of the budget (at least 70%) is spent on programs

## HARVARD UNIVERSITY CENTER FOR THE ENVIRONMENT

- Environment-related research in 9 areas: Architecture; Arts & Humanities; Business, Law & Policy; Climate; Ecology; Energy; Food; Health; Social Sciences
  - Undergraduate Summer Research Fund: \$500-\$3,500 for independent research (8 in 2014) or assistantships at Harvard (11 in 2014)
  - Environmental Fellows: 2-year postdoc work in any one school/department; fostering cross-disciplinary connections (co-curricular programs; weekly dinners with colleagues, faculty & guests); in 2015, 7×(\$60k + \$2.5K)
  - **Faculty grants** seed funding for new research directions (including hiring grad students & postdocs, but no faculty salary) and new cross-disciplinary faculty collaborations (can be used for meetings); average award: \$30k-\$40k
- Comprehensive environmental education (across the same 9 areas as above)
  - Collaboration with the College: Environmental Science & Public Policy Concentration (multidisciplinary introduction to current environmental problems, covering scientific, technical, political, legal, historical & ethical dimensions) and Secondary Field in Energy & Environment
  - Graduate Consortium on Energy & Environment: open to all doctoral students (~150 up to now); broadens perspective through 3 courses & weekly seminars (led by faculty across campus); eligibility for fellowship support
- Events & outreach
  - HUCE sponsors and hosts various (in)formal academic gatherings (e.g., ClimaTea, Future of Energy, Green Conversations, Climate Week)
  - Communication outlets: website (videos of HUCE lecture series, HUCE appearances in the news), newsletter and Facebook page

# An example of Energy & Sustainability Centers



**PRINCETON** UNIVERSITY

research directory

andlinger center research

energy systems analysis group

## **Research Directory**

Energy Efficiency	Pollutant Detection &	Waste Heat Recovery	Energy Storage
Buildings	Remediation	Thermoelectrics	Batteries
Industrial Processes	Impact of Energy & Land	Water Desalination	Fuels
Information Technology Transportation	Use	Transmission	Supercapacitors
	Climate Change	Smart Grid	Clean, Efficient Fuel
Renewable Energy	Hydrology	Superconducting Materials	Combustion
Biofuels	Social Science of Energy &	Nuclear Energy	Carbon Capture & Storage
Fuel Cells Solar Wind	Environment	Fission	Energy Systems Applysis
	Behavior	Fusion	Energy Systems Analysis
	Economics		Sustainable
	Policy		Manufacturing/Chemistry

## THE EARTH INSTITUTE (COLUMBIA)

Mission	Institutionalize <b>interaction among many academic fields &amp; professional disciplines to</b> <b>address global sustainability problems</b> by blending scientific research, education, outreach and practical applications of knowledge.		
Organizational structure	<ul> <li>Formally under the Provost's Office</li> <li>Largest research institute at Columbia University, structured as a federation of research units that span several schools and departments, including Earth Sciences, Biology, Health, Law, Engineering &amp; Social Sciences</li> <li>Overall direction provided by the Earth Institute Faculty (meet once a month)</li> <li>~50 people (32 are tenured faculty from 16 departments and paid ¼ of salary by the Earth Institute), including the four members of the Directorate</li> <li>Core staff number: 15</li> <li>Management team: 6 members (Executive Director / COO and Directors of Finance &amp; Administration, Academic &amp; Research Programs, International Programs, Funding Initiatives, and Communications)</li> <li>Other staff: 9 people (a Deputy Executive Director, an Executive Assistant, Director's Assistant, a Manager of Academic &amp; Research Programs, 2 media contacts, 3 communications specialists – for content, website &amp; events)</li> </ul>		
Funding	<ul> <li>Annual budget is ~\$136 million (soft money): government &gt; foundations &gt; contracts &gt; central university subsidy (~\$5 million) &gt; tuition revenue (shared with schools); turning towards attracting individual gifts</li> <li>Large grant applications can be submitted through the Earth Institute</li> <li>591 active grants in the first 3 quarters of FY 2014</li> </ul>		

## THE EARTH INSTITUTE (COLUMBIA)

- Interdisciplinary research on 9 themes Climate & Society, Ecosystems, Energy, Food, Hazards, Health, Poverty, Urbanization, and Water – involving ~850 scientists, postdocs & students in >30 research centers/programs
  - Cross-Cutting Initiative (CCI): seed funding for innovative collaborations among researchers from different fields aiming to establish new methods for practical solutions of intrinsically cross-disciplinary problems; \$10,000-\$35,000 per 18-month project; 6 grants awarded last year
  - The Earth Institute Fellows Program: 2-year postdoc appointments, fostering crossdisciplinary interactions; 3-4 full-time equivalents a year
- Environmental & sustainable development education
  - 30 undergrad, Master's, PhD and certificate programs: the Earth Institute manages or co-sponsors 11 of those, and it helps promote the other 19
- Practical applications of knowledge, including that attained in CCI projects
  - Earth Clinic: helps communities to address urgent issues of economic development, public health, energy systems, water management, transportation, agriculture & infrastructure (e.g., Millennium Villages Project); also provides seed grants (\$10,000-\$30,000 per project)
- Events & outreach
  - Major media outlets are in regular contact with the Earth Institute e.g., over 100 appearances after Hurricane Sandy; overall, >2,000 features a year
  - The Earth Institute's news blog has 40,000-50,000 visits a month
  - Convenes hundreds of public lectures, conferences, and events each year

## **ATKINSON CENTER FOR A SUSTAINABLE FUTURE (CORNELL)**

To discover and implement sustainable solutions to world needs for reliable **energy**, a Mission resilient environment, and robust economic development ("3 Es"). All activities are guided by **multidisciplinary approach** & strong commitment to maximizing real-world impact by engaging with external non-academic partners. Reports to the Office of the Vice Provost for Research Operates across all Cornell schools Organizational structure Leadership team: Director (50%), 3 Faculty Directors (25%), Executive, Executive-inresidence, Development, and Communications Directors 4 full-time staff (2 administrative assistants, web/communications manager, science writer); assistance from additional part-time staff and students Multidisciplinary Faculty Advisory Board guides ACSF's strategy and activities, and provides links to all the schools and many of the participating departments 18 voting members (6 tenured or tenure-track faculty for each of the 3 Es) ٠ 27 ex officio members (including ACSF Director, Executive Director, some staff and representatives of the Provost and interested schools) External Advisory Board: 10 members, including David Atkinson (endower) **Initial endowment in 2010: \$80 million** (in installments over 10 years) Revenue in FY 2014: \$4.2 million (42% endowment income, 40% gifts, 10% grants, 8% Funding Cornell support – contributions from the deans of all schools) Expenses in FY 2014: \$3.6 million (70% research, 13% administration, 10% communications, 7% development)

For every dollar spent, ~\$7 in follow-on7external funding comes to Cornell

## **ATKINSON CENTER FOR A SUSTAINABLE FUTURE (CORNELL)**

- Multidisciplinary research in 6 focus areas (Food, Renewable Energy, Health, Communities, Materials, and Computation) is supported at the faculty, postdoc and student levels at Cornell
  - Seed funding Academic Venture Fund (\$1.2 million for 11 projects that should have impact beyond academia and take 0.5-2 years) and Rapid Response Fund (~\$300,000 available for urgent activities; ≤\$20,000 per project)
  - Postdoctoral fellowships four 2-year appointments; required to engage with nonacademic partners to advance on-the ground knowledge applications
  - Summer sustainability internships for 12 (under)graduate students
  - Faculty-in-Residence Fellowship teaching leave for 1 semester and research stipend for 11 faculty in humanities, social sciences & performing arts
  - Topical Lunches new ideas & collaborations discussed by 10-20 participants twice a month
  - Faculty Fellows 425 cross-campus faculty actively engaged with ACSF
- Engaging with external non-academic partners, e.g., New York State Energy R&D Authority; CARE (Impact through Innovation Fund); Environmental Defense Fund; The Nature Conservancy (1 postdoctoral fellowship); Oxfam
- Events & Outreach
  - ACSF's website features a newsletter, a blog, and a collection of videos that highlight ACSF-related activities, including presentations and guest lectures organized by ACSF (e.g., annual Iscol Distinguished Environmental Lecture)
  - Washington Policy Briefings: faculty experts give science-based information to agencies, legislators, and media 18



# Climate Change Research @ Penn

- In the area of academics, the Climate Action Plan 2.0 recommends
  - the creation of a Faculty Working Group on Sustainability
  - the promotion of existing sustainability classes
  - the creation of Speaker Series / Symposium on sustainability
- Currently working on a "Penn Climate Change Statement", started by the ESAC Academic Subcommittee (Dan Garafolo, sustainability coordinator)
- Proposal: In addition to these excellent recommendations, we could enhance our effort by:



## Proposals: WHAT TO DO:

- Creating a comprehensive, detailed, long-term plan that can ensure the University's leading position in the broad field of sustainability.
  - Starting our own Sustainability & Climate Penn conversation: a Penn wide, multi-school forum to discuss opportunities to conduct climate change, sustainability and clean energy research.
  - Assessment of Penn's current research and academic capabilities.
- Encouraging the employment of new faculty
  - who are currently involved in climate change research, sustainability science and related fields.
  - Encourage the employment of a couple of high profile hires (eg. A PIK hire, established chair): catalyst for additional research in this area at Upenn
    - Explore the creation of a new Energy, Sustainability and Environment Center at Penn at the interface of disciplines, comparable to similar centers at Princeton, MIT, Harvard, Columbia (O: can we start this with Kleinman center?)

## How to fund such efforts? A proposal:

- Creating a structure/fund or a campaign within DAR (Development and Alumni Relations) to encourage and accept donations for Research on Issues of Climate, Environment, Sustainability and clean Energy.
- Sponsor a high-level industry-academia conference on sustainability and clean energy
  - The initial goal would be to understand the challenges that industry is faced with in moving towards sustainable and clean energy, and how the research community at Penn can help meet them.
  - Another goal is to attract financing for research projects, a potential inter-disciplinary center or other climate/energy/ sustainability initiatives on campus.

## Other IDEAS:

- Sponsor student/faculty/researcher campus-wide competitions on these topics, similar to the Apps competitions that take place in the Engineering School.
- Appoint an independent external expert committee to evaluate the success of Penn's sustainability initiatives aimed at reducing Penn's environmental footprint & suggest improvements. Consider elevating the best sustainable practices to the level of institutional policy requirements.

# **Climate Change Education**

- UPenn currently has an excellent effort in "Integrating Sustainability Across the Curricular which is voluntary and has accomplished:
  - The creation of 21 new sustainability courses
    - In addition to the 170 courses that focus on or are related to sustainability

## Proposal:

- Hire faculty so as to increase course offerings to keep up with the undergrad/graduate student demand ! Increase the level of quantitative science teaching in sustainability curriculum; it is at the moment insufficient in many sustainability classes.
- Introduce an interdisciplinary Masters in Sustainability?
- Provide a transparent and published record of the percentage of classes in each Department that have included sustainability/ climate change topics in our courses
   Set goals for sustainability related course and research growth ?



# SUPPLEMENTARY (extra thoughts...):

# Buildings



 In Climate Change Plan 2.0, UPenn has set a long term absolute goal of total carbon reduction in buildings of 7% by 2019 and 18% by 2042 (from a 2014 {FY} baseline)

## Proposal

- In light of public interest in this topic, UPenn should adopt a transparent approach by
  - Setting annual targets for greenhouse gas emissions
    - That ultimately achieve the 2042 goal
  - Publishing the annual results of our success in achieving these targets
  - Reviewing these targets at the appropriate time to see if they are in accord with the US targets required to achieve the goals of the Paris Climate Agreement





# New Buildings



New Buildings should incorporate new heating, cooling and lighting techniques that reflect our carbon constrained future

## Proposal

- Engage with the appropriate schools at UPenn and consultants to determine approaches that would provide:
  - enhanced energy efficiency
  - carbon neutrality
  - net positive energy approach
  - on-site renewable energy systems
- Adopt and incorporate these building systems into new and existing facilities that supports our long term climate change goals
  - A simple and cost effective example of this would be to convert our existing lighting systems to LED systems





### Charge to the Ad Hoc Advisory Committee On Divestment

### **General Charge**

The Ad Hoc Advisory Committee on Divestment ("Ad Hoc Committee") shall, in extraordinary circumstances, provide advice to the University Trustees with respect to the consideration of divestment of specific corporate securities based upon thoughtful, thoroughly considered, sustained social responsibility concerns. Recommendations will be made to the Trustee Subcommittee on Divestment, a subcommittee of the Executive Committee of the Trustees.

The work of the Ad Hoc Committee shall be governed by the Guidelines and Procedures for Consideration by the Trustees of Proposals for Divestment from the University Endowment or Other Holdings Based Upon Social Responsibility Concerns of the Penn Community adopted December 12, 2013 ("the Guidelines").

### **Specific Duties**

The Ad Hoc Committee shall be advisory to the Trustee Subcommittee on Divestment with the following functions:

- 1. The Ad Hoc Committee will consider proposals for divestment referred to the Committee by the University Council Steering Committee, in accordance with the Guidelines.
- 2. If the Committee, after sufficient study, reaches a consensus (which means unanimous or near unanimous agreement) with respect to a specific proposal, the Ad Hoc Committee shall present the proposal to the Trustee Subcommittee on Divestment for its consideration.
- 3. If the Ad Hoc Committee fails to reach a consensus supporting the proposal under the Guidelines, then no further action is necessary, other than notifying the University Council Steering Committee.
- 4. As the Ad Hoc Committee considers the proposal, in light of each of the Guideline factors, it should consider not only whether divestment is justified, but also whether there are alternative means by which the University can better address the social responsibility concerns at issue, including letters to management and/or proxy voting. Any recommendation made to the Trustee Subcommittee on Divestment should include a discussion of these alternative courses of action.
- 5. In accordance with the Guidelines, given the requirement that there be a sustained community concern, in most cases consideration by the Ad Hoc Committee will extend over multiple years.

### Membership

- 1. The Ad Hoc Committee shall consist of sixteen voting members appointed by the Chair of the Trustees, including:
  - Four faculty members
  - Four students (two graduates and two undergraduates)
  - Two alumni representatives
  - Four staff members
  - Two at large members from the community

The President of the University shall make nominations for the committee's alumni, staff and at large members. The Faculty Senate, the Undergraduate Assembly and the Graduate and Professional Student Assembly shall be asked to provide from their constituencies a slate of nominees for membership consideration. The slate should consist of a minimum of two, but preferably three potential nominees for each available membership slot. Self-nominations are also permitted. While the nominations shall be given serious weight by the Chair of the Trustees, the final selection of the committee members shall be solely at the discretion of the Chair.

- 2. The Chair of the Ad Hoc Committee shall be appointed by the Chair of the Trustees.
- 3. Members shall serve for one-year terms, but may be reappointed.

### Meetings

The Ad Hoc Committee shall meet on the call of the Chair. All meetings will be held on a confidential basis. At the Chair's discretion, the Committee may also conduct business via conference call.

### GUIDELINES AND PROCEDURES FOR CONSIDERATION BY THE TRUSTEES OF PROPOSALS FOR DIVESTMENT FROM THE UNIVERSITY ENDOWMENT OR OTHER HOLDINGS BASED UPON SOCIAL RESPONSIBILITY CONCERNS OF THE PENN COMMUNITY

#### Introduction

The Trustees of the University of Pennsylvania (the "Trustees") have sole responsibility for all investment decisions, including establishing University policy on all investmentdriven social responsibility issues that may be raised by members of the Penn community. While the Trustees have the fiduciary obligation to invest the University endowment so as to maximize University resources, the Trustees recognize that in extraordinary circumstances it may be appropriate to consider divesting the endowment of specific corporate securities based upon thoughtful, thoroughly considered, and sustained social responsibility concerns.

In making any such determination, the Trustees recognize the need for a clear process that allows for careful study and community input and articulated guidelines to inform the Trustees in their decision-making. No process or set of guidelines, however, can be expected to address all situations that might arise. For that reason, any proposal will be evaluated using this process and these Guidelines as a basis, but recognizing that all decisions will be made on a case-by-case basis. The Trustees reserve the right to interpret the process, the Guidelines, and the University interest as broadly or narrowly as they see fit, consistent with the Statutes of the University, the University mission and policies, and applicable external laws and regulations.

#### Process

- 1. If members of the Penn community, defined as students, faculty, alumni, or staff, believe that a proposal for divestment of specific corporate securities is warranted, they may present such a proposal to the University Council Steering Committee for consideration.
- 2. The proposal should document the basis for the presenters' belief that the proposal meets the "social responsibility" Guidelines articulated below.
- 3. The Steering Committee will make a determination as to whether there is a sufficient basis for further consideration of the proposal, taking into consideration the divestment principles and Guidelines. If Steering concludes that there is insufficient evidence supporting the proposal, then it shall so inform the proponents and no further action need be taken.

- 4. If Steering concludes that there is a reasonable basis to proceed, it will refer the matter to the Ad Hoc Advisory Committee on Divestment ("Ad Hoc Committee"), created by Trustee Resolution, dated December 12, 2013. The Ad Hoc Committee will further study the proposal to determine whether, in the view of the Ad Hoc Committee, the proposal meets the extraordinarily high standard of the Guidelines for divestment.<sup>1</sup>
- 5. As the Ad Hoc Committee considers the proposal, in light of each of the Guideline factors, it should consider not only whether divestment is justified, but also whether there are alternative means by which the University can better address the social responsibility concerns at issue, including letters to management and/or proxy voting. Any recommendation made to the Trustee Subcommittee on Divestment should include a discussion of these alternative courses of action.
- 6. If the Ad Hoc Committee concludes that the proposal does not satisfy the Guidelines, then no further action is necessary, other than notifying the Steering Committee. If the Ad Hoc Committee believes some action is warranted, it should present its views to the Trustee Subcommittee on Divestment.
- 7. Upon receiving a recommendation from the Ad Hoc Committee, the Trustee Subcommittee on Divestment will consider the recommendation and provide its advice on the proposal to the Executive Committee of the Trustees for whatever action the Executive Committee deems appropriate under the Guidelines.

### Guidelines

### **Basic Principles:**

- 1. The Trustees of the University of Pennsylvania have the sole responsibility for making investment decisions, which, consistent with their fiduciary status, must be made so as to maximize the resources of the University in support of its primary mission of teaching, research, and clinical care.
- 2. Given the Trustees' fiduciary responsibility, there is a strong presumption against the University making investment decisions based upon political, social, or ethical positions held by members of the community.
- 3. The Trustees recognize that there may be extraordinary circumstances in which the University determines that it should not hold direct financial interests in a certain company or companies based upon concerns of "social responsibility," as defined below.

<sup>&</sup>lt;sup>1</sup> This Ad Hoc Committee is distinct from the committee charged with making recommendations with respect to proxy voting (the Penn Social Responsibility Advisory Committee, (SRAC)), as SRAC has been constituted solely to consider proxy voting issues and not issues relating to investment or divestment.
4. To be clear, the purpose of this selective divestiture policy is never to make political statements, censure governments, or put pressure on others to adopt particular policies. Rather, the purpose of divestment is to separate the University from companies whose conduct is so abhorrent to the University community, and so inconsistent with core University values, that the University does not wish to be associated with the conduct in any way. Divestment, as an option, should only be adopted after all other options to address the community's concerns have been considered and found unsatisfactory.

### Social Responsibility Defined for Purposes of Divestment Consideration:

- 1. There exists a moral evil implicating a core University value that is creating a substantial social injury.<sup>2</sup>
- 2. There must be a specific company or companies identified for divestment, rather than a broad proposal directed at an industry or activity more generally.
- 3. The company or companies identified for divestment must have a significant, clear, and undeniable nexus to the moral evil.
- 4. The proposal for divestment must have the support of a broad and sustained consensus of the University community reflected over a sustained period of time.

### **Options:**

In considering the advice of the Trustee Subcommittee on Divestment regarding a proposal for divestment, the Trustees may take any of the following actions:

- 1. Direct the divestment of identified securities held in the name of the Trustees of the University of Pennsylvania either on an unconditional basis, or for some limited period of time. Additionally, share the University's desire to adhere to this investment philosophy with the investment managers of co-mingled or pooled funds in which the University invests.
- 2. Refer the issue to the Proxy Subcommittee to determine if a more effective or preferred strategy would be to continue to hold the corporate securities and express the University's view through the proxy voting process or by otherwise expressing the University's view with a management letter or other vehicle in an effort to change the behavior that the Trustees determine to be the cause of substantial social injury.

<sup>&</sup>lt;sup>2</sup> Substantial Social Injury is defined for purposes of Proxy Voting in the Statement on Responsibility Concerning Endowment Securities:

https://secure.www.upenn.edu/secretary/SRAC%20Statement%20of%20responsibility.pdf

- 3. Refer the matter back to the Ad Hoc Committee to review and resubmit the matter, if they believe appropriate, after some period of time.
- 4. Determine that in the exercise of their fiduciary responsibilities, it is not consistent with the University's mission or interest to take further action.

Resolution to Supplement the May 15, 2003 Statement on Responsibility Concerning Endowment Securities, to Adopt New Guidelines for Divestment Consideration, and to Establish the Ad Hoc Advisory Committee on Divestment and Trustee Subcommittee on Divestment

# Intention:

In 1996, the Trustee Executive Committee established the Trustee Proxy Voting Subcommittee charged with responsibility for considering shareholder resolutions concerning social and environmental issues.

In 2003, after renewed interest from the University community, the Trustees reviewed the issue of proxy voting, adopted the May 15, 2003 Statement on Responsibility Concerning Endowment Securities, and charged the Social Responsibility Advisory Committee with examining proxy voting issues involving the University's endowment securities and making appropriate recommendations for action to the Trustee Proxy Voting Subcommittee. This advisory committee was specifically charged to consider only proxy issues, and not issues involving investment, divestment, or management of the University endowment.

The responsibility for all decision-making relating to the management of the University endowment has been and remains a central fiduciary responsibility of the Trustees. Responsibility for investment and divestment decisions has always rested solely with the Trustees. The Trustees, however, have long recognized that the University community has an interest in investment considerations and has in the past considered community input and advice in making any divestment determinations.

The Trustees have determined:

- To establish new Guidelines and Procedures for Consideration by the Trustees of Proposals for Divestment from the University Endowment or Other Holdings Based Upon Social Responsibility Concerns of the Penn Community.
- To create and charge an Ad Hoc Advisory Committee on Divestment consisting of faculty, staff, alumni and students, to study and consider divestment issues.
- To create a Trustee Subcommittee on Divestment, a subcommittee of the Executive Committee, to receive and consider any recommendations from the Ad Hoc Advisory Committee.

**RESOLVED,** that the Trustees hereby supplement the May 15, 2003 Statement on Responsibility Concerning Endowment Securities by adopting the Guidelines and Procedures for Consideration by the Trustees of Proposals for Divestment from the University Endowment or Other Holdings Based Upon Social Responsibility Concerns of the Penn Community, dated December 12, 2013; and **FURTHER RESOLVED,** that the Trustees appoint an Ad Hoc Advisory Committee on Divestment in accordance with the Charge to the Ad Hoc Advisory Committee;

**FURTHER RESOLVED,** that the Trustees adopt the Charge to the Ad Hoc Advisory Committee;

**FURTHER RESOLVED,** that the Chair of the Trustees appoint a Trustee Subcommittee on Divestment with authority to consider and provide advice to the Executive Committee concerning divestment proposals in accordance with the principles set forth in the Guidelines; and

**FURTHER RESOLVED,** that these policies, as set forth above, supersede any and all prior resolutions concerning divestment of securities in the University endowment.

# University of Pennsylvania

# Statement on Responsibility Concerning Endowment Securities

### May 15, 2003

# 1. PREAMBLE

- 1.1 The primary fiduciary responsibility of the University Trustees in investing and managing the University's endowment securities is to maximize the financial return on those resources, taking into account the amount of risk appropriate for University investment policy. However, when the Trustees determine that corporate policies or practices cause substantial social injury or substantial environment harm<sup>1</sup>, they, as responsible and ethical investors, shall give independent weight to this factor in their investment policies and in voting proxies on corporate securities.
- 1.2 The authority to take ethical factors into account when settling investment policies and voting proxies on endowment securities derives primarily from the stewardship responsibilities which attend the ownership of endowment securities.

# 2. <u>POLICY GUIDELINES</u>

<sup>&</sup>lt;sup>1</sup> Substantial Social Injury: With regard to corporate behavior, substantial social injury is defined as the excessive or deliberate injurious impact on employees, consumers, and/or other individuals, or groups resulting directly from specific actions or inactions by a company. Included in this category are actions that violate, subvert, or frustrate the enforcement of rules of domestic or international law intended to protect individuals and/or groups against deprivation of health, safety, basic freedoms or human rights.

Substantial Environmental Harm: Substantial environment harm is defined as conduct that violates, subverts, or frustrates the enforcement of rules of domestic or international law intended to protect the environment. Only actions or inactions by companies that are proximate to and directly responsible for identifiable social injury will be regarded as falling within these guidelines.

For the purposes of these Guidelines corporate activity that creates a potential for social injury or environmental harm to occur shall not itself be construed as socially injurious. Similarly, for the purposes of these guidelines, social injury or environmental harm shall only in unusual circumstances include the act of doing business with other companies which are themselves engaged in socially or environmentally injurious activities.

Under this policy, allegations of substantial social injury or substantial environmental harm will be examined on a caseby-case basis using the best available evidence and allowing parties to the allegation reasonable time to develop and disseminate that evidence.

### 2.1 Exercise of Shareholder Rights

- a) <u>Voting</u>: The Trustees normally do not vote on any shareholder resolution involving social issues unless they conclude that a company's activities cause substantial social injury or substantial environmental harm. Where the Trustees conclude that a company's activities cause substantial social injury or substantial environmental harm and such activities are the subject of a shareholder proposal which would eliminate or materially reduce the substantial social injury or environmental harm, the Trustees may vote for the proposal and may vote against a proposal that would prevent or materially retard such elimination or reduction, provided such action is not inconsistent with the Trustees' fiduciary obligations. In cases where the proposed remedy is deemed unreasonable, the Trustees may abstain.
- b) <u>Representations</u>: When the Trustees conclude that the company's activities cause substantial social injury or substantial environmental harm, they may make formal or informal representations to corporate management to explain or reinforce their position on proxy issues and on issues where no proxy is presented.
- 2.2 Exceptions

If the Trustees conclude that a specific Trustee action otherwise indicated under these Guidelines is likely to impair the capacity of the University to carry out its educational mission (for example, by causing significant adverse action on the part of governmental or other external agencies or groups, or by causing deep divisions within the University community), then the Trustees need not take such action.

# 3. ADVICE FROM THE PENN COMMUNITY

- 3.1 The President of the University shall establish an advisory committee to provide advice and make recommendations to the Trustee Subcommittee on Proxy Voting. This committee, called the Penn Social Responsibility Advisory Committee ("Penn SRAC") will be comprised of twelve voting members including: four faculty members nominated by the Faculty; four students (two undergraduates, two graduates) nominated by the Undergraduate Assembly, NEC, GSAC and GAPSA; two alumni representatives appointed by the President; two staff members appointed by the President. Members shall be appointed for at least one year and may be reappointed.
- 3.2 Upon reasonable request, the Office of the Secretary will provide to the community advisory committee, to be treated as confidential by that committee, a copy of the memorandum prepared by the Office of Investments, incorporating the reports of the Investor Research Responsibility Center (IRRC). This memorandum will also be provided to the Trustee Subcommittee on Proxy Voting. The memorandum will include:
  - 1. the social and environmental issues that have been identified by the IRRC as possible issues of concern;

- 2. a confidential list of companies in the Endowment's portfolio that have upcoming proposed shareholder resolutions related to those issues, and required response dates; and
- 3. a copy of the IRRC's analysis of the impact of each shareholder resolution on the company.
- 3.3 Within the Guidelines established under Section 2, Penn SRAC may examine proxy voting issues involving the University's endowment securities and make appropriate recommendations for action by the Trustee Proxy Voting Subcommittee. Such recommendations shall take into consideration the following factors: (1) the facts and information the community committee has gathered in its study of the issues; (2) the opinions expressed within the Penn community regarding the issues; and (3) the legal and financial impact of the recommended action.
- 3.4 The recommendations shall be in writing and provided to the Office of the Secretary, for consideration by the Trustee Proxy Voting Subcommittee. The recommendations should be clear and concise and accompanied by factual findings and an analysis of the question involved.
- 3.5 The Trustee Proxy Voting Subcommittee will consider Penn SRAC recommendations and will then make decisions for action under this policy. The Subcommittee will inform Penn SRAC through the Office of the Secretary of the actions taken by the Subcommittee.

### 4. OTHER MATTERS

- 4.1 Nothing in this Statement shall be deemed to delegate the Trustees' proxy voting responsibilities, or any part of them, to any other person or body.
- 4.2 The Trustee Proxy Voting Subcommittee may amend this Statement from time to time.
- 4.3 Penn SRAC may, from time to time, submit recommendations to the Trustees for amendments to this Statement.