

**COMMENTARY**

# The role of college and university faculty in the fossil fuel divestment movement

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Colleges and universities have played a critical role in the growing social movement to divest institutional endowments from fossil fuels. While campus activism on fossil fuel divestment has been driven largely by students and alumni, faculty are also advocating to their administrators for institutional divestment from fossil fuels. This article characterizes the role of faculty by reviewing signatories to publicly available letters that endorse fossil fuel divestment. Analysis of 30 letters to administrators signed by faculty at campuses throughout the United States and Canada reveals support for divestment from 4550 faculty across all major fields of inquiry and scholarship, and all types of faculty positions. Of these signers, more than 225 have specific expertise in climate change or energy. An in-depth analysis of 18 of these letters shows that a significantly greater proportion of tenured faculty sign open letters of support for divestment than do not-yet-tenured tenure-track faculty (15.4% versus 10.7%), perhaps reflecting concerns among not-yet-tenured faculty that such support might jeopardize their career advancement. This analysis suggests that faculty support for the divestment movement is more widespread than commonly recognized; this movement is more mainstream, and broader-based, than is often recognized. Revealing the scope and scale of faculty support for fossil fuel divestment may encourage additional faculty to engage, support and endorse this growing social movement that highlights the social impact of investment decisions, and calls upon colleges and universities to align their investment practices with their academic missions and values.

**Keywords:** divestment; faculty; higher education

## 1. Introduction

Fossil fuel divestment is a major social movement (Brooks 2014) that has developed throughout the past decade as a climate activism strategy (Lenferna 2013, Mandery 2014, Healy and Debski 2017). The movement's core message is that the act of disinvesting from fossil fuel companies provides a powerful signal with potential to accelerate a just societal transformation away from fossil fuels toward low-carbon renewable energy. Fossil fuel divestment campaigns are emerging in countries around the world in response to the overwhelming scientific evidence that fossil fuel emissions of carbon dioxide and other heat-trapping gases must be swiftly and dramatically reduced to limit global warming (Figueres et al 2017). The divestment movement highlights that investment portfolios that include fossil fuels pose risks to investors and to the planet (CTI 2011).

Acknowledging the role of higher education in advancing climate science and promoting sustainable futures,

the fossil fuel divestment movement has been particularly visible on college and university campuses (Stephens et al 2017). Fossil fuel divestment generally refers to the act of disinvesting from publicly traded fossil fuel companies, typically the 100 largest oil and gas and 100 largest coal companies by proven reserves. This movement embraces the premise that there is both an ethical and financial responsibility to act on climate change and that investing in fossil fuels is inconsistent with responsible climate action (Oreskes 2015, GoFossilFree 2018). The divestment movement also helps shape the conversation about the influence of fossil fuel companies and other for-profit companies within higher education, raising ethical questions and concern about constraints on freedom of inquiry.

Hundreds of educational organizations, philanthropic foundations, faith-based organizations, public pension funds, and non-governmental organizations have committed to divestment, and thousands of individuals have removed fossil fuels companies from their individual retirement and investment accounts. To date, over 800 institutions with assets valued at over \$6.0 trillion dollars have committed to some form of fossil fuel divestment. Over 58,000 individuals have also made divestment commitments. Some prominent institutional commitments

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include the Rockefeller Brothers Fund, the Guardian Media Group, and the World Council of Churches (GoFossilFree 2018). In addition, divestment commitments have been made by dozens of municipal governments, including New York City, and several for-profit corporations. Two national governments, Norway and Ireland, have committed to divest their sovereign wealth funds.

As a global movement, fossil fuel divestment can be viewed as a strategic component of climate activism and the renewable energy transformation (Burke and Stephens 2017). The divestment movement is also aligned with efforts to democratize energy systems and reduce the political power of large multinational fossil-fuel-based energy corporations (Burke and Stephens 2018). The divestment movement is contributing to and reflecting destabilization of the legacy fossil fuel regime, including through increased scrutiny of fossil industry presence and influence at the United Nations (UN) climate negotiations (Yona and Lenferna 2016). As a result of pressure from divestment campaigns, a growing discussion of the role of fossil fuel companies at the United Nations negotiations is emerging, as well as more significant coverage and scrutiny of industry presence at COP meetings (Arguedas Ortiz and Yona 2014). Pressure and momentum emerging from fossil fuel divestment campaigns may have contributed to the success of the Paris Agreement, signed by 195 nations and entered into force on November 4, 2016 (Ivanova 2016). In the lead up to the Paris talks, United Nations Secretary General Ban Ki-Moon lauded fossil fuel divestment as an important tool for climate action (Carrington 2015).

Proponents of fossil fuel divestment argue the campaign is on the right side of history (Telemacque 2015). With improved understanding about how fossil fuel companies strategically sought to cast doubt on what is known about the connection between burning fossil fuels and climate change (Gelbspan 1998, Oreskes 2015, Supran and Oreskes 2017), the question of who bears responsibility for the negative societal implications of fossil fuel based energy systems is increasingly being asked (Frumhoff et al 2015, Ekwurzel et al 2017, Shue 2017). As devastating storms, floods, heat-waves and droughts grow in frequency and severity, the question of who is responsible for climate change is growing in salience (Frumhoff and Allen 2017). Multiple recent lawsuits against fossil fuel companies are catalyzing a new conversation about the cumulative negative societal impacts of the industry's decades-long strategic disinformation campaign. Together with divestment campaigns and shareholder activism, they are driving long-overdue attention to the responsibility of fossil fuel companies for climate damages and the costs of adaptation (Kusnetz 2018).

Institutions of higher education are unique organizations within society; their mission focuses on knowledge generation and facilitating learning. Unlike other sectors of society, higher education also has unique capacity for long-term, holistic analysis and has the freedom to explore challenging questions that other organizations may be more constrained to explore (Hahn 2003, Coalition of Urban Serving Universities 2010). As such,

higher education has unique potential to confront power and facilitate societal responses to the sustainability challenges facing the world (Stephens et al 2008). Strategic financial decisions are increasingly acknowledged mechanisms for higher education to contribute to social change (Stephens et al 2017).

Colleges and universities also have distinctive organizational cultures that value and promote learning for social good. Higher education, therefore, plays a critical role in societal transformation reliant on educating new generations of citizens and leaders. Higher education has always been responsive to societal needs, and its history demonstrates an evolution of university structure and purpose that reflects directly on the dynamics of society's socio-technical systems (Clark 1983, Freeland 1992, Bursztyn 2008, Vorley and Nelles 2008). As long-established, often deep-rooted institutions, universities can be slow to respond, however, when societal needs emerge rapidly. Delay between the emergence of a societal impetus for change and the universities' response to the needed change has been identified throughout centuries of history of higher education (Altbach et al 1994, Clark 1998). While all organizations respond to and participate in social change, universities as learning organizations possess distinct potential for improving understanding of the interface between organizational change and social change.

Discussions of the role of higher education in society are often characterized by tension among three agendas: generating knowledge, educating citizens and leaders, and addressing pressing social issues (Vorley and Nelles 2008). It can be argued that all universities transmit powerful educational messages far beyond their specific teaching and research activities (Boyle 2007, Waas and Vergruggen 2008). Concepts of "universities as citizens" (Boyle 2007) and/or "universities as change agents" (Troyer 1974, Stephens et al 2008) capture the potential for universities to be active, contributing, influential, responsive entities in society. Some suggest that higher education is currently experiencing a swing-back, a return, to an original purpose of cultivating civic responsibility and citizenship via a scholarship of engagement (Freeland 1992, DiPadova-Stocks 2005). Such movement would require institutions of higher education to model civic responsibility and engagement at the organizational level (Boyle 2007), including through aligning their strategic financial decisions and investment portfolios with their academic missions and values.

Concern about the fossil fuel industry's influence over higher education has recently grown (Franta and Supran 2017). The reliance of financial support from individuals or foundations whose wealth comes from fossil fuels has impacted a wide array of institutions of higher education ranging from large state universities in fossil-fuel rich states to prestigious elite institutions like Harvard and MIT (Franta and Supran 2017). Debate about how such fossil fuel industry support constrains campus research, inquiry and conversation about climate and energy system change is receiving increasing attention. Supran et al. (2017), for example, note the influence of industry

funding on academic institutions such as the Harvard Kennedy School, citing an event where representatives from Royal Dutch Shell were invited to extol the benefits of using fossil fuels in a one-sided debate. It was later revealed that the faculty hosting the Shell “conversation” were receiving millions of dollars in funding from the company, raising questions about the conflicts of interest that arise from fossil fuel industry influence in academia.

While students are often considered the focus of political activism on higher education campuses, this paper reviews the role of faculty. Faculty are crucial to contributing knowledge on climate change and energy, both in the natural and social sciences, as well as in the humanities, and professional schools of law, medicine and business. Across campuses and in both traditional and social media, attention to and awareness of student support for divestment is relatively high; the campus divestment movement has been generally considered a student movement (Grady-Benson and Sarathy 2016). To date, the scale and extent of faculty support for fossil fuel divestment has received little attention; this may constrain both the impact of faculty support on institutional decisions, and the willingness of faculty to add their support if they feel isolated or fear that taking action may jeopardize their professional development.

This paper responds to this gap in knowledge about the role of faculty in campus divestment. The paper begins with a description of the evolution of the campus fossil fuel divestment movement. Then an explanation of the methodological approach used to analyze faculty involvement is followed by a presentation and discussion of the results characterizing faculty support. A concluding section discusses the implications of this understanding of the role of faculty in campus climate action.

## 2. Evolution of the campus divestment movement

Calling for divestment of specific types of companies has a long and storied history (Arnold and Hammond 1994, Siew Hong Teoh et al 1999, Schueth 2003, Ansar et al 2013). Many participants in the fossil fuel divestment movement have referenced the success of targeting investments in South Africa during the anti-apartheid movement of the 1960s through the 1980s. (Arnold and Hammond 1994, Tutu 2014, Gelles 2015, Solomon 2015). Recent research comparing the South African boycott, tobacco divestment, and fossil fuel divestment found that the impact of stigmatization associated with divestment has been larger than any direct financial consequences on targeted companies (Ansar et al 2013). Stigmatization can result in various outcomes including uncertainty about future cash flows, reduced political power and difficulty attracting top job candidates (Ansar et al 2013, Durand and Vergne 2015).

Fossil fuel divestment has come to represent one specific tangible act that a college or university can take to delegitimize the destructive influence of the fossil fuel industry on society. Divestment is an ethical act that individuals and organizations around the world can take to resist the false and dangerous vision of a climate-denying

fossil fuel future. Given the particularly strong influence of the fossil fuel industry in U.S. politics, divestment in the United States has become a particularly divisive issue. For some, divestment offers a critical opportunity to stigmatize the industry’s decades-long, profit-motivated strategy that has led to an erosion of trust in the role of science and scientists in U.S. democracy.

The fossil fuel divestment movement has grown dramatically over the last 6–8 years. Many identify Swarthmore Mountain Justice, founded in 2011, as the first campus divestment campaign (Gelles 2015, Grady-Benson and Sarathy 2015). In 2012, the international group 350.org became involved with the fossil fuel divestment movement. The divestment movement gained further attention and momentum following a 2012 article in *Rolling Stone* magazine by Bill McKibben, then 350.org’s Executive Director. The high-profile piece entitled, “Do the Math”, drew prominent attention to warnings by leading climate scientists that to keep global warming to less than 2°C above pre-industrial levels, less than half of the world’s proven fossil fuel reserves could be burned, at most (Meinshausen et al 2009). McKibben implicated fossil fuel companies as responsible, writing, “we have met the enemy and they is Shell” (McKibben, 2012). The year following the publication of the *Rolling Stone* article was very active for divestment on college campuses.

Today, the divestment movement continues to grow, although divestment action on many campuses has oscillated in response to both internal administrative resistance and external forces altering climate action priorities. While divestment campaigns are active in over 1000 campuses, at least 128 educational institutions worldwide have committed to some form of fossil fuel divestment (GoFossilFree 2018). Some campuses have made commitments to fully divest from all fossil fuels, while others have committed to divest more selectively, i.e., only from coal, or only from coal and tar sands. For example, in fall 2017, John Hopkins University announced its commitment to fully divest holdings from coal (Peoples 2017).

## 3. Methods

The data-set for this analysis is a collection of publicly available open letters signed by faculty in support of fossil fuel divestment. Letters were collected beginning in June 2015, through targeted online keyword searches, searches of divestment campaign websites and media articles, direct contact with individual divestment student campaigns, and contact with the Divestment Student Network (the most comprehensive network for fossil fuel divestment including hundreds of divestment leaders). Searches were performed regularly through May 2017, and new letters were added accordingly. The search was restricted to letters from institutions of higher education within the United States and Canada, including letters from both public and private colleges and universities, regardless of endowment or student population size. Once letters were collected, a database was created that includes information related to each faculty signatory’s campus affiliation, discipline, faculty department, distinguished honors or accolades, and, where applicable, scholarly

expertise on climate change or energy. Signatories who were not faculty, such as librarians, administrative staff, or technicians, were not included in the database.

For eighteen of the thirty colleges and universities for which we had faculty open letters on divestment, we also obtained data from university websites and collegefactual.com on the number of tenured (Full and Associate Professor) and not-yet-tenured tenure-track (Assistant Professor) faculty employed by each institution as of 2017. We used a nonlinear multilevel model with a logistic link and random intercepts to assess whether tenure is a factor in faculty decisions to sign letters in support of divestment (Ene et al 2015).

#### 4. Characterizing faculty support: Results

Our research identified 4,550 faculty members from 30 institutions of higher education in the United States and Canada who have signed open letters in support of fossil fuel divestment. A list of the 30 institutions, a link to the open letter for each, the number of signers, and the divestment action taken are summarized in **Table 1**. The complete database of all faculty signatories is available in Supplementary Table S.1. The institutions – such as Stanford University, the University of California system, the University of Massachusetts system, Columbia University, McGill University, Bowdoin College, Northeastern University and the University of Oregon – range from large public research universities to small, private liberal arts colleges. The number of faculty signers range from 13 at Middlebury College to 255 at the University of Chicago to 607 across the ten campuses of the University of California system. Letters have been released over a period from 2013 (Vassar College) to 2017 (Swarthmore College). Many of these letters remain open for additional signers.

All but one of these 30 letters call for full divestment from fossil fuels, with the faculty signers at the University of Washington calling for divestment only from coal. Many of these faculty letters are grounded in forceful ethical and fiscal arguments. Below are excerpts from the Harvard University open letter from faculty demonstrating some of the arguments being made.

*“Divestment is an act of ethical responsibility, a protest against current practices that cannot be altered as quickly or effectively by other means. The University either invests in fossil fuel corporations, or it divests. If the Corporation regards divestment as ‘political,’ then its continued investment is a similarly political act, one that finances present corporate activities and calculates profit from them. The only way to remain “neutral” in such circumstances is to bracket ethical principles even while being deeply concerned about consequences.”*

This letter signed by 192 Harvard faculty goes on to refer to slavery, apartheid and tobacco as investment issues in which the university did divest on ethical grounds.

*“We the undersigned are faculty and officers of the University, many with knowledge and research in climate science, energy, business management, ethics, and the effects of climate change on health, prosperity, and biodiversity...We appeal to our colleagues...to join us in signing this statement, as an act of conscience and fiscal responsibility, and in asking the Corporation to divest, as soon as possible, its holdings in fossil fuel corporations.”*

**Figures 1** and **2** characterize the diversity of faculty who have publicly endorsed fossil fuel divestment by signing one of these thirty open letters. Signatories include faculty from all major fields of inquiry and scholarship – from the natural sciences to the social sciences, art and humanities, business, economics, medicine and public health, education, engineering, and the law (**Figure 1**). The majority of signatories are faculty from arts and humanities or social sciences. An almost equal number of faculty from earth and environmental sciences and the other natural sciences are signatories. Medicine and public health faculty also have high numbers of faculty signatories. The areas with the fewest signatories are faculty in economics, business, and law. The lower number of signatories from these areas may reflect a tendency among faculty in these disciplines to focus more narrowly on the near-term financial consequences of investment decisions. It is important to note, however, that recent research indicates that fossil fuel divestment has not reduced investment portfolio performance (Trinks et al 2018).

Faculty signatories also come from all types of faculty positions, from full professors to adjunct faculty and lecturers (**Figure 2**). More full professors signed onto these letters than any other type or level of faculty, and the majority of faculty who signed had tenure (either full professor or associate professor positions). Analysis of the eighteen colleges and universities where we also obtained data on the total number of tenured (full and associate professors) and not-yet-tenured tenure-track (assistant professors) faculty employed by each institution as of 2017 (see Supplementary Table S.2) demonstrates that tenured faculty have signed onto letters of support for divestment at a higher rate than not-yet tenured faculty who are on the tenure-track (15.4% versus 10.7% on average). This difference, while relatively modest, is statistically significant (multi-level model test,  $p < 0.001$ ). This is consistent with anecdotal evidence, experienced by one author of this paper (J.C.S), that tenure-track junior faculty have been advised by some tenured faculty not to express support for divestment as doing so could potentially jeopardize their academic career advancement. This perceived risk of endorsing the divestment movement demonstrates the depth of anticipated resistance from college and university administrators.

Adjunct faculty appear to be severely underrepresented in faculty open letters for divestment. According to data presented in collegefactual.com, adjunct faculty make up an unweighted average of 25.3% of faculty at the 26 US colleges and universities in **Table 1**. Yet, only 2.5% of



**Table 1:** Faculty open letters on fossil fuel divestment at U.S. & Canadian colleges & universities. DOI: <https://doi.org/10.1525/elementa.297.t1>

<b>Institution</b>	<b>Faculty Open Letters on Divestment</b>	<b>No. of Signers</b>	<b>Divestment Action by Institution</b>
Boston University	<a href="https://docs.google.com/document/d/1_KeQ1NWQzyKWbPig-wp4ObuNg0KcHFikP3jNNqLIYnNE/edit">https://docs.google.com/document/d/1_KeQ1NWQzyKWbPig-wp4ObuNg0KcHFikP3jNNqLIYnNE/edit</a> Released September 2014	245	Divesting from coal and tar sands (2016)
Bowdoin College	<a href="http://bowdoinorient.com/bonus/article/9555">http://bowdoinorient.com/bonus/article/9555</a> Released Oct 17, 2014	69	Declined to divest
Columbia University	<a href="https://docs.google.com/forms/d/e/1FAIpQLSdpWZC8dYNzAF-LpwE2gG9cbFFQsPIQTKVHRrWhu0ji_z1QeQ/viewform">https://docs.google.com/forms/d/e/1FAIpQLSdpWZC8dYNzAF-LpwE2gG9cbFFQsPIQTKVHRrWhu0ji_z1QeQ/viewform</a> Released February 2015	336	Divesting from coal (2017)
Georgetown University	<a href="https://georgetownfossilfree.wordpress.com/faculty-1/faculty-letter/">https://georgetownfossilfree.wordpress.com/faculty-1/faculty-letter/</a> Released April 2015	121	Divesting from coal (2015)
Harvard University	<a href="http://www.harvardfacultydivest.com/open-letter-new">http://www.harvardfacultydivest.com/open-letter-new</a> Released April 2014	192	Declined to divest
McGill University	<a href="http://www.mcgillfacultyfordivestment.com/open-letter-from-faculty-to-mcgills-board-of-governors-2/">http://www.mcgillfacultyfordivestment.com/open-letter-from-faculty-to-mcgills-board-of-governors-2/</a> Released February 2015	154	Declined to divest (2016)
Middlebury College	<a href="https://www.ucsusa.org/sites/default/files/attach/2018/gw-accountability-middlebury_letter.pdf">https://www.ucsusa.org/sites/default/files/attach/2018/gw-accountability-middlebury_letter.pdf</a> Released May 2013	13	Declined to divest (2013)
MIT	<a href="http://web.mit.edu/fnl/volume/281/divestment.html">http://web.mit.edu/fnl/volume/281/divestment.html</a> Released September 2015	83	Declined to divest (2016)
Northeastern University	<a href="http://divestnu.org/faculty-petition/">http://divestnu.org/faculty-petition/</a> Released October 2016	79	Declined to divest (2016)
NYU	<a href="https://docs.google.com/document/d/13-aj6Xn5ri36Mfg4J-SwyHbXTtv6pGDMiflAuoNq-l4/edit">https://docs.google.com/document/d/13-aj6Xn5ri36Mfg4J-SwyHbXTtv6pGDMiflAuoNq-l4/edit</a> Released Spring 2015	211	Faculty Senate passed resolution supporting divestment (2015) but no subsequent decision taken
Oregon State University	<a href="http://blogs.oregonstate.edu/glencora/files/2016/05/DivestLetter_19May16.pdf">http://blogs.oregonstate.edu/glencora/files/2016/05/DivestLetter_19May16.pdf</a> Released May 2016	78	Full divestment (2017)
Seattle University	<a href="http://www.seattlespectator.com/wp-content/uploads/2015/05/SUFacultyLetterOnDivestment_SignedAsOf051515.pdf">http://www.seattlespectator.com/wp-content/uploads/2015/05/SUFacultyLetterOnDivestment_SignedAsOf051515.pdf</a> Released May 2015	164	Divesting from coal (2015)
Stanford University	<a href="https://www.theguardian.com/environment/interactive/2015/jan/11/stanford-fossil-fuel-divestment-letter">https://www.theguardian.com/environment/interactive/2015/jan/11/stanford-fossil-fuel-divestment-letter</a> Released January 2015	455	Divesting from coal (2014)
Swarthmore College	<a href="http://daily.swarthmore.edu/2017/03/22/open-letter-to-dean-braun-and-dean-miller/">http://daily.swarthmore.edu/2017/03/22/open-letter-to-dean-braun-and-dean-miller/</a> Released March 2017	21	Declined to divest (2015)
Tufts University	<a href="https://docs.google.com/forms/d/e/1FAIpQLSfOYPq2gLuS_KN36oGxCDoQulblZ0K8ugW77k1Rf82y8_ktEQ/viewform?formkey=dDlrT2tJMVpWS1dHTk5QWmV4VEFQSIE6MQ">https://docs.google.com/forms/d/e/1FAIpQLSfOYPq2gLuS_KN36oGxCDoQulblZ0K8ugW77k1Rf82y8_ktEQ/viewform?formkey=dDlrT2tJMVpWS1dHTk5QWmV4VEFQSIE6MQ</a> Released 2013	47	Declined to divest (2014)
University of British Columbia	<a href="http://www.ubcc350.org/faculty-open-letter">http://www.ubcc350.org/faculty-open-letter</a> Released November 2014	227	Declined to divest (2016)
University of California system	<a href="http://www.fossilfreeuc.org/about-ffuc/uc-faculty-open-letter-to-the-regents">http://www.fossilfreeuc.org/about-ffuc/uc-faculty-open-letter-to-the-regents</a> Released May 2015	584	Divesting from coal and oil sands (2015)
University of Chicago	<a href="https://www.theguardian.com/us-news/2016/feb/22/university-chicago-divest-fossil-fuel-professors-climate-change?CMP=oth_b-aplnews_d-1">https://www.theguardian.com/us-news/2016/feb/22/university-chicago-divest-fossil-fuel-professors-climate-change?CMP=oth_b-aplnews_d-1</a> Released May 2015	254	Declined to divest (2015)

(contd.)

Institution	Faculty Open Letters on Divestment	No. of Signers	Divestment Action by Institution
University of Denver	<a href="https://www.ucsusa.org/sites/default/files/attach/2018/gw-accountability-university-denver-divestment-letter.pdf">https://www.ucsusa.org/sites/default/files/attach/2018/gw-accountability-university-denver-divestment-letter.pdf</a> Released 2013	69	Declined to divest (2016)
University of Hawaii	<a href="http://divestuh.org/add-your-voice/faculty/">http://divestuh.org/add-your-voice/faculty/</a> Released October 2014	97	Full divestment (2015)
University of Maine	<a href="https://umaine.edu/facultysenate/wp-content/uploads/sites/218/2015/04/Divestment-Resolution_Senate_Coghlan_29April2015.pdf">https://umaine.edu/facultysenate/wp-content/uploads/sites/218/2015/04/Divestment-Resolution_Senate_Coghlan_29April2015.pdf</a> Released April 2015	43	Divesting from coal (2015)
University of Massachusetts System	<a href="https://www.ucsusa.org/sites/default/files/attach/2018/gw-accountability-umass-divestment-letter.pdf">https://www.ucsusa.org/sites/default/files/attach/2018/gw-accountability-umass-divestment-letter.pdf</a> Released April 2015	154	Full divestment (2016)
University of Pennsylvania	<a href="http://www.fossilfreepenn.org/faculty.html">http://www.fossilfreepenn.org/faculty.html</a> Released April 2016	120	Declined to divest (2016)
University of Toronto	<a href="http://www.uoftfacultydivest.com/">http://www.uoftfacultydivest.com/</a> Released March 2014	205	Declined to divest (2016)
University of Washington	<a href="https://docs.google.com/document/d/1saZcxfo948Pj8wHZ9S31y1uAbKET3KqslgB0cE6Hxfo/edit">https://docs.google.com/document/d/1saZcxfo948Pj8wHZ9S31y1uAbKET3KqslgB0cE6Hxfo/edit</a> Released February 2015	16	Divesting from coal (2016)
University of Waterloo	<a href="http://divestwaterloo.ca/wp-content/uploads/2016/01/UW-Faculty-Letter-Divestment-Feb-1.pdf">http://divestwaterloo.ca/wp-content/uploads/2016/01/UW-Faculty-Letter-Divestment-Feb-1.pdf</a> Released February 2016	65	Declined to divest (2016)
University of Wisconsin – Madison	<a href="https://www.ipetitions.com/petition/university-of-wisconsin-madison-faculty-divestment">https://www.ipetitions.com/petition/university-of-wisconsin-madison-faculty-divestment</a> Released November 2015	24	No action taken
Vassar College	<a href="http://powershift.org/blogs/vassar-celebrates-year-divestment-accomplishments-and-faculty-push-divestment">http://powershift.org/blogs/vassar-celebrates-year-divestment-accomplishments-and-faculty-push-divestment</a> Released June 2013	41	Declined to divest (2017)
Western Washington University	<a href="http://www.westernsre.org/sign-on-letter.html">http://www.westernsre.org/sign-on-letter.html</a> Released May 2014	252	Declined to divest (2014)
Yale University	<a href="https://www.ucsusa.org/sites/default/files/attach/2018/gw-accountability-yale-divestment-letter.pdf">https://www.ucsusa.org/sites/default/files/attach/2018/gw-accountability-yale-divestment-letter.pdf</a> Released October 2014	131	Partial divestment, primarily from coal and tar sands (2016)

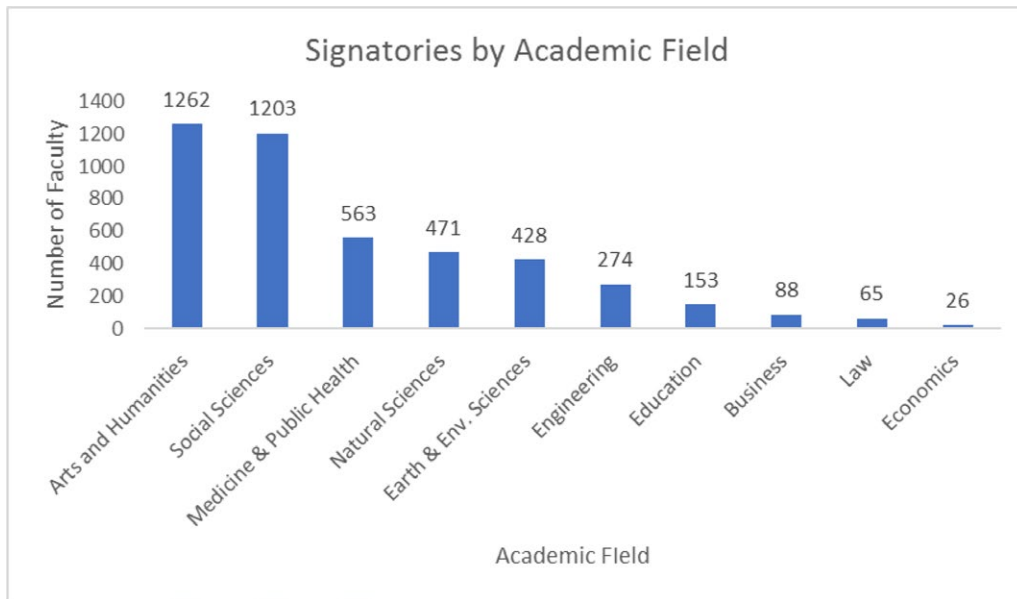
divestment signatories in these letters are adjunct. This low number of adjunct faculty signers could reflect in part a reluctance of adjunct faculty to sign out of concerns for job security. It may also be indicative of a relatively low effort by faculty divestment leaders to recruit adjunct faculty to sign on. Also, for various reasons adjunct faculty are often not as engaged or involved in campus governance issues as tenured and tenure-track faculty.

Faculty signatories include many scholars with expertise relevant to the case for divestment. For example, signatories include more than 225 experts in climate change and energy from a variety of disciplines, including distinguished academic leaders such as Dan Kammen, Gretchen Daily, Naomi Oreskes and James Hansen. More than 30 signatories are members of the United States National Academies of Sciences, Engineering or Medicine (Supplementary Table S.1). At least two (Douglass Osheroff and Roger Komberg) are Nobel Laureates.

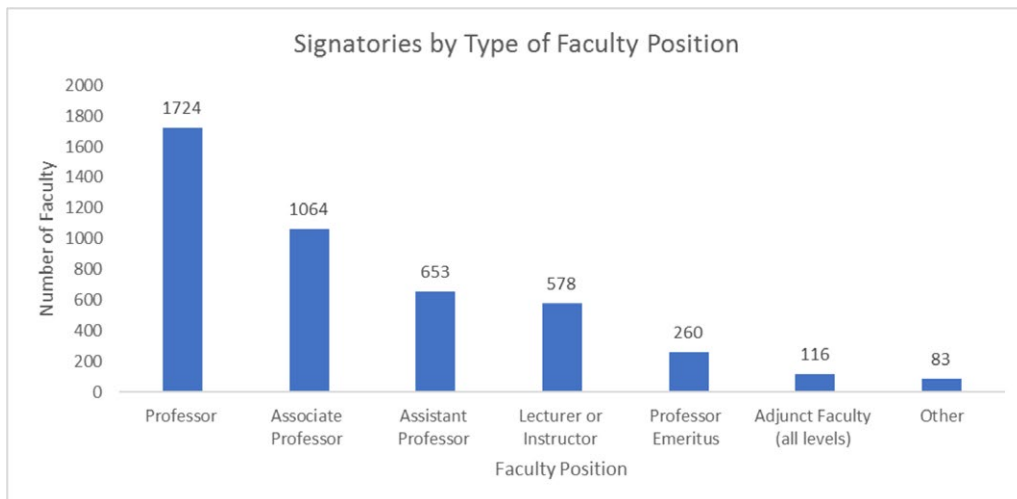
In addition to individual faculty signatories, departments at some universities have voted at department meetings to endorse the fossil fuel divestment

campaign at the departmental level. At Northeastern University, for example several departments including the Department of Sociology and Anthropology, the Department of Culture, Societies and Global Studies, as well as the School of Public Policy and Urban Affairs, voted unanimously to endorse the call for institutional divestment. One justification for the importance of supplementing individual signatories with departmental votes has been that individual faculty who do not yet have tenure may be reluctant to sign on to a letter, but their voices can still be heard if the whole department endorses the divestment campaign.

As of January 2018, the responses from the 30 colleges and universities in this study with faculty open calls for divestment have been mixed; three have committed to full divestment, nine have committed to divest from coal or coal and tar sands, sixteen have declined to divest and two have an uncertain status, i.e., they have not made a definitive public statement one way or another. Across these institutions, we see no relationship between the number of faculty who have signed-on to letters of



**Figure 1: Faculty signatories by academic field.** This figure represents the number of faculty signatories of divestment letters by academic field. DOI: <https://doi.org/10.1525/elementa.297.f1>



**Figure 2: Faculty signatories by type of faculty.** This figure represents the number of faculty signatories of divestment letters by type of faculty position. DOI: <https://doi.org/10.1525/elementa.297.f2>

support for divestment and the decisions by institutions to partially or fully divest. This may reflect the fact that campus divestment remains a largely student-led movement and that faculty support is only one of several drivers of institutional decision-making on divestment. This may also reflect differences in institutional priorities among faculty and senior administrators, and the fact that higher education leaders integrate perspectives from multiple different constituents (not just faculty) when making strategic institutional decisions.

**5. Discussion and conclusions**

Here, we provide the first formal and extensive analysis of faculty engagement with fossil fuel divestment efforts in colleges and universities in the United States and Canada. This analysis and characterization of faculty involvement demonstrates extensive faculty support for institutional divestment. Understanding the role of faculty is important

because most conversations around fossil fuel divestment campaigns have centered on student activists.

The number and diversity of faculty members across disciplines and professional ranks who are calling for their institutions to divest is significant, suggesting both greater and broader engagement on this issue than may be generally perceived. A lack of awareness of this depth and breadth of faculty support for the divestment movement may be constraining the movement. The general perception that campus divestment is a student movement and recognition of potential career risks for non-tenured faculty may be discouraging some faculty members from engaging. In addition, minimal awareness about the scale of collective faculty support may dissuade some administrators from acknowledging the credibility and standing of the signatories.

This analysis is powerfully illustrative, but not necessarily comprehensive. There may be hundreds of additional

faculty who support the campus divestment movement, and of course, there are also surely large numbers of faculty who are opposed to or ambivalent about divestment. The diversity of faculty perspectives on whether and how their institutions of higher education could or should consider the ethical implications of its investment decisions has not yet been well characterized. Strikingly, we are aware of no open letters from faculty *opposed* to campus divestment.

Despite the large numbers of faculty who have publicly endorsed divestment, the administration in only three of these institutions has made the commitment to fully divest, while nine have committed to divesting from coal and/or tar sands. Among the 30 institutions with publicly available letters, senior leadership in sixteen colleges and universities have responded with public announcements declining to divest. This demonstrates that the issue of divestment is divisive causing internal tension between many faculty and administrators. When administrators refuse to divest, faculty signatories often feel frustrated and disappointed in their senior leadership (Maxmin 2016).

Despite a total of 128 educational institutions around the world committing to divestment, the vast majority of institutions of higher education have not. Although some university administrators view fossil fuel divestment as a critical opportunity for higher education to stand up against the unethical and allegedly illegal influence of the fossil fuel industry – an industry that continues to resist climate action and slow down a transition toward more renewable energy systems – most do not. Many university and college presidents remain unwilling to commit to divesting from fossil fuel companies.

The actions that some institutions have taken to commit to selective divestment, i.e., divest only from coal or only from tar sands, raises some interesting questions about the core principles of divestment. Among the thirty colleges and universities whose faculty wrote public letters analyzed here, nine of them have committed to divest only from coal or coal and tar sands. Given that coal and tar sands are increasingly viewed as financially risky investments regardless, institutions committing to divest only from these types of fossil fuels have been criticized for seeking to be seen as supportive of divestment without actually taking a consistent principled stance on fossil fuels (Peoples 2017). The most recent example of this is critique of Johns Hopkins University's fall 2017 announcement to divest holdings in thermal coal; by not taking a stance on oil and gas as well as coal, Johns Hopkins has been criticized as sidestepping its responsibility to be a leader in public health (Peoples 2017).

Why are so many colleges and universities unwilling to fully divest? Many colleges and universities justify their decision not to divest based on fiduciary responsibility to maximize returns of their investments (Zhang and Trerayapiwat 2016, Stephens et al 2017). This justification continues to be widespread despite recent research demonstrating fossil fuel divestment does not reduce investment portfolio performance (Trinks et al 2018). Another reason many colleges and universities may be unwilling to divest relates to fear of alienating constituents connected

to the fossil fuel industry. Administrators may be concerned about jeopardizing current or future benefits from the fossil fuel industry, including the possibility of accepting significant funding from fossil fuel interests for academic programs (Franta and Supran 2017). In addition, many institutions have influential individuals with fossil fuel interests serving on their boards, so committing to divestment and the fossil fuel stigmatization that is associated with such a commitment creates internal tensions and potential negative repercussions that most college and university presidents would prefer to avoid.

Often accompanying the fiduciary responsibility justification for not divesting is a claim that the institution's investments should not be politicized (Bowen 2015). This claim fails to acknowledge that all investments have political implications; there is no such thing as an apolitical investment (Ayling and Gunningham 2015). Another common justification revolves around the perceived need to work with, rather than to isolate, fossil fuel companies to encourage them to change their priorities and advance changes toward more renewable energy (Kaufman 2018). However, some evidence suggests that divestment plays an important role, through stigmatization and removal of social license, in motivating fossil fuel companies to change their behaviors (Ayling and Gunningham 2015).

Recent revelations from the Paradise Papers about off-shore investing of higher education endowments has brought the issue of fossil fuel investment to the fore in several universities (Pilkington 2017). Twelve major universities and colleges have been apparently investing in Cayman Islands hedge funds that are directly investing in oil and gas development (Pilkington 2017). Although these off-shore accounts are legal, the fact that universities are investing in off-shore fossil-fuel-focused accounts raises concerns for some about transparency. The negative media coverage that these universities received about these revelations could have some influence on future investment decisions, and these revelations could increase pressure for divestment.

The fossil fuel divestment movement continues to gain momentum as the costs of inaction on climate change continue to grow and the political influence of fossil fuels interests become more broadly apparent (Ackerman and Stanton 2006, Auel and Cassady 2016). In response to the Trump administration's June 1 2017 announcement of its intent to withdraw the U.S. from the Paris Agreement, colleges and universities, along with mayors, governors and businesses have additional justification for acting forcefully on climate. Fossil fuel divestment is one clear step that any organization or individual can take to counter the US administration's disregard of the need for climate action.

Divestment is often characterized as an all-or-nothing approach – most of the faculty letters analyzed here call for full divestment from the 200 largest publicly traded fossil fuel companies. Yet, divestment can also be a part of a broader spectrum of strategies, including shareholder advocacy, by which investors can help compel, through pressure from shareholder resolutions and other activities, needed change in company behavior and accelerate the transition to renewable energy (Byrd and Cooperman



2018). As the divestment movement continues to evolve, there are new efforts to provide a more nuanced and strategic process to distinguish among fossil fuel companies. Drawing on recent research quantifying differences among fossil fuel companies and the extent to which, for example, they deny climate science and obstruct climate policy, Barnard College's Board of Trustees recently voted to make divestment decisions that "distinguish between companies based on their behavior and willingness to transition to a cleaner economy" (Goldman et al 2017, McDonald 2017). To implement its divestment decision, Barnard has established criteria it will use to evaluate fossil fuel companies' statements, actions, and attitudes towards climate science and climate action and plans to make the outcome publicly available in response to interest in this approach from other colleges and universities (Barnard College 2017, Seltzer 2017).

The broad scale and scope of faculty engagement with divestment demonstrated here suggests that many faculty are eager for their campuses to take a stance. The case for divestment in higher education is still growing as divestment is expanding in multiple other sectors. Most recently New York City committed to developing plans to divest public pensions fully from fossil fuels (Germanos 2017), and a group of 40 Catholic Churches committed to full fossil fuel divestment (Neslen 2017). The scope and scale of faculty support for fossil fuel divestment revealed by this analysis may encourage additional faculty to engage, support and endorse this and other approaches that draw attention to the societal impact of investment decisions, and forcefully call upon colleges and universities to align their investment practices with their academic missions and values.

### Supplemental Files

The supplemental files for this article can be found as follows:

- **Table S1.** A complete database of all faculty signatories who have signed open letters in support of fossil fuel divestment.Xlsx. DOI: <https://doi.org/10.1525/elementa.297.s1>
- **Table S2.** Total number of tenured (full and associate professor) and not-yet-tenured tenure-track (assistant professor) faculty employed by each institution as of 2017. DOI: <https://doi.org/10.1525/elementa.297.s2>

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The authors have no competing interests to declare.

### Author contributions

All three authors collaborated on the data analysis and the writing of the manuscript. L.Y and P.C.F. led the data collection.

### References

- Ackerman, F** and **Stanton, E.** 2006. Climate Change – the Costs of Inaction. <http://www.ase.tufts.edu/gdae/Pubs/rp/Climate-CostsofInaction.pdf>.
- Altbach, PG, Berdahl, RO** and **Gumport, PJ.** 1994. *Higher Education in American Society*. Prometheus Books.
- Ansar, A, Caldecott, B** and **Tilbury, J.** 2013. Stranded assets and the fossil fuel divestment campaign: what does divestment mean for the valuation of fossil fuel assets? Oxford University, University of Oxford's Smith School of Enterprise and the Environment. <http://www.smithschool.ox.ac.uk/publications/reports/SAP-divestment-report-final.pdf>.
- Arguedas Ortiz, D** and **Yona, L.** 2014. "Divestment campaign aims to bleed dry the fossil fuel industry." *Inter Press Service*. December 8, 2014.
- Arnold, P** and **Hammond, T.** 1994. "The role of accounting in ideological conflict: Lessons from the South African divestment movement." *Accounting, Organizations and Society* **19**(2): 111–126. DOI: [https://doi.org/10.1016/0361-3682\(94\)90014-0](https://doi.org/10.1016/0361-3682(94)90014-0)
- Auel, E** and **Cassady, A.** 2016. The Costs of Climate Inaction. *Center for American Progress*. <https://www.americanprogress.org/issues/green/reports/2016/09/22/144386/the-costs-of-climate-inaction/>.
- Ayling, JM** and **Gunningham, N.** 2015. "Non-State Governance and Climate Policy: The Fossil Fuel Divestment Movement." *Climate Policy*. DOI: <https://doi.org/10.2139/ssrn.2601176>
- Barnard College.** 2017. "Investment Criteria." from: <https://barnard.edu/divestment/investment-criteria>.
- Bowen, W.** 2015. "Demanding Universities Divest is Often Bad Policy." *The Washington Post*. [https://www.washingtonpost.com/opinions/demanding-universities-to-divest-is-often-bad-policy/2015/03/27/1382fbc4-d401-11e4-ab77-96466ea6a4c7\\_story.html?noredirect=on&utm\\_term=.588a83dfd240](https://www.washingtonpost.com/opinions/demanding-universities-to-divest-is-often-bad-policy/2015/03/27/1382fbc4-d401-11e4-ab77-96466ea6a4c7_story.html?noredirect=on&utm_term=.588a83dfd240).
- Boyle, M.** 2007. "Learning to Neighbor? Service-Learning in Context." *The Journal of Academic Ethics* **5**(1): 85–104. DOI: <https://doi.org/10.1007/s10805-007-9045-5>
- Brooks, L.** 2014. Glasgow becomes first university in Europe to divest from fossil fuels. *The Guardian*. UK, The Guardian Media Group.
- Burke, MJ** and **Stephens, JC.** 2017. "Energy Democracy: Goals and Policy Instruments for Sociotechnical Transition." *Energy Research & Social Science*.

- Burke, MJ** and **Stephens, JC**. 2018. "Political power and renewable energy futures: A critical review." *Energy Research & Social Science* **35**: 78–93. DOI: <https://doi.org/10.1016/j.erss.2017.10.018>
- Burszty, M**. 2008. "Sustainability Science and the University: Towards Interdisciplinarity." *Working Paper for Center for International Development at Harvard University* **24**.
- Byrd, J** and **Cooperman, E**. 2018. "Investors and Stranded Asset Risk: Evidence from Shareholder Responses to Carbon Capture and Sequestration (CCS) events." *Journal of Sustainable Finance & Investment* **8**(2): 185–202. DOI: <https://doi.org/10.1080/20430795.2017.1418063>
- Carrington, D**. 2015. Ban Ki-Moon urges governments to invest in low-carbon energy. *The Guardian*. UK, The Guardian Media Group.
- Clark, BR**. 1983. *The Higher Education System: Academic Organization in Cross-National Perspective*. Berkeley, University of California Press.
- Clark, BR**. 1998. *Creating Entrepreneurial Universities: Organizational Pathways of Transformation*. Oxford, New York, Pergamon.
- Coalition of Urban Serving Universities**. 2010. Urban Universities: Anchors Generating Prosperity for America's Cities.
- CTI**. 2011. Unburnable Carbon: Are the World's Financial Markets Carrying a Carbon Bubble, Carbon Tracker Initiative, at: <http://www.carbontracker.org/wp-content/uploads/2014/09/Unburnable-Carbon-Full-rev2-1.pdf>.
- DiPadova-Stocks, L**. 2005. "Two major concerns about service-learning: What if we don't do it? And what if we do?" *Academy of Management Learning and Education* **4**(3): 345–353. DOI: <https://doi.org/10.5465/amle.2005.18122424>
- Durand, R** and **Vergne, J-P**. 2015. "Asset divestment as a response to media attacks in stigmatized industries." *Strategic Management Journal* **36**(8): 1205–1223. DOI: <https://doi.org/10.1002/smj.2280>
- Ekwurzel, B, Boneham, J, Dalton, MW, Heede, R, Mera, RJ, Allen, MR and Frumhoff, PC**. 2017. "The rise in global atmospheric CO<sub>2</sub>, surface temperature, and sea level from emissions traced to major carbon producers." *Climatic Change*.
- Ene, M, Leighton, E, Blue, G and Bell, B**. 2015. Multilevel Models for Categorical Data Using SAS® PROC GLIMMIX: The Basics. *Paper*, 3430–2015. <https://support.sas.com/resources/papers/proceedings15/3430-2015.pdf>.
- Figueres, C, Shellhuber, HJ, Whiteman, G, Rockstrom, J, Hobley, A and Rahmstorf, S**. 2017. "Three years to safeguard our climate." *Nature* **546**: 593–595. DOI: <https://doi.org/10.1038/546593a>
- Franta, B and Supran, G**. 2017. The fossil fuel industry's invisible colonization of academia. *The Guardian*. <https://www.theguardian.com/environment/climate-consensus-97-per-cent/2017/mar/13/the-fossil-fuel-industrys-invisible-colonization-of-academia>.
- Freeland, R**. 1992. *Academia's Golden Age: Universities in Massachusetts, 1945–1970*. New York, Oxford University Press.
- Frumhoff, PC and Allen, M**. 2017. Big Oil must pay for climate change. Now we can calculate how much *The Guardian*. <https://www.theguardian.com/commentisfree/2017/sep/07/big-oil-must-pay-for-climate-change-here-is-how-to-calculate-how-much>.
- Frumhoff, PC, Heede, R and Oreskes, N**. 2015. "The climate responsibilities of industrial carbon producers." *Climatic Change* **132**(2): 157–171. DOI: <https://doi.org/10.1007/s10584-015-1472-5>
- Gelbspan, R**. 1998. *The Heat is On: The Climate Crisis, the Cover-Up, the Prescription*. New York, Perseus Publishing.
- Gelles, D**. 2015. Fossil Fuel Divestment Harnesses the Power of Shame. *New York Times*. New York.
- Germanos, A**. 2017. "Undeniable Victory: Cheers Follow Proposals to Divest Massive New York Pensions from Fossil Fuels." *Common Dreams*.
- GoFossilFree**. 2018. "GoFossilFree". <https://gofossilfree.org/divestment/commitments/>.
- Goldman, GT, Mulvey, K, Frumhoff, PC, Pfirman, S, Sethi, R and Comross, H**. 2017. "A Methodology for Assessment of Corporate Responsibility on Climate Change: A Case Study of the Fossil Energy Industry." *Journal of Environmental Investing* **8**(1): 160–181.
- Grady-Benson, J and Sarathy, B**. 2015. "Fossil fuel divestment in US higher education: student-led organising for climate justice." *Local Environment*.
- Grady-Benson, J and Sarathy, B**. 2016. "Fossil fuel divestment in US higher education: student-led organising for climate justice." *Local Environment* **21**(6): 661–681. DOI: <https://doi.org/10.1080/13549839.2015.1009825>
- Hahn, A**. 2003. Colleges and Universities as Economic Anchors: Profile of Promising Practices, Annie E. Casey Foundation.
- Healy, N and Debski, J**. 2017. "Fossil Fuel Divestment: Implications for the Future of Sustainability Discourse and Action within Higher Education." *Local Environment* **22**(6): 699–742. DOI: <https://doi.org/10.1080/13549839.2016.1256382>
- Ivanova, M**. 2016. "Good COP, bad COP: Climate reality after Paris." *Global Policy* **7**(3): 411–419. DOI: <https://doi.org/10.1111/1758-5899.12370>
- Kaufman, AC**. 2018. "The SEC Just Made the Case For Divesting From Fossil Fuel Companies Much Stronger." *Huffington Post*. [https://www.huffingtonpost.com/entry/sec-eog-divest\\_us\\_5ad628b7e4b016a07ea110b1](https://www.huffingtonpost.com/entry/sec-eog-divest_us_5ad628b7e4b016a07ea110b1).
- Kusnetz, N**. 2018. "New York City Sues Oil Companies Over Climate Change, Says It Plans to Divest." *2018 Inside Climate News*. <https://insideclimatenews.org/news/10012018/new-york-city-divest-sued-big-oil-climate-change-costs-exxon-chevron-bp-shell-mayor-deblasio>.

- Lenferna, A.** 2013. "Betting on Climate Failure: The Economics and Economics of Fossil Fuel Divestment." *Resilience.org*.
- Mandery, EJ.** 2014. The Missing Campus Climate Debate. *New York Times*. November 1, 2014.
- Maxmin, C.** 2016. "When Schools Say No to Divestment." *The Nation*. September 26 2016. <https://www.thenation.com/article/when-schools-say-no-to-divestment/>.
- McDonald, M.** 2017. "Barnard College Endowment to Divest from Climate Change Deniers." Bloomberg. <https://www.bloomberg.com/news/articles/2017-03-04/barnard-college-endowment-to-divest-from-climate-change-deniers>.
- Meinshausen, M, Meinshausen, N, Hare, W, Raper, C, Frieler, K, Knutti, R, Frame, D and Allen, M.** 2009. "Greenhouse-Gas Emission Targets for Limiting Global Warming to 2°C." *Nature* **458**: 1158–1162. DOI: <https://doi.org/10.1038/nature08017>
- Neslen, A.** 2017. "Catholic Church to make record divestment from fossil fuels." *The Guardian*. <https://www.theguardian.com/environment/2017/oct/2003/catholic-church-to-make-record-divestment-from-fossil-fuels>.
- Oreskes, N.** 2015. "Exxon's Climate Concealment." *New York Times*. October 9, 2015. [http://www.nytimes.com/2015/10/10/opinion/exxons-climate-concealment.html?nlid=47634430&src=recpb&\\_r=0](http://www.nytimes.com/2015/10/10/opinion/exxons-climate-concealment.html?nlid=47634430&src=recpb&_r=0).
- Oreskes, N.** 2015. Universities must divest from the fossil fuel industry. *New York Times*. <https://www.nytimes.com/roomfordebate/2015/08/10/is-college-divestment-from-the-fossil-fuel-industry-worthwhile/universities-must-divest-from-the-fossil-fuel-industry-3>.
- Peoples, M.** 2017. Hopkins didn't go far enough in divesting from coal. *Baltimore Sun*. December 27, 2017. <http://www.baltimoresun.com/news/opinion/oped/bs-ed-op-1228-coal-hopkins-20171221-story.html>.
- Pilkington, E.** 2017. Top US Universities use offshore funds to grow their huge endowments. *The Guardian*. <https://www.theguardian.com/news/2017/nov/08/us-universities-offshore-funds-endowments-fossil-fuels-paradise-papers>.
- Schueth, S.** 2003. "Socially Responsible Investing in the United States." *Journal of Business Ethics* **43**(3): 189–194. DOI: <https://doi.org/10.1023/A:1022981828869>
- Seltzer, R.** 2017. "Divest Responsibility." Inside Higher Ed. <https://www.insidehighered.com/news/2017/12/13/barnard-announces-criteria-evaluating-fossil-fuel-companies-investment-worthiness>.
- Shue, H.** 2017. "Responsible for what? Carbon producer CO<sub>2</sub> contributions and the energy transition." *Climatic Change*. DOI: <https://doi.org/10.1007/s10584-017-2042-9>
- Solomon, S.** 2015. Colleges use Anti-Apartheid Strategies to Battle Fossil Fuels. *New York Times*. New York.
- Stephens, JC, Hernandez, ME, Roman, M, Graham, AC and Scholz, RW.** 2008. "Higher Education as a Change Agent for Sustainability in Different Cultures and Contexts." *International Journal of Sustainability in Higher Education* **9**(3): 317–338. DOI: <https://doi.org/10.1108/14676370810885916>
- Stephens, JC, Palchak, E and Reese, B.** 2017. Divestment and Investment: Strategic Financial Decisions in Higher Education to Promote Societal Change Toward Sustainability. In: Filho, W, Skanavis, C, Paco, A, et al. (eds.). *Handbook of Theory & Practice of Sustainable Development in Higher Education* **2**. Springer.
- Supran, G and Oreskes, N.** 2017. "Assessing ExxonMobil's climate change communications (1977–2014)." *Environmental Research Letters* **12**(8): 084019. DOI: <https://doi.org/10.1088/1748-9326/aa815f>
- Telemacque, P.** 2015. Whether it's apartheid or fossil fuels, divestment is on the right side of history. *The Guardian*.
- Teoh, SH, Welch, I and Paul Wazzan, C.** 1999. "The Effect of Socially Activist Investment Policies on the Financial Markets: Evidence from the South African Boycott." *The Journal of Business* **72**(1): 35–89. DOI: <https://doi.org/10.1086/209602>
- Trinks, A, Scholtens, B, Mulder, M and Dam, L.** 2018. "Fossil Fuel Divestment and Portfolio Performance." *Ecological Economics* **146**: 740–748. DOI: <https://doi.org/10.1016/j.ecolecon.2017.11.036>
- Troyer, ME.** 1974. Needed Correlative University Reforms: In Role as Change Agents: Governance Climate and Structure. *Annual Meeting of the American Educational Research Association*. Chicago, Illinois, ERIC.
- Tutu, D.** 2014. We need an apartheid-style boycott to save the planet. *The Guardian*.
- Vorley, T and Nelles, J.** 2008. "(Re)Conceptualising the Academy: Institutional Development of and Beyond the Third Mission." *Higher Education Management and Policy* **20**(3). DOI: <https://doi.org/10.1787/hemp-v20-art25-en>
- Waas, T and Verguggen, A.** 2008. University research for sustainable development: Characteristics identified. *EMSU 2008*. Barcelona, Spain.
- Yona, L and Lenferna, A.** 2016. Fossil fuel divestment movement within universities. In: Atkins, E (ed.). *Environment, Climate Change, and International Relations: Tendencies, Assessments, and Perspectives*, London, United Kingdom, E-International Relations.
- Zhang, K and Trerayapiwat, K.** 2016. Report to the President on the Considerations Involved in Divesting the Dartmouth College Endowment from Directly Held Fossil – Fuel Related Assets. Dartmouth. [https://www.dartmouth.edu/~president/announcements/divestment\\_report\\_final.pdf](https://www.dartmouth.edu/~president/announcements/divestment_report_final.pdf).

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