

ADVANCED REVIEW

Strategic philanthropy in the post-Cap-and-Trade years: Reviewing U.S. climate and energy foundation funding

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For several decades, philanthropists in the United States have played a behind-the-scenes role in framing climate change as a social problem. These foundations have defined climate change primarily as a pollution problem solvable by enacting a price on carbon and by shifting markets in the direction of renewable energy technologies and energy efficiency practices. Funding has favored “insider” groups that push for policy action by way of negotiation, coalition building, and compromise, rather than “outsider” groups that specialize in grassroots organizing. Philanthropists have also placed less priority on funding for other low-carbon energy sources such as nuclear power, carbon capture and storage, or natural gas, nor have they invested in actions intended to boost societal resilience, protect public health, or to address questions of equity and justice. But in the years following the failure of the 2010 Federal cap and trade bill, a review of available grants from 19 major foundations indicates that philanthropists responded to calls for new directions. Funding shifted to focus on state- or municipal-level mitigation and adaptation actions and to the needs of low-income/minority communities. Significant funding was also devoted to mobilizing public opinion and to opposing the fossil fuel industry. Nearly a quarter of all funding, however, remained dedicated to promoting renewable energy and efficiency-related actions with comparatively little funding devoted to other low-carbon energy technologies. The review of past funding trends provides implications for assessing philanthropic strategy during the Donald J. Trump presidency and beyond.

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1 | INTRODUCTION

The defeat in 2010 of U.S. cap and trade legislation prompted widespread discussion among climate advocates and philanthropists about what had gone wrong, and the need for new directions in funding and strategy. The demise of the bill, which would have put an economy wide cap on greenhouse gas (GHG) emissions came just months after the world's political leaders at a United Nations summit in Copenhagen, Denmark had failed to reach a binding agreement to curb emissions. Following these political setbacks, several analysts called for investing more significantly in building a grassroots political movement

that would directly pressure U.S. political leaders and the fossil fuel industry to take aggressive steps to reduce emissions. Some urged a stronger focus on state and municipal policies, including prioritizing climate adaptation and resilience efforts and the needs of low-income populations. Others raised questions about a philanthropic strategy that pooled vast resources on behalf of a few strategies, energy technologies, and organizations, rather than spreading grants across a diversity of approaches, technologies, and groups.

Far from being passive supporters of actions to address climate change, major U.S. foundations for several decades have played an active role in defining a common roadmap for their grantees and partners. By framing the challenges, defining the priorities, and promoting specific ideas, philanthropists have actively shaped common ways of thinking that have bound together otherwise disconnected organizations and leaders into shared approaches and strategies (Bartley, 2007; Horvath & Powell, 2016; Morena, 2016; Nisbet, 2014). During an era of political dysfunction and polarization across levels of U.S. government, philanthropists are able to mobilize vast financial resources to alter the public conversation relative to complex problems like climate change. In doing so, they serve as an “outsize megaphone, both actively shaping how people view social problems and championing specific methods through which these problems can be addressed” (Horvath & Powell, 2016, p. 90). For some critics, however, such influence has also led to forms of group think that overlook important alternative strategies needed to substantially reduce GHG emissions and/or to overcome political opposition (Bartosiewicz & Miley, 2013; Dowie, 2002; Nordhaus & Shellenberger, 2007).

Yet despite the increasingly important role that foundations play in guiding the approach of organizations and governments to complex problems such as climate change, philanthropy remains a topic on the margins of mainstream scholarship. With a few notable exceptions, as the editors of a recent volume on philanthropy note (Bernholz, Cordelli, & Reich, 2016), the literature has been dominated by reports and white papers commissioned by foundations or books authored by insiders. When left-of-center and progressive foundations are covered in the U.S. press, coverage tends to be predominantly positive and uncritical, deepening a lack of public scrutiny relative to their philanthropic activities, successes, and failures. These grantmakers are also among the major patrons for academics and their work, and are the main supporters of the rapidly growing nonprofit journalism sector. Many scholars and journalists therefore have reason to be cautious in their assessment (Reckhow, 2013). Reflecting these more general trends, specific to climate change, Morena (2016) observes that scholars and journalists have focused primarily on the critical role of U.S. conservative donors in blocking policy action and spreading doubt about climate science. In other cases, scholars have examined the impact of environmental philanthropy through the lens of social movement theory (see Bartley, 2007; Faber & McCarthy, 2005; Jenkins, Carmichael, Brulle, & Boughton, 2017). This research has contributed valuable insights to the subfield of environmental sociology, but has been less relevant to an interdisciplinary network of scholars and professionals interested in the more fine-grained details of how foundations have defined and thereby influenced the agenda of climate change-related policy options and energy technologies at the U.S. federal and state levels.

Given these gaps in understanding, I review the history of U.S. philanthropic strategy relative to climate change, before assessing the important 5-year period following the defeat of the 2010 cap and trade bill. I conceptualize the behind-the-scenes influence of philanthropists in defining the boundaries of thinking around climate change as a policy, technology, and political challenge, and I detail the financial support for specific strategies and solutions, noting longstanding patterns in funding, but also evidence of new directions. Following the 2016 U.S. presidential election, major foundations are once again identifying next steps and possible new directions related to Federal and state policy. In the conclusion, I emphasize the implications for assessing strategic philanthropy during the Donald J. Trump presidency and beyond.

2 | ESTABLISHING A COMMON ROADMAP

Launched in 1991, the Energy Foundation has been the main instrument that a network of influential U.S. philanthropists has used to define a portfolio of policy options, political strategies, and energy technologies to address climate change. Set up by way of large block grants from the Rockefeller Foundation, Pew Charitable Trusts, and MacArthur Foundation, and supported in later years by the Hewlett Foundation, Packard Foundation, and other funders, the principal function of the Energy Foundation has been to leverage money in a highly concentrated pattern on behalf of policies that shift markets, industry, and consumers in the direction of renewable energy technologies and energy efficiency practices (Dowie, 2002; Morena, 2016).

During its first 20 years, the Energy Foundation takes credit for passing renewable energy mandates in dozens of states; launching a Midwest wind sector; starting a West coast solar industry; and promoting the adoption of renewables and efficiency practices among major utilities and companies (Energy Foundation, 2012). To accomplish these goals, the Energy Foundation channeled grant resources on behalf of its supporting donors, avoiding waste and redundancy. For their grantees, the ability to “shop at one source,” rather than pitch multiple funders for money saved on time and resources, and streamlined approaches (Morena, 2016). During the 1990s, the Energy Foundation helped shift the conversation about climate change away from the need for systemic political and policy reforms toward a focus on market-driven engineering solutions, relying

on appeals to scientific evidence and economic benefits to persuade elected officials and industry leaders (Faber & McCarthy, 2005; Morena, 2016).

But for some critics, the Energy Foundation represented a misguided “one track” approach to philanthropy that weakened the climate change movement. As multiple funders each with their own philosophies and existing networks of grantees outsourced their grant making decisions to Energy Foundation staffers, business friendly strategies were emphasized at the expense of efforts to challenge status quo power structures. For example, in seeking utility sector reforms, critics charged that the Energy Foundation marginalized the concerns of activist and consumer groups, giving too little consideration to questions of fairness and equity, accommodating instead the deregulatory goals of industry. When grant recipients did question the outlined policy objectives, they were allegedly “kept on a short lease” by warnings that they might lose their funding (Dowie, 2002).

By the mid-2000s, these critics warned that the Energy Foundation and its allied funders had cultivated a climate change movement of overly polite reformers ill equipped to battle the fossil fuel industry over comprehensive Federal legislation (Brulle & Jenkins, 2005; Dowie, 2002; Faber & McCarthy, 2005). Other scholars, however, directly challenged this narrative. Drawing on an empirical analysis of grants distributed by the Energy Foundation, Packard, Hewlett, and other philanthropies, Delfin and Tang (2007) observed support for both national centrist organizations and local grassroots activist groups along with a diversity of strategies and causes. Among foundations, the pattern of giving was “much more complicated than the sweeping assertions generally found in the literature indicate” (p. 2183).

2.1 | The Design to Win strategy

The Energy Foundation was an early example of the strategic philanthropy paradigm, an approach to funding in which grant-makers are strongly proactive in seeking solutions to complex social problems like climate change. Strategic philanthropy not only involves the pooling of grant investments on behalf of specific outcomes, but also a much higher degree of oversight over grantees (Brest & Harvey, 2010; Morena, 2016). In 2006, seeking to deepen its commitment to strategic philanthropy, the Hewlett Foundation along with several other funders hired a consulting firm to produce the report *Design to Win: Philanthropy's Role in the Fight against Global Warming* (California Environmental Associates, 2007). The report called for philanthropists to triple climate and energy funding from \$210 million in 2007 to more than \$600 million annually over the next decade. Implicit in the report, observes Morena (2016), was the “idea that the ‘market knows best’ and that the role of regulators is to create the conditions and send the right signals for a transition to a low-carbon economy” (p. 53).

In 2008, drawing on this roadmap, the sponsoring foundations established ClimateWorks, a regranteeing organization intended to invest more than \$1 billion worldwide. Funders either financing ClimateWorks directly and/or coordinating their own giving based on the Design to Win report included Hewlett, the Energy Foundation, Packard Foundation, Kresge Foundation, McKnight Foundation, the Sea Change foundation, the Doris Duke Charitable Foundation, and the Oak Foundation. Between 2008 and 2011, the network of foundations distributed more than \$368 million to support actions to address climate change (Nisbet, 2011).

This funding supported a relatively narrow set of policy objectives aimed at setting a price on carbon and promoting renewables which included efforts to pass a cap and trade bill; broker an international climate agreement, and to close down coal-fired power plants. In comparison, there was limited funding focused on other low-carbon energy technologies such as nuclear energy or carbon capture and storage. Despite the emerging boom in shale gas drilling or “fracking,” there was similarly limited funding provided for the evaluation of natural gas as a cleaner alternative to coal, or on limiting the risks from drilling. Nor was there substantial investment in climate change adaptation and resilience, protecting public health, or questions of equity, justice, race, or economic fairness. Despite considerable resources devoted to communication campaigns and media relations, very few grants were devoted to efforts at grassroots organizing or to mobilizing activists. Funding was also highly concentrated among a handful of organizations. Just 25 groups received more than half of the money distributed. Almost all were highly professionalized national groups that specialized in legal and policy analysis, pushing for policy action by way of inside-the-Beltway negotiation, coalition building, and compromise. Major recipients, for example, included the Environmental Defense Fund (EDF), the Natural Resources Defense Council (NRDC), and the Bipartisan Policy Center, a centrist think tank (Nisbet, 2011).

3 | DEBATING NEW DIRECTIONS

Following the demise of the cap and trade bill, some analysts turned their attention to what they viewed as miscalculations on the part of the Design to Win coalition of funders and their grantees, calling for shifts in priorities and strategies. In a first set of recommendations, several argued that the Design to Win strategy had been premised on a misguided belief that forging compromise agreements with industry was the best path to legislative success. As a consequence, funders and their grantees,

from the perspective of these analysts, had treated the public as “a kind of background chorus,” overlooking the need to invest in grassroots organizing efforts that mobilized strong public demand for legislative action (Bartosiewicz & Miley, 2013; Skocpol, 2013; see also Gunther, 2018).

The Design to Win strategy was particularly ill suited to the new realities of Washington politics, the same analysts concluded. During the 2000s, libertarian-oriented foundations had provided free market think tanks and conservative groups with more than \$550 million to oppose most forms of government regulation, and to help elect like-minded Republicans to Congress (Brulle, 2014; Mayer, 2016). Aided by favorable coverage at Fox News, conservative groups and elected officials efficiently folded opposition to the cap and trade bill into a larger narrative opposing big government, taxes, “socialism” and “Obamacare,” spreading doubt about climate science in the process. Rallying grassroots Tea Party activists to their cause, this climate change countermovement successfully pressured several swing state U.S. Senators into withdrawing their support for the 2010 cap and trade bill, contributing to the legislation's defeat (Mayer, 2016; Skocpol, 2013). In the years ahead, to overcome such strong opposition, climate philanthropists and environmentalists needed to go beyond traditional inside-the-Beltway strategies, these analysts argued, seeking new ways to “knit-together inside-outside links among many organizations, including some that can draw masses of ordinary citizens into the transition to a green economy” (Skocpol, 2013, p. 130).

But for other observers, building such a movement required investing far more heavily in grassroots organizations that represented minority communities and that sought social justice-oriented solutions to climate change (Hansen, 2012; Hemphill, 2013), a model that major funders had already successfully pursued in California to address local air pollution risks (Brest & Harvey, 2010) and to defeat an oil industry-backed referendum that would have rolled back state climate change laws (Hansen, 2012). Some analysts also argued that public communication campaigns needed to rely on more sophisticated audience research, employing new strategies for explaining climate science and for emphasizing the moral duty to act (Hemphill, 2013; Luers, 2013).

In a second set of recommendations, several analysts argued that philanthropists and environmentalists had placed too much faith in the ability of carbon pricing, renewable energy technologies, and efficiency standards to drive a major reduction in emissions. By 2010, many experts were warning that renewable energy and related storage technologies were unlikely to be scalable, reliable, or effective in shifting the U.S. and world economy completely away from fossil fuels, and that government investment in natural gas generation, nuclear energy, and carbon capture and storage would be needed (For reviews, see Deep Decarbonization Pathways Project, 2015; Intergovernmental Panel on Climate Change [IPCC], 2015; White House, 2016). Given the technical challenges in relying on a 100% renewables pathway, for these analysts, environmentalists were making a mistake by either ignoring, or in some cases strongly opposing other low-carbon technologies (Cohen, 2011; Loftus, Cohen, Long, & Jenkins, 2015; Nordhaus & Shellenberger, 2012). Removing from political consideration options such as nuclear energy or carbon capture, technologies that many conservatives supported, also intensified partisan disagreement, and reduced opportunities for compromise, these analysts argued (Sarewitz & Pielke, 2013). As other scholars echoed, what was needed was greater focus on the central role that government spending plays in catalyzing low-carbon energy innovation (Nemet, Grubler, & Kammen, 2016). Via white papers, meetings, and media commentary, a network of think tanks including the Breakthrough Institute, Third Way, Bipartisan Policy Center, Consortium for Science Policy & Outcomes, and Manhattan Institute pursued strategies to make the case for investment in other low-carbon energy technologies a central part of the policy discussion.

In a third set of recommendations, other observers called for a stronger focus among philanthropists on climate adaptation and resilience efforts at the national and local levels. For decades, adaptation efforts aimed at protecting cities, industries, and people against climate change had been a “taboo” topic, perceived by some climate advocates as undercutting efforts to cut GHG emissions (Pielke, Prins, Rayner, & Sarewitz, 2007). But now, given the failure to pass cap and trade legislation and to broker a UN agreement, funders needed to help bridge the gap between environmentalists who primarily focused on mitigation and the many experts who worked on adaptation. If properly structured, not only could climate adaptation actions reduce emissions, but focusing public attention on local risks could also intensify support for climate mitigation policies (Luers, Pope, & Kroodsmas, 2013). In a fourth set of critiques, some openly questioned elements of the strategic philanthropy paradigm that had informed the Design to Win approach. The longstanding preference by some foundations for the detailed design of specific solutions and the funding of just a few pathways toward a goal underestimated the vast complexity of the systems that funders were trying to change. As a consequence, on issues like climate change, funders should shift from a central planning approach to a more decentralized “spread betting” approach that supported a wider range of organizations and strategies (Kimball & Kopell, 2011; Teles & Schmitt, 2011).

As philanthropists reassessed their approaches, so did many of their grantees among environmental groups. Following the 2010 elections, with legislation unable to pass a Republican controlled Congress, the NRDC focused on promoting Environmental Protection Agency (EPA) rules limiting emissions from coal power plants. As part of a “Beyond Coal” campaign, the Sierra Club collaborated with local grassroots groups to shut down coal-fired power plants and to file lawsuits. The EDF and

the Nature Conservancy sought to build broader political coalitions across swing states and districts in the Midwest (Hemphill, 2013; Nisbet, 2015). Efforts to close down coal-fired power plants were aided by the expansion in shale gas drilling or “fracking,” which dramatically lowered the cost of natural gas energy production, and made older coal power plants increasingly costly for companies to keep in operation. Yet environmental organizations were split in their views of natural gas as a bridge fuel. EDF joined in a partnership with natural gas industry members to conduct research on limiting methane leaks and pollution from drilling. In contrast, the Sierra Club and dozens of grassroots organizations waged campaigns to ban or restrict drilling in Pennsylvania, New York, and other states (Shepard, 2012; Song & Bagley, 2015). In related efforts, 350.org and allied activist groups sought to mobilize a new “climate justice” movement by rallying opposition to the Keystone XL oil pipeline; by calling for divestment from fossil fuel industries; and by blocking other pipeline projects across the country. In doing so, they pioneered new Internet-based strategies that combined face-to-face organizing with various online tools, turning out tens of thousands of protesters at rallies, and mobilizing college students, faculty, and church parishioners to lobby their institutions on behalf of divestment (Hemphill, 2013; Hestres, 2015; Schifeling & Hoffman, forthcoming; Nisbet, 2015).

4 | U.S. FOUNDATION FUNDING, 2011–2015

To review the climate and energy-related funding choices of major U.S. foundations in the post cap-and-trade years, during Spring/Summer 2016 I compiled a database of 2,502 U.S. specific grants distributed by 19 foundations between 2011 and 2015. I selected the 19 foundations based on their track record of grant giving on the issue, their association with specific funding approaches, and the availability of grant-specific information provided by way of their websites or tax filings. To inform analysis and conclusions, available white papers, strategy documents, calls for proposals, and annual foundation reports were also reviewed. For each of the 19 foundations, Table 1 summarizes the sources of grant information per foundation available at the time of data collection, the strategies used to identify climate change- and energy-related grants, years where missing data might exist, and other details on why they were included as part of the analysis.

Given the scope and breadth of U.S. climate and energy-related funding, I was not able to include all relevant grantmakers as part of my analysis. But in selecting the 19 foundations to analyze, as highlighted in the previous sections, I focused on grantmakers that have historically been among the largest and most influential funders of climate and energy-related policy options and technologies. For example, given the significance of the Design to Win alliance of funders, as summarized in Table 1, I began by including eight of the nine original allied funders. The ninth funder, the SeaChange foundation, was not included due to a lack of publicly available grant information. Further justifying their inclusion in the analysis, in 2012, six of these eight Design to Win funders also ranked among the top 50 environmental grantmakers as tracked by the U.S. Foundation Center. These include the Hewlett Foundation (#1 in environmental giving), Packard Foundation (#2), Doris Duke Foundation (#15), Kresge Foundation (#16), Oak Foundation (#20), and the McKnight Foundation (#41). The other two original Design to Win aligned funders included in my analysis were the regranteeing organizations Energy Foundation and ClimateWorks. I selected three other foundations because they rank among the country's leading environmental grantmakers, and they have been recognized by scholars for their influence on the environmental movement (see Bosso, 2005). These three funders are the MacArthur Foundation (#17), Gordon & Betty Moore Foundation (#3), and Ford Foundation (#12).

Compared to these 11 major grantmakers, I selected the other 8 foundations because of their comparatively unique focus, approach, or influence. The Skoll Global Threats Fund prioritizes investments in climate change communication, engagement, and media initiatives (Skoll, n.d.). The Surdna Foundation prioritizes a “next generation infrastructure” approach that emphasizes localized climate change mitigation and adaptation actions that serve the needs of low income and minority communities, with the goal of promoting justice and fairness (Surdna, n.d.). The Park Foundation and Rockefeller Brothers Fund (#28 environmental grantmaker) are notable for supporting strategies that directly target the fossil fuel industry by way of communication, media, and mobilization campaigns. The Wallace Global Fund has played a key role in coordinating the fossil fuel divestment movement (Williams, 2016). Along with Park, both the Heinz Endowments (#26) and Schmidt Family Foundation have prioritized stricter regulation and/or bans on natural gas fracking. The Bloomberg Foundation has prioritized the funding of litigation and advocacy to limit or shut down coal-fired power plants. In sum, my analysis includes 8 of the 9 Design to Win alliance members for which public records are available, 3 of the top 5 U.S. environmental grantmakers, 8 of the top 20 such funders, and 10 of the top 50.^{1,2}

Once grants from each of the foundations were entered into a database, to record the focus of each grant, I developed and refined categories by reviewing foundations' mission statements, call for proposals, annual reports, program descriptions, white papers, and other relevant information. I categorized each grant by the main focus as determined by the description available for the grant, by cross checking with the website of the grant recipient, and by way of the relevant program description for the foundation. These categories include a focus on Federal, state, or local climate change policy actions and research including those related to agriculture, transportation, and adaptation; and human dimension such as health, equity, or jobs;

TABLE 1 Sources/availability of U.S. foundation grant information and other details

| Funder | Source of grant info | Years available ^a | Other details |
|---------------------------|----------------------------|------------------------------|--------------------------------------|
| Bloomberg | 990 tax forms ^b | 2012–2013 | Focus on limiting coal industry |
| ClimateWorks ^c | Database ^d | 2011 and 2015 | Regranting organization |
| Duke ^c | Database ^e | 2011–2015 | #15 environmental grantmaker |
| Energy Fndn ^c | Database ^d | 2011–2015 | Regranting organization |
| Ford | Database ^e | 2011–2015 | #12 environmental grantmaker |
| Hewlett ^c | Database ^e | 2011–2015 | #1 environmental grantmaker |
| Heinz | Web site ^f | 2011–2015 | Focus on natural gas “fracking” |
| Kresge ^c | Database ^e | 2011–2015 | #16 environmental grantmaker |
| MacArthur | Database ^e | 2011–2015 | #17 environmental grantmaker |
| McKnight ^c | Database ^e | 2011–2015 | #41 environmental grantmaker |
| Moore | Database ^e | 2011–2015 | #3 environmental grantmaker |
| Oak ^c | Database ^e | 2011–2015 | #20 environmental grantmaker |
| Packard ^c | Database ^e | 2011–2015 | #2 environmental grantmaker |
| Park | Web site ^g | 2011–2015 | Focus on fossil fuel (FF) industry |
| Rockefeller Bros. | Web site ^h | 2011–2015 | Focus on FF industry, #28 grantmaker |
| Schmidt | 990 tax forms ^b | 2011–2014 | Focus on natural gas “fracking” |
| Skoll Global Threats | 990 tax forms ^b | 2011–2014 | Focus on climate communication |
| Surdna | Database ^e | 2011–2015 | Focus on urban mitigation/resilience |
| Wallace Global | 990 tax forms ^b | 2011–2013 | Focus on FF divestment |

^a “Years available” reflects reporting as of Spring/Summer 2016 when data was gathered.

^b All U.S. relevant listed grants included.

^c Indicates member of the Design to Win Alliance.

^d Given climate- and energy-specific focus of foundation, all U.S. grants were included. The online database includes only grants from the year 2015. For 2011, data was retrieved from 2011 Annual Report. Data for years 2012–2014 not available.

^e Relevant U.S. grants were identified using the search terms “climate,” “greenhouse gas,” “carbon,” “clean energy,” “renewable energy,” “solar,” “wind,” “geothermal,” “energy efficiency,” “nuclear,” “fossil fuel,” “coal,” “natural gas,” “fracking,” “carbon capture,” “geoengineering,” “deforestation,” “resilience,” “adaptation,” “Environmental Protection Agency,” “EPA,” “transportation,” and “clean air.”

^f Relevant U.S. grants retrieved from the Environment and Special Initiatives programs.

^g Relevant U.S. grants retrieved from the Environment and Media programs.

^h Relevant U.S. grants retrieved from the Sustainable Development, Democratic Practice, and Special Initiatives programs.

actions related to energy policy, technologies, and efficiency practices including their human dimensions; forms of climate change- and energy-related communications, mobilization, media; and actions specific to regulating, restricting, or opposing the fossil fuel industry. To inform my review, I report combined funding trends from among the 19 foundations and across the 5-year period 2011–2015, detailing the aggregate patterns by way of a series of main tables. In some cases, drawing on the compiled database, foundation-specific totals for a particular organization or focus area are also referenced.

4.1 | Distribution by foundation, region, and organization

As Table 2 summarizes, between 2011 and 2015, \$556.7 million in grants were distributed to support activities at the U.S. Federal, state, and municipal levels related to climate change and energy.³ A strong proportion of total U.S. funding is accounted for by just a few foundations, indicating their potential to influence the strategies pursued by climate advocates. As the largest funder, the Energy Foundation distributed \$95.8 million to U.S. grantees, accounting for 17% of the U.S. total. If the Energy Foundation's giving is added to that by Hewlett, Kresge, and MacArthur, the top four foundations account for \$288.8 million or 52% of the U.S. total. As Table S2 in the Supporting information indicates, \$375.9 million or two thirds of all U.S.-related giving was focused on national issues, campaigns, and/or Federal policy. In terms of the \$181 million in grants that had a specific state or regional focus, \$156 million or 86% focused on activities specific to the West Coast/Pacific Northwest (\$49.5 million), Midwest (\$43.8 million), Northeast (\$37 million), or Southeast (\$25.7 million).

Table 3 indicates that just 20 organizations received more than half of all the funds distributed by the 19 foundations. Eighteen of the 20 groups are nationally focused, though most also work on state and regional issues. The two exceptions are the Great Plains Institute for Sustainable Development and the Environmental Law and Policy Center, which base much of their work in the Midwest. The consolidation of more than half of all funding among 20 groups is consistent with past critiques that foundations tend to heavily favor larger organizations that specialize in “insider” strategies such as policy analysis,

TABLE 2 U.S. climate and energy grants by foundation, 2011–2015

| | Amount distributed | Number of grants distributed |
|--|--------------------|------------------------------|
| Energy Foundation | 95,843,220 | 823 |
| Hewlett Foundation | 70,217,842 | 187 |
| Kresge Foundation | 69,491,663 | 227 |
| MacArthur Foundation | 53,325,347 | 55 |
| Doris Duke Foundation | 42,034,795 | 24 |
| Rockefeller Brothers Fund | 28,286,279 | 263 |
| Schmidt Family Foundation ^a | 28,200,000 | 161 |
| Skoll Global Threats Fund ^a | 26,356,722 | 56 |
| Bloomberg Family Foundation ^b | 23,705,000 | 5 |
| Packard Foundation | 23,466,033 | 94 |
| ClimateWorks ^c | 18,395,266 | 23 |
| Surdna Foundation | 16,155,000 | 79 |
| Heinz Endowments | 14,953,411 | 113 |
| McKnight Foundation | 14,382,170 | 80 |
| Moore Foundation | 9,284,394 | 16 |
| Park Foundation | 8,246,729 | 193 |
| Oak Foundation | 7,226,570 | 21 |
| Wallace Global Fund ^d | 3,833,500 | 71 |
| Ford Foundation | 3,274,528 | 11 |
| TOTAL | 556,678,469 | 2,502 |

^a Grant data only available 2011–2014.

^b Grant data only available for 2012 and 2013.

^c Grant data only available for 2011 and 2015.

^d Grant data only available for 2011 and 2013.

lobbying, and legal action (Bartosiewicz & Miley, 2013; Dowie, 2002; Jenkins et al., 2017; Nisbet, 2011). Unique among the top 20 organizations, the New Venture Fund and Sustainable Markets Foundation primarily function as intermediaries,

TABLE 3 Top 20 recipients of U.S. climate change and energy-related grants, 2011–2015

| | Amount of grants | Number of grants |
|--|--------------------|------------------|
| Sierra Club | 48,859,500 | 33 |
| Alliance for Climate Protection | 20,000,000 | 3 |
| Nature Conservancy | 19,360,000 | 8 |
| The Partnership Project | 17,747,500 | 14 |
| Natural Resources Defense Council | 14,075,977 | 40 |
| Environmental Defense Fund | 13,355,000 | 26 |
| New Venture Fund | 12,720,939 | 24 |
| Bipartisan Policy Center | 10,260,000 | 7 |
| Wildlife Conservation Society | 9,845,250 | 4 |
| Clean Air Task Force | 8,526,027 | 19 |
| Climate Central | 8,070,000 | 9 |
| Regulatory Assistance Project | 7,232,500 | 6 |
| Institute for Market Transformation | 5,800,000 | 12 |
| Ceres Inc | 5,689,000 | 26 |
| Sustainable Markets Foundation | 5,574,000 | 51 |
| American Council For Energy-Efficient Economy | 5,277,000 | 21 |
| Great Plains Institute for Sustainable Development | 4,982,000 | 20 |
| Georgetown Climate Center/University | 4,491,943 | 14 |
| Environmental Law and Policy Center | 4,465,000 | 18 |
| Union of Concerned Scientists | 4,042,500 | 24 |
| TOTAL | 230,374,136 | 379 |

providing financial support and coordination to smaller sized advocacy groups and organizations, many of which focus on campaigns targeting the fossil fuel industry.

4.2 | Climate change mitigation and adaptation

Table 4 summarizes the \$91.4 million in grants distributed by the 19 foundations to support work advancing specific policy goals and actions related to climate change mitigation, adaptation, and resilience. Approximately \$10.2 million in grants were devoted to unspecified work on behalf of reducing GHG emissions. But reflecting the shift in recent years to focus on Federal executive actions, very few grants were dedicated to establishing a carbon tax or a cap and trade system. Instead, \$5.3 million supported efforts to establish EPA rules limiting emissions from power plants; \$3.5 million for research analyzing those rules; and a related \$3.3 million to protect public health by reducing GHG pollution. MacArthur was the leading funder of work on behalf of the EPA rules, providing \$3 million to NRDC. Relative to analysis of the EPA rules, Hewlett was the main funder, providing \$2.6 million, mostly to university-based researchers. For advocacy related to public health and GHG pollution, Hewlett also played a lead role, providing \$2.1 million to the American Lung Association and related groups.

Reflecting a shift from previous years to focus on state and municipal-level mitigation and adaptation actions, a second notable trend is the \$18.7 million invested in promoting carbon neutral cities and sustainable/green regional economies. Grants included support for smart growth advocacy, sustainable housing communities, urban eco-districts, and sustainable development initiatives. Major funders in this area included Kresge (\$12.9 million), Surdna (\$3.2 million), and McKnight (\$1 million). Complementing this focus was the \$17.2 million devoted to promoting urban, regional, or local adaptation efforts. Grants included support for groups working on adaptation in relation to urban planning, transportation, flood management, coastal resilience, and similar issues. A significant portion of this funding went to East coast areas affected by Hurricane Sandy. Major funders in this area included Kresge (\$11.4 million) and Surdna (\$1.9 million). Kresge also provided most of the \$5.1 million devoted to adaptation and resilience research.

In a third-related area of emphasis, \$16.1 million was invested in activities mostly at the state or municipal level that promoted climate justice/fairness on behalf of minority, indigenous, urban, rural, and low-income communities. Priorities included protecting the most vulnerable, creating economic opportunities, and reducing other climate change-related

TABLE 4 Funding for climate change mitigation and adaptation actions, 2011–2015

| | Amount of grants | Number of grants |
|--|-------------------|------------------|
| Climate Mitigation and Adaptation Policy Actions and Goals | | |
| Promote climate policy, limit/regulate greenhouse gas (GHG) emissions (unspecific) | 10,261,720 | 38 |
| Promote/defend U.S. EPA regulation, Clean Power Plan | 5,389,287 | 12 |
| Promote carbon tax, price on carbon | 239,100 | 2 |
| Promote cap and trade system, credits, offsets, transfers | 500,439 | 2 |
| Limit black carbon, soot | 905,000 | 1 |
| Limit methane emissions | 750,027 | 2 |
| Promote climate change adaptation and resilience (unspecific) | 1,810,250 | 8 |
| Protect public health, reduce GHG-related air pollution | 3,344,484 | 24 |
| Regional/local focus on Mitigation and Adaptation | | |
| Promote carbon neutral cities/states; green economies | 18,729,802 | 52 |
| Promote fairness/justice for low-income/minority communities | 16,195,275 | 70 |
| Promote urban/local/regional climate adaptation and resilience | 17,296,790 | 89 |
| Promote clean energy jobs, training | 2,934,528 | 8 |
| Climate Mitigation and Adaptation Related Research | | |
| Climate policy analysis, research (unspecific) | 1,750,500 | 13 |
| Analysis of EPA rules, clean power plan | 3,506,000 | 10 |
| Analysis of carbon pricing, emissions trading | 698,000 | 2 |
| Develop calculator, map, tool | 373,039 | 3 |
| Analysis of climate change national security risks | 22,000 | 1 |
| Climate/atmospheric science research, unspecific | 542,000 | 6 |
| Climate change adaptation, resilience research | 5,129,225 | 14 |
| Research on methane, black carbon emissions | 815,000 | 6 |
| Support of prize for innovation in reducing GHG emissions | 168,338 | 1 |
| TOTAL | 91,360,804 | 364 |

disparities among these communities. Major funders included Kresge (\$9 million), Surdna (\$2.7 million), Ford (\$1.4 million), Hewlett (\$1.4 million), and the Energy Foundation (\$1.2 million).

Table S3 in the Supporting information summarizes the \$72.6 million in grants focused on climate change-related land use and agriculture reforms. Doris Duke was the leading funder of ecosystem protection providing \$23 million to protect wildlife and biodiversity; \$8.5 million for ecosystem adaptation and resilience; and \$5.2 million to protect wildlife against renewable energy development. Packard was the top funder of efforts to lower emissions from agriculture providing \$7 million to support sustainable agriculture; \$1.4 million for research; and \$2.2 million for engagement of farmers on the topic.

4.3 | Climate change communication, media, and mobilization

Table 5 summarizes the \$92.4 million that was invested by the 19 foundations to specifically support climate change-related communication, media, and public mobilization. Of this total, \$20 million was provided by the Skoll Global Threats Fund to the Alliance for Climate Protection, accounting for more than 1 out of every 5 dollars distributed in the area. Although prioritizing strategic communication campaigns by organizations like the Alliance is consistent with past funding trends, Table 4 also indicates that foundations appeared to have responded to calls for greater investment in direct public mobilization, organizing, and activism, providing a total of \$23.3 million in grants. However, most of this funding went to large national environmental groups rather than smaller grassroots activist groups. Almost half of the total (\$10 million) was provided by MacArthur to the Nature Conservancy for its efforts to mobilize voters on behalf of climate action. Another third (\$8 million) was provided by Hewlett to support the Partnership Project's climate action campaign.

Other funders spread their support among smaller groups. They included Schmidt (\$1.9 million) which was the lead donor to the Citizen Engagement Lab, and Rockefeller Brothers (\$1.3 million) which was the primary supporter of 350.org. A third major investment was the \$12 million provided for nonprofit media organizations. Leading funders included Schmidt (\$7.5 million) and Kresge (\$1.9 million) which supported ClimateCentral and Grist.org respectively; and Rockefeller Brothers (\$925,000) which was the main backer of Inside Climate News. Relevant to the call for directly engaging minority groups and communities of color, \$3.2 million was provided for work in this area. Of this total, \$2 million was dedicated to mobilizing

TABLE 5 Funding for climate change communication, media, and mobilization, 2011–2015

| | Amount of grants | Number of grants |
|---|-------------------|------------------|
| Climate Change-Related Communication and Mobilization | | |
| Support for public education, outreach, dialogue, general | 2,221,140 | 28 |
| Support for more effective communication of climate science | 3,349,677 | 15 |
| Support for strategic communications, media relations | 26,826,816 | 41 |
| Support for public mobilization, activism, organizing | 23,315,000 | 33 |
| Support for public opinion/communication research | 3,499,860 | 23 |
| Support for meeting, summit, workshop, conference | 935,116 | 15 |
| Climate Change-Related News Media, Films, Arts/Culture | | |
| Support for news organization, journalism initiative | 12,047,500 | 30 |
| Support for documentary /multimedia production, promotion | 460,000 | 7 |
| Support for arts, cultural events, creative professionals | 125,000 | 2 |
| Climate Change-Related Engagement of Specific Groups | | |
| Support for policymaker engagement | 1,370,000 | 8 |
| Support for business/industry engagement | 3,404,656 | 23 |
| Support for engagement of faith leaders, faith community | 2,657,250 | 19 |
| Support for engagement of minorities, communities of color | 3,201,415 | 20 |
| Support for engagement of military, national security community | 718,783 | 2 |
| Support for engagement of labor leaders, community | 1,611,250 | 8 |
| Support for engagement of health experts, leaders | 1,330,000 | 9 |
| Support for engagement of conservatives, Republicans | 1,155,000 | 10 |
| Support for engagement of youth, college students | 1,396,000 | 16 |
| Support for engagement of grantmakers, philanthropists | 1,103,250 | 19 |
| Support pre-secondary education, teacher training | 840,365 | 3 |
| Support engagement of farmers, agricultural communities | 795,000 | 3 |
| Support for engagement of hunters, anglers, conservationists | 42,345 | 1 |
| TOTAL | 92,405,423 | 335 |

Latino/Hispanic voters on climate change. Other grants went to engaging native Hawaiians about climate-related risks (\$610,000) and to mobilizing Asian American voters on climate change (\$480,000). Leading funders included Hewlett; Kresge, Schmidt, and Rockefeller Brothers. Notably, \$1.1 million was also devoted to directly engaging Republicans and conservatives.

4.4 | Renewable energy and energy efficiency

Table 6 summarizes the \$140.3 million in funding devoted to policy actions and goals that promote renewable energy and energy efficiency. Much of the funding was dedicated to unspecified work on behalf of clean energy generally (\$52.2 million), energy efficiency generally (\$19.9 million), energy efficient buildings specifically (\$14.5 million), and research on clean energy and efficiency (\$8.8 million). The leading funders across these areas were the Energy Foundation (\$46.5 million across all four areas); Hewlett (\$9.1 million to promote clean energy); ClimateWorks (\$6.8 million to support energy efficiency generally); and Kresge (\$6.6 million to support energy efficiency generally and efficient buildings). In a trend relevant to past concerns over a lack of focus on equity and fairness, \$25.2 million in grants were devoted to promoting energy retrofits and access to renewable energy among low-income households and communities. Leading grantmakers in this area included MacArthur (\$12.8 million); Kresge (\$5.7 million); Energy Foundation (\$3 million); Rockefeller Brothers (\$1.3 million); and Surdna (\$1.1 million).

4.5 | Renewable energy-related communication, media, and mobilization

Table 7 summarizes the \$46.6 million in funding devoted to directly supporting renewable energy-related communication, media, and public mobilization efforts. Nearly \$16 million was distributed in smaller amounts across 130 grants to support public education campaigns on behalf of renewable energy. Such efforts can involve a range of “top-down” activities including communication campaigns and advertising. Almost all of this funding (\$14.5 million) was provided by the Energy Foundation.

In a second major area, responding to past critiques, \$15 million was invested in campaigns focused on direct public mobilization in support of renewable energy. Among the leading funders, the Energy Foundation and Hewlett gave a combined \$8.3 million to the Partnership Project to coordinate mobilization efforts on behalf of major environmental groups. McKnight

TABLE 6 Funding to promote renewable energy and energy efficiency-related policies and practices, 2011–2015

| | Amount of grants | Number of grants |
|---|--------------------|------------------|
| Promote Renewable Energy Technologies | | |
| Promote clean energy, renewable energy (unspecific) | 52,229,817 | 318 |
| Promote solar power | 1,592,500 | 11 |
| Promote terrestrial wind power/wind power generally | 3,221,000 | 21 |
| Promote offshore wind power specifically | 2,640,000 | 18 |
| Make more sustainable, limit biofuels, biomass, bioenergy | 3,140,200 | 15 |
| Promote financing, access to renewable energy, retrofits for affordable housing | 25,189,688 | 121 |
| Promote govt/private investment in clean energy, efficiency, storage | 712,000 | 3 |
| Promote Efficiency, Reduce Energy Use | | |
| Promote energy efficiency, general | 19,981,949 | 84 |
| Promote efficient buildings, retrofit, green design | 14,462,228 | 90 |
| Promote appliance efficiency standards | 1,283,000 | 11 |
| Promote grid modernization / integration of renewables | 2,553,052 | 13 |
| Promote utility adoption of efficiency practices and renewables | 3,525,000 | 17 |
| Make manufacturing and supply chain operations more energy efficient | 250,000 | 1 |
| Influence Corporate Practice to Promote Renewables, Efficiency | | |
| Promote voluntary accounting, compliance, standards, disclosure | 118,021 | 2 |
| Promote investment in sustainable funds, companies | 70,000 | 3 |
| Promote sustainable industry/corporate practice | 500,000 | 1 |
| Renewable Energy, Efficiency Research | | |
| Renewables, energy efficiency research | 8,808,464 | 44 |
| Research on sustainable, more efficient manufacturing | 25,000 | 1 |
| TOTAL | 140,301,919 | 774 |

TABLE 7 Funding for renewable energy-related communication, media, and mobilization, 2011–2015

| | Amount of grants | Number of grants |
|--|-------------------|------------------|
| Renewable Energy Focused Communication and Mobilization | | |
| Support for public education, outreach, dialogue, general | 15,968,758 | 130 |
| Support for strategic communications, media relations | 1,644,000 | 18 |
| Support for public mobilization, activism, organizing | 14,963,850 | 46 |
| Support meeting, summit, workshop, conference | 85,000 | 4 |
| Renewable Energy Focused Media, Documentaries, Culture and Arts | | |
| Support for news organization, journalism initiative | 635,000 | 5 |
| Support for documentary/multimedia production | 390,000 | 4 |
| Support for arts, cultural events, creative professionals | 75,000 | 1 |
| Renewable Energy Engagement of Decisionmakers and Groups | | |
| Support for policymaker engagement | 889,000 | 9 |
| Support for business/industry engagement | 4,813,981 | 37 |
| Support for engagement of faith leaders, faith community | 1,455,700 | 21 |
| Support for engagement of minority groups, communities of color | 75,000 | 2 |
| Support for engagement of military, national security community | 525,000 | 3 |
| Support for engagement of labor leaders, community | 1,132,000 | 11 |
| Support for engagement of conservatives, republicans | 850,000 | 3 |
| Support for engagement of youth, college students | 1,901,000 | 13 |
| Support for engagement of grantmakers, philanthropists | 70,000 | 2 |
| Support for engagement of municipal planners, sustainability directors | 735,000 | 9 |
| Support presecondary education, teacher training | 225,000 | 2 |
| Support for engagement of farmers, agricultural communities | 75,000 | 1 |
| Support for engagement of hunters, anglers, conservationists | 49,000 | 1 |
| Support job/professional training fellowships and scholarships | 25,000 | 1 |
| TOTAL | 46,582,289 | 323 |

provided \$3.3 million to Re-AMP, a network of more than 150 Midwest-based groups campaigning to close coal power plants and establish renewable energy standards.

4.6 | Public transportation and clean vehicles

Table S4 in the Supporting information summarizes the \$21 million invested in actions related to promoting public transportation, fuel efficiency standards, and clean vehicles as a means to lower GHG emissions. This included \$7.7 million to support a variety of groups working on behalf of a mix of clean/sustainable transportation policies at the Federal, state, and municipal levels. Major funders in this area included Hewlett (\$3.8 million) which supported efforts primarily at the national level and in California; Surdna (\$1.6 million) which supported actions primarily in California; and McKnight (\$1.2 million) which funded projects in Minnesota and the Midwest. In a second major focus area, \$6.6 million was invested in promoting electric/clean vehicles at the national, state, and local levels. Leading funders in this area were the Energy Foundation (\$4 million) which supported a range of groups, and the Oak foundation (\$1.1 million) which supported the Electrification Coalition. In a third main focus, \$4.6 million was given to support efforts to establish fuel efficiency/low-carbon fuel standards at the Federal and state levels with the Energy Foundation (\$3.2 million) providing most of the funding, distributed across a range of groups.

4.7 | Low-carbon energy technologies

Table S5 in the Supporting information summarizes the \$10.5 million in grants focused on the so-called hard energy path technologies that many experts believe are needed to decarbonize the U.S. and world economy. In this case, \$8.3 million was invested in making natural gas drilling, production, and transportation cleaner, more efficient, and safer by limiting methane leakages, reducing water pollution, and improving safety regulations. Among major funders, Hewlett and Bloomberg gave a combined \$5.2 million to EDF to focus on these goals. In comparison, other low-carbon strategies were far less likely to be funded. Approximately, \$1.3 million was given to support work on carbon capture and storage technology, with most of this funding provided by Hewlett to the Great Plains Institute for Sustainable Development. Interestingly, not a single grant supported work on promoting or reducing the cost of nuclear energy. (The Park Foundation did provide \$175,000 in grants for work to oppose nuclear power plants based on cost and safety concerns.)

4.8 | Limiting fossil fuel development

Table 8 summarizes the \$69.4 million in grants focused on promoting policy actions and regulations to limit fossil fuel production and development. In this case, \$42 million was devoted to opposing coal power. The major funders in this area were Bloomberg (\$20 million) and MacArthur (\$15 million) which supported the Sierra Club's work on the issue. Funders of similar efforts directed at the coal industry included Rockefeller Brothers, Hewlett, Wallace Global Fund, and Heinz. A second main focus was the \$10.4 million devoted to reducing dependence on coal, gas, oil, and fossil fuels more generally. Leading this effort, Rockefeller Brothers, Hewlett, and Oak gave a combined \$9.5 million to the New Venture Fund to redistribute to a network of groups.

Specific to natural gas fracking, \$6.8 million was provided to restrict or ban drilling, \$2.1 million to protect drinking water supplies; and \$3.9 million for research on health and environmental impacts. To support efforts to ban/restrict fracking, Schmidt (\$3.3 million), Hewlett (\$1.5 million), Park (\$1.1 million), and Heinz (\$1 million) were the leading funders. Schmidt gave to a mix of national- and state-based groups. Hewlett gave primarily to the Colorado Conservation Fund (\$1.3 million). Park gave primarily to groups working in New York state, and Heinz to groups in Pennsylvania. Relative to protecting drinking water supplies, major funders included Heinz (\$1 million) for efforts in Pennsylvania; and Park (\$760,000) for work in North Carolina and New York. Major funders of research on fracking's health and environmental impacts included Heinz (\$2.7 million), Park (\$780,000), and Schmidt (\$390,000). These funds were given to a mix of universities and environmental groups.

Despite the national attention the issues have received, comparatively little funding was given specifically to support fossil fuel divestment (\$1.3 million) or to oppose the Keystone XL pipeline (\$155,000). On divestment, almost all of the funding (\$970,000) was provided by the Wallace Global Fund (2016) with the remaining provided by the Park and Ford foundations. Specific to the Keystone XL pipeline, funding was given in small amounts by the Energy Foundation, Rockefeller Brothers, Park, and Schmidt. It is possible that funding for these actions were supported under grants more generally focused on opposing or restricting the fossil fuel industry; by other foundations not analyzed; and/or by individual donors.

4.9 | Fossil fuel industry-focused communication, media, and mobilization

Table S6 in the Supporting information summarizes the \$8.9 million that was devoted to fracking-focused communication campaigns and public mobilization. In this case, \$3.7 million supported direct public mobilization and activism efforts. The leading funder in this area was Park (\$1.9 million) which distributed 42 grants to a number of smaller groups, most focusing on New York state. Heinz (\$1 million) gave to a few groups focused primarily in Pennsylvania. Other funders of public mobilization efforts against fracking included Hewlett and Schmidt. Of relevance, Park and Heinz also provided a combined \$1.9 million to mobilize public health experts and professionals on the issue. Table S7 in the Supporting information summarizes the \$3.5 million that was devoted to communication, media, and mobilization efforts targeting the fossil fuel industry more generally. In this case, \$1.5 million focused directly on public mobilization, grassroots activism, and organizing. Almost all of this total was provided by Skoll, Schmidt, and Rockefeller Brothers to the Sustainable Markets Foundation for its “eco-accountability” project.

TABLE 8 Funding to limit fossil fuel development, 2011–2015

| | Amount of grants | Number of grants |
|---|-------------------|------------------|
| Limit Fossil Fuel Industry and Fossil Fuel Development | | |
| Oppose, limit coal power plants, coal industry, extraction | 42,217,000 | 43 |
| Reduce dependence on oil, gas, coal, fossil fuels etc. (unspecific) | 10,375,000 | 17 |
| Oppose, limit natural gas development, “fracking,” (unspecific) | 6,834,000 | 54 |
| Protect drinking water, freshwater from fracking | 2,180,000 | 20 |
| Promote fossil fuel divestment | 1,271,500 | 21 |
| Engage fossil fuel industry investors, shareholder resolutions | 130,000 | 3 |
| Oppose KXL pipeline, oil and gas pipelines, transport, export | 155,000 | 5 |
| Oppose offshore drilling and/or U.S. land leasing for drilling | 90,000 | 2 |
| Oppose, limit fossil fuel industry subsidies | 325,000 | 3 |
| Seek fossil fuel industry accountability, toxic release disclosure, right to know, damages payments | 738,000 | 7 |
| Promote fossil fuel industry innovation to limit emissions | 55,000 | 1 |
| Limit/evaluate unconventional fossil fuels | 500,000 | 1 |
| Research and Analysis of Fossil Fuel Industry | | |
| Accountability, investigative research on fossil fuel industry | 632,000 | 11 |
| Analysis of health, environmental, water impacts of fracking | 3,945,546 | 46 |
| TOTAL | 69,448,046 | 234 |

5 | CONCLUSION

In this review article, I have provided a framework for scholars and journalists to build upon in assessing the nature, function, and impact of climate change philanthropy. In coming years, as the endowments of major foundations continue to grow, providing philanthropists with ever greater resources, they are likely to play an even more active and strategic role in funding actions to address climate change in the United States and elsewhere. In 2017, the Hewlett foundation, for example, announced it would spend \$600 million over the next decade to combat the problem (Gunther, 2018). By framing the challenges and defining the solutions to climate change, as they did in the years following the defeat of the cap and trade bill, Hewlett and other major philanthropies are likely to deepen their ability to bind together organizations and leaders into shared approaches and strategies. In an era of political dysfunction and diminished public spending, many will look to philanthropy and their resources for answers. Yet in contrast to elected officials and government agendas, there are few channels to hold funders accountable for their decisions or to shine a light on their actions (Callahan, 2017).

Between 2011 and 2015, major environmental grantmakers continued to invest in efforts to shape Federal climate and energy policy, but redirected much of their funding to support actions at the regional, state, or municipal level, prioritizing the West coast, Midwest, and Northeast regions. In doing so, the largest environmental grantmakers remained committed to their decades-old policy and technology roadmap on climate change, investing in familiar approaches, strategies, and goals. Large national organizations continued to be favored over smaller groups, with just 20 grantees receiving more than half the money distributed (\$230.4 million). Similarly, 1 out of every 4 dollars invested (\$140.3 million) was dedicated to promoting renewable energy and efficiency-related actions across states and various industry sectors. In comparison, only \$10.5 million was granted specific to other low-carbon energy technologies, with \$8.4 million of this funding focused on making natural gas production safer and cleaner. No grants were dedicated to promoting nuclear energy.

However, funders also responded to calls for new directions. Some of this shift occurred on the part of the Energy Foundation and other major funders who were part of the original Design to Win coalition, but much of the change was also driven by smaller funders investing in complementary or counterbalancing strategies. Of the \$91.4 million in grants dedicated to climate mitigation and adaptation actions, more than \$55 million was invested in building sustainable and resilient cities and local economies with \$17.2 million focused on the needs of low-income and minority communities. Philanthropists were also aggressive in targeting the fossil fuel industry, spending \$69.4 million to limit coal power, ban/restrict fracking, and hold the industry accountable. Responding to calls to more effectively shape public opinion and influence voters, philanthropists devoted a combined \$151 million to climate-, fossil fuel industry- and renewable energy-related communications, media, and mobilization efforts (see Figure 1).

Following the 2016 election, my review also provides important insights into the strategies that philanthropists are pursuing during the Donald Trump presidency and beyond. First, as the Trump administration seeks to replace the EPA Clean Power Plan, cancel the U.S. commitment to the United Nations' Paris accord, roll back industry regulations, and expand drilling and mining, funders will be called upon to provide support for legal challenges to these actions. Financial support for efforts restricting fossil fuel development and for turning public opinion against the industry is also likely to expand. Examples include municipal lawsuits filed against fossil fuel companies to recover damages for climate change impacts; and decisions by states and cities to divest their pension plans of industry-related stocks. To aid these efforts, some funders will also deepen their support for journalistic investigations of the fossil fuel industry. Such strategies, however, are likely to intensify controversy over the ties between funders, advocacy groups, and journalists (Kaiser & Wasserman, 2016; Schwarz, 2016). For his part, philanthropist Michael Bloomberg via his foundation and other donations is estimated since 2011 to have devoted \$164 million to political and legal campaigns to shut down coal-fired power plants in the United States and he recently announced an additional \$50 million in funding to expand such efforts to other countries (Carrington, 2017).⁴

Despite the Trump administration's efforts, some analysts predict that GHG emissions are likely to decline across U.S. states as natural gas generation replaces coal and renewable energy becomes cheaper (Nordhaus, Trembath, & Lovering, 2017; Porter, 2017, November 30; Saha & Muro, 2016). Many of the market forces propelling renewable energy are a result of the decades-long roadmap pursued by the Energy Foundation and other funders analyzed in this study. As Bloomberg (2017) argues, progress on lowering emissions can also be achieved by investing in local smart growth policies, sustainable transportation systems, and resilient cities; and by governors and mayors who along with various industry leaders have pledged to honor the U.S. commitments as part of the UN Paris Accord (Tabuchi & Fountaion, 2017), a U.S. state and local government approach that past scholarship has endorsed (Selin & VanDeveer, 2011).

In pursuing these strategies, at least some philanthropists and their grantees may want to reconsider their opposition to nuclear energy and their reluctance to consider carbon capture and storage. During the post cap-and-trade years, out of 2,502 grants reviewed, not a single grant was awarded for work focused on developing and promoting nuclear energy, and only \$1.3 million was granted to support work on carbon capture and storage. Yet analysts warn that the United States and many states will

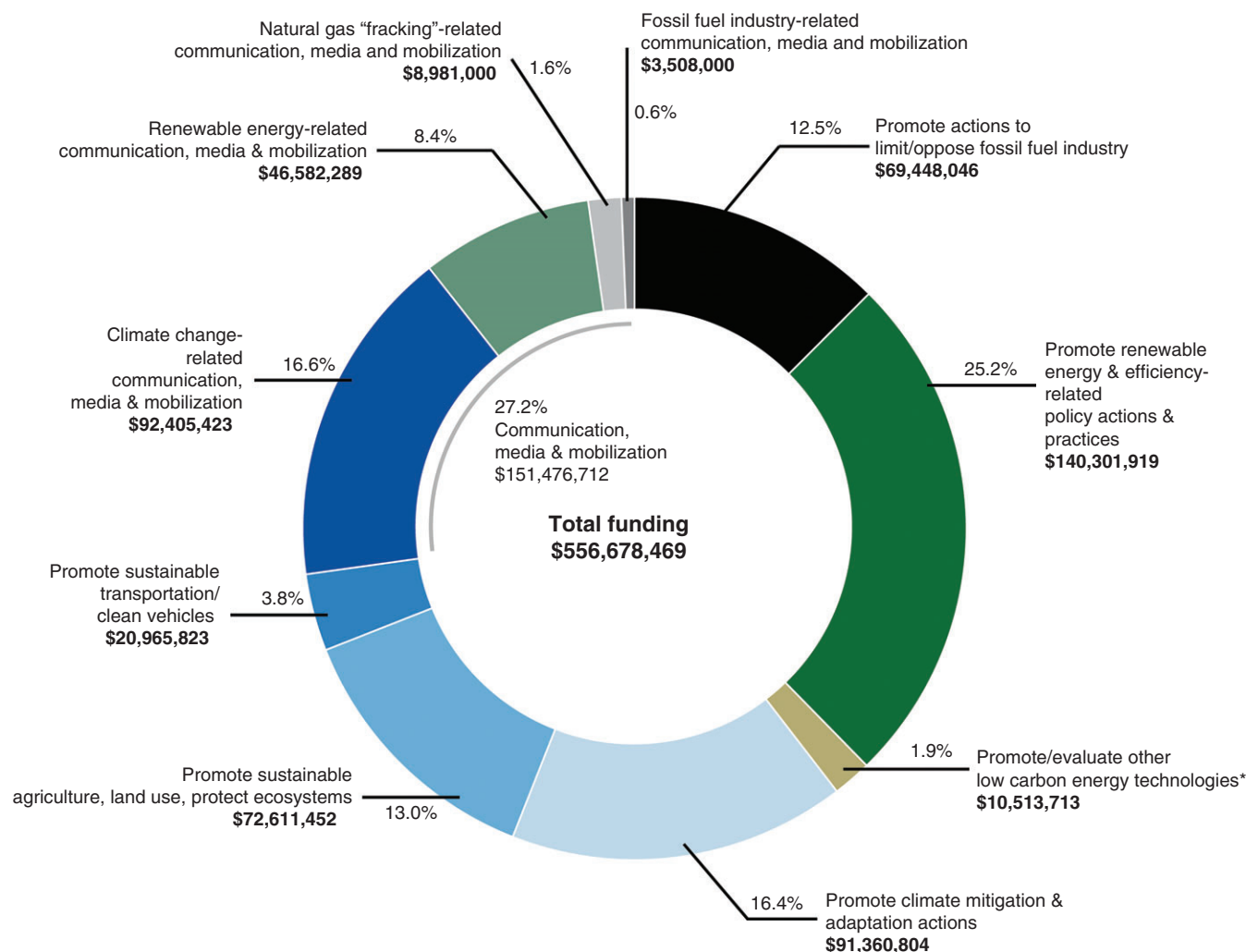


FIGURE 1 Major focus areas for U.S. Climate and Energy Funding, 2011–2015 *Note.* Based on analysis of 2,502 publicly reported grants available as of Spring/Summer 2016 which were distributed between 2011 and 2015 by 19 major environmental grantmakers totaling \$556,678,469. *Low-carbon energy technologies include funding to make natural gas generation cleaner/safer (\$8.4 million); to evaluate carbon capture and storage (\$1.3 million); to promote R&D spending (\$573,000), and the role of government in fostering innovation (\$100,000). No grants were focused on promoting nuclear energy, though \$175,000 in grants were devoted to opposing nuclear energy for cost and safety reasons

not meet their emissions goals if current nuclear power plants close, and if new plants are not built in the future (Porter, 2017, November 30; Saha & Muro, 2016). Several expert projections on decarbonizing the world and U.S. economies define an important role for nuclear energy and carbon capture and storage (Deep Decarbonization Pathways Project, 2015; IPCC, 2015; White House, 2016), and scientific debate continues over the technical feasibility of a 100% renewables pathway to decarbonization (Clack et al., 2017; Jacobson, Delucchi, Cameron, & Frew, 2017). However, on this topic, there is evidence of a possible shift in outlook and strategy. Since 2016, for example, the Hewlett Foundation has provided \$850,000 to the Energy Reform Innovation Project to focus “on energy solutions that resonate with center-right interests, including mitigation technologies such as carbon capture and storage and advanced nuclear.”⁵ Over the next few years, there is also likely to be considerable debate over geoengineering, as more scientists evaluate various methods and their risks, and as political leaders consider the option (Bellamy & Lezaun, 2017; Sugiyama, Arino, Kosugi, Kurosawa, & Watanabe, 2017). However, during the post cap-and-trade years, not a single grant from among the 19 foundations focused on geoengineering and its governance, a trend that should be addressed.

Finally, the findings provide valuable insights on the role of climate philanthropy in shaping public opinion, mobilizing activists, and influencing national elections in an effort to shape climate and energy policy decisions. In the post cap-and-trade years, the \$151 million devoted by funders to climate change-, fossil fuel industry- and renewable energy-related communication activities were complemented by a combined \$150 million spent by the billionaire Tom Steyer in successive elections to mobilize climate voters on behalf of Democratic candidates (Hamburger, 2014; McCormick & Allison, 2017). Yet in 2016, despite the stark differences on climate change between Trump and his rival Hillary Clinton, Trump won a majority of the Midwest battleground states. Nationally, Republicans retained control of Congress and strengthened their hold on state governments, controlling 69 of 99 state legislative chambers and 33 out of 50 governorships (Philips, 2016). Given a confluence

of prevailing factors, it remains unclear how much impact philanthropists and environmentalists can have on the outcome of upcoming national elections, given that climate change still ranks as a relatively low public priority in comparison to other issues (Pew Research Center, 2018). Where climate advocates and their funders have had a clear influence is in shaping the direction of the Democratic Party on climate change, intensifying commitment to a variety of policy actions among party leaders, donors, and activists. In states like California, Washington, and New York where Democratic-leaning donors, activists, and voters dominate, environmentalists have been able to pass major climate policies, restrict fossil fuel development, and win other commitments from governors and mayors (Tabuchi & Fountain, 2017). In rallying activists against the Trump administration, to broaden their traditional environmental appeals, the Sierra Club, 350.org, and other organizations have also actively embraced an “intersectional” strategy, connecting climate change to identity-based causes related to racial justice, gender equality, and GLBTQ rights (Hestres & Nisbet, 2018).

Yet related to these strategies, campaigns opposing the Keystone XL oil pipeline and natural gas fracking along with new causes related to racial, gender, and identity-based justice have also likely contributed to deepening political polarization, serving as potent symbols for Republican donors and activists to rally voters around. These issues also divide liberal and centrist Democrats, and were a major point of contention during the Democratic primaries (Hestres & Nisbet, 2018; Nisbet, 2015). A carbon tax and dividend proposal coauthored in 2017 by two former Republican U.S. Secretaries of State and supported by the Nature Conservancy, Conservation International, Michael Bloomberg, leading economists, and major oil companies is notable for its assignment of blame for past divisions. “Some advocates of renewable energy oppose nuclear power, even though both may be needed to combat climate change. Many environmentalists tend to be anti-corporate, even though any viable mitigation plan must rest in part on business leadership” declares the proposal. “The message of fear and austerity espoused by some on the green-left tends to alienate those at the opposite end of the political spectrum, who see climate policies as a Trojan horse for a bigger and more intrusive government. Many GOP leaders, meanwhile, deny basic science and fail to offer concrete solutions. We need fresh approaches able to bridge these divides” (Climate Leadership Council, 2017).

During the Trump years, similar to the post cap-and-trade period, given the challenges faced and the evolving political dynamics, critical evaluation of communication and mobilization strategies are needed. Philanthropists may ultimately be divided in the directions they choose, or they may decide to spread their bets across approaches. Some are likely to invest more heavily in the strategies that have built a strong constituency of climate change activists. Other funders are likely to back efforts at building stronger alliances with conservatives and industry.

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CONFLICT OF INTEREST

The author has declared no conflicts of interest for this article.

NOTES

¹Table S1 in the Supporting information summarizes financial support in the form of large block grants given directly by sponsoring foundations to the Energy Foundation and ClimateWorks. As reviewed, donor foundations originally established the two intermediaries in order to pool their resources on behalf of specific investments within the United States and across other countries. In this case, \$428.4 million was provided to ClimateWorks by seven foundations to redistribute. Interestingly, nearly 70% (\$298.7 million) of the total was provided by the Packard Foundation. Approximately \$155.4 million was provided by eight foundations to the Energy Foundation to redistribute, though more than half this total was provided by way of ClimateWorks (\$76.1 million). Other major contributors were Hewlett (\$42.6 million) and McKnight (\$28.5 million).

²Because of a lack of available information, apart from the SeaChange foundation, my analysis does not include at least two notable U.S. funders of climate- and energy-related activities. First, is the Rockefeller Family Fund which has financed prominent journalistic investigations and campaigns against the fossil fuel industry (Kaiser & Wasserman, 2016), but does not provide a full record of its grant-making activities. Second, is the Grantham Foundation for the Protection of the Environment which distributes millions annually to support climate and environmental causes but does not provide details on the programs funded. Nevertheless, given the prominence, budgets, and influence of the 19 funders included in my analysis, and the

tendency historically for grantmakers to converge on similar grant portfolios, the patterns I analyze offer important implications for understanding how major philanthropists work to shape U.S. climate and energy policy and technology options.

³Given that not all foundation records are publicly available for this period, these totals likely substantially underestimate the actual amounts distributed.

⁴Due to limited publicly reported records for the Bloomberg Foundation, as detailed earlier, I was able to only account for a portion of this funding in my review.

⁵These grants can be viewed by searching by key word “Energy Innovation Reform Project” at the Hewlett grants database: <https://www.hewlett.org/grants/?sort=date>.

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SUPPORTING INFORMATION

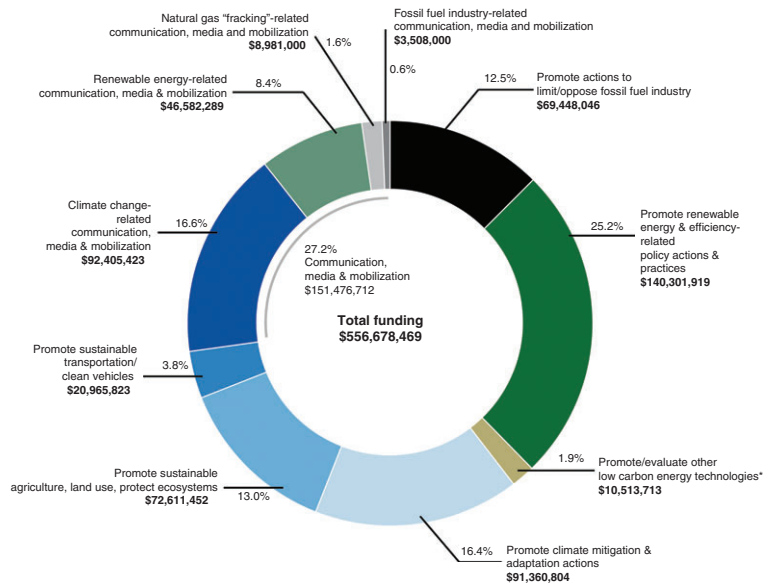
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Graphical abstract

Strategic philanthropy in the post-Cap-and-Trade years: Reviewing U.S. climate and energy foundation funding

Matthew C. Nisbet



Major Focus Areas for U.S. Climate and Energy Funding, 2011–2015.

Note. Based on analysis of 2,502 publicly reported grants available as of Spring/Summer 2016 which were distributed between 2011 and 2015 by 19 major environmental grantmakers totaling \$556,678,469. *Low-carbon energy technologies include funding to make natural gas generation cleaner/safer (\$8.4 million); to evaluate carbon capture and storage (\$1.3 million); to promote R&D spending (\$573,000), and the role of government in fostering innovation (\$100,000). No grants were focused on promoting nuclear energy, though \$175,000 in grants were devoted to opposing nuclear energy for cost and safety reasons.