



An Assessment of Philanthropic Progress on Climate Change: 2012-2016; Opportunities for the Future

Prepared for the Hewlett Foundation

by

David Gardiner

President, David Gardiner and Associates

David@DGardiner.com

and

Jim Wolf

Energy & Environmental Consultant

JamesLWolf@Comcast.net

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Executive Summary

At the request of the Hewlett Foundation, this qualitative assessment aims to help Hewlett devise its next five-year strategic initiative on climate, as well as to provide material for discussion with other foundations, interested experts and policy leaders on the future direction and emphasis of climate philanthropy. The paper explores a primary question from Hewlett: is philanthropy on the right path to supporting the deep decarbonization needed to keep the world from exceeding more than a 2-degree temperature rise? The assessment is based on 37 interviews with climate and energy experts including Hewlett staff, other foundations, all Regional Climate Foundations (RCFs), the ClimateWorks Foundation (CWF), Non-Governmental Organizations (NGOs), and other experts; the review of several outside evaluations of specific climate initiatives; and the authors' own experience in the climate and energy field.

Between 2012-2016, philanthropy invested more than \$2 billion to support climate mitigation efforts. These investments are leading to adoption of policies internationally as well as in the key targeted regions and countries, which, if implemented, will reduce carbon emissions significantly. However, to meet the goal of keeping warming below 2 degrees, philanthropy and others must do much more and perhaps with a different emphasis.

Reviewing the past five years, there are three areas of particular success. First, the Paris Agreement is a signature achievement, made possible by international and domestic philanthropic investments, and which, if implemented, will sharply reduce emissions. Second, the Kigali Agreement to curtail use of hydrofluorocarbons (HFCs) and an accompanying energy efficiency fund is an important success for reducing High-Potency Pollutants. Finally, the Oil and Clean Power campaigns have had a significant positive impact.

These successes are based on eight factors:

1. Long-term philanthropic commitments on issues such as Clean Power and Oil.
2. Market forces, especially low prices for natural gas in the U.S. and renewables globally.
3. A U.S. federal administration under President Obama that advanced climate and clean energy policies domestically and internationally. The new Trump administration, however, is already reversing U.S. international and federal leadership, a key strategic issue for the next four years.
4. Philanthropy's support of improved advocacy and coalition building, especially in the U.S.
5. Campaigns to encourage and persuade companies to act on climate.



6. Co-benefits to climate action, such as economic development, air quality, health and national security, have been a key motivator for action around the globe.
7. Improved collaboration among climate funders through the Funders Table, an informal collaboration of major philanthropies funding climate change work in order to increase impact and coordination, has created sharper strategies, and collectively has more than doubled funding to about a half billion dollars annually and expanded funding to support climate mitigation activities in China and India.
8. Philanthropic leadership to drive new and innovative investments, especially the creation of two clean energy philanthropic initiatives – the U.S.-India solar finance initiative and the Kigali efficiency fund.

Our interviews identified five barriers to philanthropy's efforts being more successful on climate and clean energy:

1. The climate and energy community underestimated the impact and effectiveness of some tactics of climate opponents.
2. While collaboration has improved, the climate and clean energy philanthropic community itself engages in too much "groupthink" or "monopoly thinking" with little attention to new or disruptive approaches; focuses on bright shiny objects rather than the unsexy work that reduces emissions; and has created campaign "silos" which may hold back success.
3. NGO capacity in China and India is a challenge — a problem made more difficult by governmental efforts in both nations to more heavily regulate contributions by foreign charities. However, NGO capacity and strategic focus in China is improving.
4. Donations to support and foster broad-based will for climate policy in the U.S. are just scratching the surface. There is also greater need to reach out beyond environmentalists in many of the regions to build momentum for action from a wider variety of public interest groups across the political spectrum.
5. The tendency to focus on incremental improvements (very useful but not sufficient) instead of the step-change or transformative improvements (harder to achieve) that are needed for deep de-carbonization.

In addition, climate philanthropy has several significant funding gaps in areas needed for deep decarbonization by 2050, including the industrial and manufacturing sector; thermal energy, especially heat; reforestation, soils, and land use; Net Zero Carbon buildings; transmission for renewables; energy storage for renewables and Electric Vehicles; cities; and research and development for technological breakthroughs by 2030.

There are several key lessons which Hewlett should draw from the experiences of the past five years: the collective efforts of climate funders are working, but must accelerate dramatically; too little is being done to advance strategies for deep decarbonization; and philanthropy should



place greater emphasis on efforts to find innovative technology, policy, and political solutions to climate.

Our interviews revealed that CWF and the RCFs often provide analytical, technical, and regional expertise that their foundation partners often do not possess, especially on climate and energy, low-carbon technologies and national, regional, and local policy and their potential to reduce emissions. In addition, they convene funders and assist funders in their own strategy development. However, interviewees are concerned that some regranters lack expertise in political analysis and communications, a vision to drive deep decarbonization, and finance.

Hewlett and others in philanthropy can learn important lessons from the past five years. A Foundation should ensure that it is strategically aligned with a non-endowed regional climate foundation, which has the capacity to distribute funding in smaller grants to the field (thus, sometimes referred to as “regranting foundations”), before deciding to support it. These regranting organizations do, however, benefit greatly by receiving some degree of core support. But both endowed Foundations as well as re-granting foundations should proactively seek and listen to “dissenting voices” on strategy. And open communication and collaboration will be especially valuable if new directions are pursued.

Moving forward, we recommend Hewlett and others in climate philanthropy launch a three-pronged effort to capture and drive bold new actions to drive both much deeper reductions between now and 2030 and to drive technology development for the much bigger deep decarbonization needed between 2030 and 2050. Climate philanthropy should:

1. Fill philanthropic gaps in strategies for deep decarbonization – the industrial and manufacturing sector; thermal energy, especially heat; reforestation, soils, and land use; Net Zero buildings; transmission for renewables; energy storage; cities; and research and development for technological breakthroughs needed for deep decarbonization.
2. Support international leadership on climate change as the U.S. takes a back seat under President Trump, and
3. Continue to build public will and action in the U.S.

To ensure close collaboration among climate philanthropists, we recommend Hewlett and others in climate philanthropy launch a set of new strategies needed for deep decarbonization. In particular, endowed climate philanthropies have greater luxury than a non-endowed regranting foundation to reorient their resources to these necessary deep decarbonization strategies. As part of this effort, Hewlett should encourage philanthropic partners to assess their portfolios against two dimensions – first, the amount of funding devoted to 1) mature, 2)



emerging and 3) new strategies; and second the amount devoted to incremental improvements as opposed to transformative or step-change policies.

To implement these new program initiatives, Hewlett and endowed climate philanthropies may wish initially to pursue them through direct grants or new organizations with the capacity to regrant, as existing non-endowed regranting foundations could only undertake them if there is broad interest in climate philanthropy.

A. Introduction

This report assesses the Hewlett Foundation's climate and energy grantmaking over the course of the past five years, which has focused on supporting work to reduce carbon emissions so global average temperature rise does not exceed 2 degrees Celsius. In conjunction with other philanthropies, Hewlett aims to support work that reduces global carbon dioxide emissions to an annual total of 35 gigatons by 2030. Hewlett has focused its efforts on regions that are the largest sources of greenhouse gas emissions: developed countries with high energy demand, such as Europe and the United States, and developing countries with fast-growing energy demand, such as China and India, or high deforestation rates, such as Brazil and Indonesia.

Hewlett's energy and climate support emphasizes developing effective policies for each priority region globally and building a broad base of support within constituencies essential for policy change: business, national security, public health, and environmental groups. Grantees that provide technical policy development skills and effective advocacy relevant to policymakers increase the likelihood that public policies that will deliver the needed greenhouse gas emission reductions are adopted and implemented.

This assessment:

- Examines Hewlett's grantmaking through the lens of the strategic intent of the last Hewlett five-year program (2012-2016) and its six major sub-strategies: Clean Power; Oil; Buildings and Industry (previously energy efficiency); Forests and Land Use; High-Potency Pollutants; and Finance. To a large degree, these sub-strategies parallel those run by the ClimateWorks Foundation (CWF). However, at CWF, work on finance was initially part of a cross-cutting campaign that included international policy, sustainable finance, and communications.
- Analyzes progress toward two key objectives of Hewlett's 2012 five-year strategy: a much higher degree of coordination among all climate and energy funders and a much greater commitment to build broad-based will for climate policy, especially in the U.S.
- Recognizes the context for Hewlett's climate program in the U.S. and globally has changed dramatically with the election of President Trump and new scientific evidence demonstrating



the world must accelerate efforts to cut carbon emissions to keep warming below 2 degrees, with much greater focus on new technologies and approaches needed for deep decarbonization. Some of these technologies, which scientists say are needed to achieve the 2-degree target, such as Carbon Capture and Storage, nuclear power, and extensive use of biomass energy, are controversial in the environmental and funding communities.

- Answers the following strategic questions:
 - What is working well and what is not? Why? What lessons or implications can we learn?
 - How are we progressing in the different fora in which we operate – governmental (international, national, sub-national) and non-governmental (corporate, civil society)?
 - What have we missed in the last five years to move towards net zero emissions by mid-century?
 - What were the barriers to the effectiveness of these campaigns?
- Identifies key learnings and makes recommendations.

This qualitative assessment is based on 37 interviews with climate and energy experts including Hewlett staff, other foundations, all Regional Climate Foundations (RCFs), the ClimateWorks Foundation (CWF), Non-Governmental Organizations (NGOs), and other experts; the review of specific climate initiatives; and the authors' own experience in the climate and energy field. In addition, the ClimateWorks Foundation provided substantial information and data on philanthropic climate investments, progress on carbon reductions and policy adoption, and evaluations conducted. Our assessment would not have been possible without this information and we are deeply indebted to the staff at CWF for their assistance. We also thank Mary Flannelly and Jessica Halverson at the Hewlett Foundation for providing critical information and assistance.

There are three important caveats about this assessment. First, this is a qualitative assessment of progress in the past five years, not a complete evaluation, which would have required substantially more time and money. Second, it focuses largely on progress made by climate philanthropy overall, because a clear majority of experts interviewed know little about Hewlett's program in detail and only able to speak to progress made on climate change by philanthropy broadly. Third, as with all other evaluation and assessments, given the complexity of policy processes, it is virtually impossible to attribute specific climate outcomes to Hewlett, its grantees, or other actors.¹

¹ Although some of the work described in this assessment may reflect the passage of legislation, the Hewlett Foundation does not lobby or earmark its funds for prohibited lobbying activities, as defined in the federal tax laws. The foundation's funding for policy work is limited to permissible forms of support only, such as general operating support grants that grantees can allocate at their discretion and project support grants for nonlobbying activities (e.g., public education and nonpartisan research and analysis).



B. Assessment

1. Where did philanthropy spend its money?

Between 2012-2017, philanthropy invested more than \$2 billion to support climate mitigation efforts. According to CWF, climate giving has increased by more than 30 percent over the past three years among leading foundations with major climate programs. Across investment areas, the funding can be grouped as:

- Large (greater than \$100 million) – Clean Power and Cross-Cutting²
- Medium (\$50-100 million) – Oil, Forests and Land Use, and Other
- Small (\$25-50) million – Buildings and Industry, Sustainable Finance and High-Potency Pollutants

Consistent with the aggregate investments of the largest climate mitigation funders, Hewlett's largest investments have been in Clean Power and Oil. However, in 2015, Hewlett focused support on Oil, High-Potency Pollutants, and Clean Power. In 2016, Hewlett's share of total philanthropic High-Potency Pollutants and Clean Power funding declined slightly, as other foundations stepped in to help fund those sub-strategies, while Hewlett's funding for Oil remained significant.

2. Where have investments been most successful?

In the past five years, Hewlett and other funders have supported non-profits making considerable progress in advancing the adoption of policies to reduce carbon emissions. As indicated in Chart 1³, policies adopted and implemented over the past seven years – many of which had a history of philanthropic support for many more years than that -- have begun to bend the global emissions curve downward, and are expected to decrease projected warming

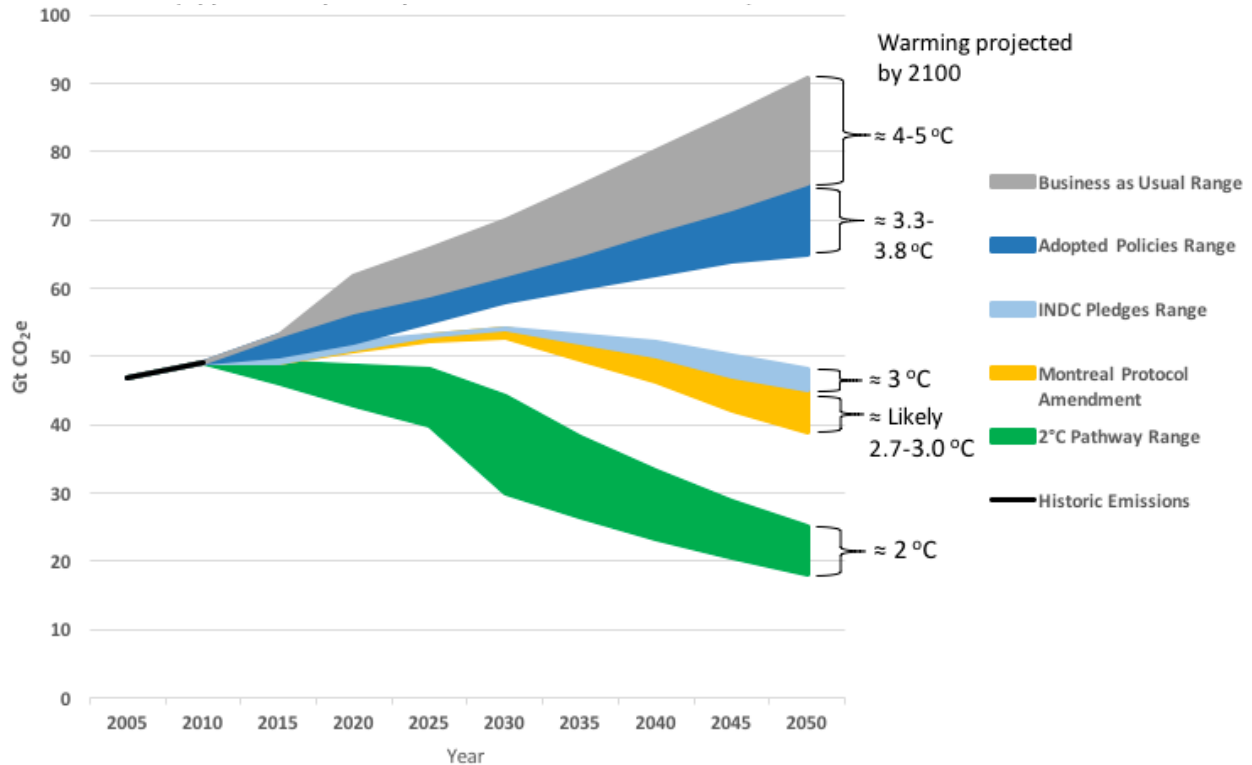
² Note: This category touches multiple program areas, including Communications, Public Engagement, and International Diplomacy.

³ The ClimateWorks Foundation produced this chart. Note: Although an ambitious Montreal Protocol amendment is expected to avoid up to 0.5°C of warming by 2100, not enough is known about the overlap of the Paris INDC wedge with the Montreal Protocol wedge to ensure that they are completely additive in terms of temperature impact. In the absence of details about the Montreal Protocol amendment and further climate modeling and analysis, this figure reflects a conservative representation of potential impact.



by the end of the century from approximately 4–5°C to a range of between 3.3–3.8°C, a significant improvement, but still well short of what is needed to meet the 2-degree goal.

Chart 1: GHG Emissions Projections Through 2050
(Approximate pathways for various reduction scenarios)



1. International Agreements

In the past two years, there has been very significant progress on global international climate change agreements. The 2015 Paris Agreement, adopted by 194 countries and ratified in 2016, is a landmark achievement. It includes emission reduction targets from 160 nations, which will provide a carbon reduction roadmap for each country. If successfully implemented, it will limit the increase in global average temperatures this century to approximately 3 °C relative to pre-industrial levels. While falling short of what is needed to keep warming below 2 °C, these targets and the structure of the agreement create a process to align national commitments with the science over time. Philanthropy played a major role in supporting work that created both the international and domestic impetus for many countries to act.



The U.S. withdrawal from this agreement will certainly mean that global leadership on climate in the next several years must come from other countries. Within the United States, leadership in meeting its emission reduction commitment will come from state and local governments, businesses, and other institutions. Philanthropy should look to support all angles of this leadership.

In 2016, countries negotiated a second international agreement to amend the Montreal Protocol and reduce by 80-85 percent by 2040 the super potent greenhouse gases known as hydrofluorocarbons, or HFCs, which are almost 10,000 times more potent than CO₂ in trapping heat. This agreement will avert half a degree of warming by 2100. Hewlett helped to catalyze \$53 million in philanthropic funds from 14 Foundations to support efficiency standards that can double the amendment's climate mitigation impact. In addition, philanthropy provided significant support to grantees who made the case for this agreement.

Around the same time, after successful grantee advocacy, the International Civil Aviation Organization (ICAO) reached agreement on emissions standards and a market-based measure to offset the increase in international aviation emissions after 2020. The contribution of these emissions reduction efforts to temperature reductions is as yet unclear, though they are expected to bring warming by 2100 down to a range of 2.7–3.0°C.

2. Clean Power Sub-Strategy

The rapid rise in coal use globally has slowed significantly and, in some countries such as the United States, is in rapid decline, driven by low prices for natural gas and renewable energy, energy efficiency, as well as public concerns about air quality and new government policies to limit coal use or pollution. In 2016, global coal consumption “dropped 1.7 percent compared with an average 1.9 percent yearly increase from 2005 to 2015, according to BP. China, which accounted for about half of the coal burned in the world, used 1.6 percent less of the fuel, compared with an average 3.7 percent annual expansion in the 11 preceding years.”⁴ In China, philanthropy supported efforts to cap coal use, reduce air pollution from power plants, and advance renewable energy. U.S. coal use was 45% of electricity production in 2012 and, in 2016, is only 30.4%. As a result, transportation has replaced coal as the largest source of emissions in the U.S. In the U.S., philanthropy supported efforts to retire coal-fired power plants, extend tax incentives for wind and solar, and to strengthen energy efficiency standards. One cautionary note is that preliminary data for 2017 indicate coal production is rising sharply.⁵

⁴ Bloomberg, June 13, 2017, “World Coal Production Just Had Its Biggest Drop on Record” (<https://www.bloomberg.com/news/articles/2017-06-13/coal-s-era-starts-to-wane-as-world-shifts-to-cleaner-energy>).

⁵ ABC News, June 26, 2017, “Coal on the rise in China, US, India after major 2016 drop” (<http://abcnews.go.com/International/wireStory/coal-rise-china-us-india-record-2016-drop-48276160>).



3. Oil Sub-Strategy

To reduce oil consumption, with strong support from grantees, key countries and regions adopted much stronger vehicle efficiency standards. But after a period of decline in use, oil consumption is on the rise, in part due to low oil prices. In 2016, the world consumed 1.6 percent more oil, with India's use expanding 7.8 percent and China's 3.3 percent. Demand from industrialized nations grew 0.9 percent in 2016, compared with an average annual decline of 0.9 percent over the previous decade.⁶ Efforts to block the use of tar sands and infrastructure to export it, such as the Keystone XL Pipeline, which philanthropy supported, have suffered setbacks, although they have helped to build a much stronger public movement for climate change. And as Hewlett and other philanthropies have shifted their focus to supporting the deployment of electric vehicles (EVs), some progress has been achieved, but not at the pace needed. However, several countries such as Britain, France, Norway, India and China have recently announced intentions (not yet formal plans) to phase out gas and diesel cars by 2040 or other dates.

4. Forests and Land Use Sub-Strategy

Deforestation in Brazil has been a major success, with a decade of reduced deforestation rates, brought on by philanthropy's support for a strong Forest Code and a moratorium on soy production in the Amazon, but the last 1–2 years have seen clear signs that rates of forest loss have increased, with beef production and land conversion in the Cerrado a key cause. Agricultural emissions are also significant in Brazil and are expected to rise at around 1% per year from 2015 to 2030. It has been more difficult for grantees to make progress in Indonesia, another key center of deforestation.

5. Buildings and Industry Sub-Strategy

While energy efficiency in buildings and industry has improved, progress has been slower than hoped. The sub-strategy has recently undergone a transition away from solely supporting energy efficiency work to broadening its focus by adding work on buildings and industry from an integrated perspective. So, for example, the new focus on zero carbon buildings includes on- and off-grid clean power and storage. Zero carbon buildings are achieving momentum in several regions, such as the EU and California. Retrofits are becoming mandatory in Europe (UK, France). Significant gains were realized for appliances, including the hugely successful LED bulk procurement in India and continued stringency of appliance standards in all regions. In the U.S., for example, new appliance standards adopted through the end of 2015 will reduce CO2 emissions by 2.2 billion metric tons through 2030—equal to the emissions from 42 coal plants—

⁶ Ibid.



while saving consumers \$447 billion.⁷ And according to NRDC, appliance standards added in 2016 will reduce another 800 million metric tons of CO₂ over the next 30 years – equal to the emissions of another eight plants during that time period.⁸ A campaign to secure pledges from companies and governments to double their energy productivity has gathered momentum. Work with the Asia Infrastructure Investment Bank led it to adopt investment principles which will help promote energy efficiency. Genuine industrial decarbonization (not structural decarbonization), however, has been glacial in the US and EU, and slowing in China, although India's industrial efficiency trading system is on the rise. An integrated approach to deep decarbonization in industry is needed, combining efficiency with fuel switching, renewable energy, industrial efficiency, the circular economy, and more.

6. Progress in Key Regions

Overall progress in the key countries and regions on which Hewlett focuses its philanthropic contributions has been generally positive.

- **China's** emissions have increased faster than expected in the short term, but current and new policies are expected to lead to major CO₂ reductions in 2030. Philanthropy's support of new mandatory technical standards for vehicle emissions and efficiency, city design, green buildings, and appliances should aid further progress. China's latest energy plan calls capping coal use and seven provinces have launched carbon trading pilots.
- **India** has recently strengthened or passed new policies, which will begin to push future emission growth down. That progress on emissions growth is somewhat hampered by larger than expected increased economic growth, so that the best we can hope for now is that new policies will limit growth to ~3.8 to ~4.3 Gt in 2030. Under Prime Minister Modi, India aims to produce 40 percent of its electricity from renewables by 2030 and has made impressive progress advancing the use of LED lights, a program developed and implemented with philanthropic support.
- Energy-related CO₂ emissions in **Europe** have moved down since 2010, a trend which despite a robust policy framework is expected to slow. Grantees have fended off the worst impacts of some anti-climate efforts, while securing new region-wide oversight of electricity and clean power markets, as well as new 2030 carbon targets for member states.
- In the **U.S.**, energy-related emissions have declined slightly since 2010, due to new state and federal policies as well as cheaper natural gas prices and renewables driving a shift away from coal. New air quality standards on power plants, fuel economy standards for cars and trucks, new efficiency standards for appliances, and a temporary halt to government

⁷ Appliance Standards and Awareness Project, "Questions and Answers" (https://appliance-standards.org/sites/default/files/Progress_toward_3_billion_CO2_reduction_Jan%202016.pdf).

⁸ NRDC, January 2017, "2016 Efficiency Standards to Create \$75 Billion in Savings" (<https://www.nrdc.org/experts/lauren-urbanek/2016-efficiency-standards-create-75-billion-savings>).



coal leasing pushed progress further. Congress also extended tax credits for wind and solar. Philanthropy supported grantees working on all of these efforts. Many of these accomplishments are now at risk of reversal under the new federal administration. At the sub-national level, some key states, such as California and New York, and many cities, are moving forward aggressively to reduce carbon emissions and drive clean energy deployment.

- In **Brazil**, as noted, progress on deforestation has been a success but recent trends are not encouraging. Agricultural emissions are also projected to rise and could be addressed in part by the recommendations below for attention to soils and land use. Political controversies within the government may make progress more difficult for grantees in Brazil.

7. Building Popular Support

Hewlett's 2012 strategy focused on building more popular support for policy action in the U.S.. Other Foundations, including the Energy Foundation, also pursued this strategy. Key elements included reaching out to constituencies beyond the environmental community across the political spectrum. This strategy achieved some key successes; several states maintained or expanded policies for clean energy. Going forward, both in the U.S and in other regions of the world, philanthropy and others must pay more attention to building popular support across a large part of the political spectrum to galvanize action by policymakers at all levels of government

8. Business Engagement in Climate

One of the most positive developments of the past five years has been the rapid emergence of large institutions, such as Fortune 500 businesses, colleges and universities, and government agencies at all levels, including the Defense Department, as advocates for acting on climate and clean energy. Many are using their purchasing power as large consumers of electricity to drive demand for renewable energy and other low-carbon approaches. In addition, many are engaged in policy, having unsuccessfully urged President Trump to stay in the Paris Agreement and calling on state governments to scale up renewable energy rapidly. Fortune 500 businesses have been especially credible in touting the economic costs of climate inaction and the economic benefits of energy efficiency and renewable energy. While most of the corporate movement has come from companies that are energy consumers, some energy producers, such as Exxon, BP, Shell, and Total⁹ and several power companies, have also begun to shift both their public positions and their investments. With the new federal administration opposed to climate action, major companies are still trying to navigate their public policy climate and clean energy positions.

⁹ See: <https://www.clcouncil.org/founding-members/>



3. Why have grantees been successful?

There are eight factors which have contributed to the successes of the past five years, according to our interviews and review of a dozen program evaluations.

First, many successes align with long-term philanthropic commitments on these issues, many of which, such as Clean Power and Oil, are large and spread over several continents. It takes long time for ideas and analysis to take hold, and for grantees to build effective policy advocacy campaigns. Several evaluations cautioned that funders needed to understand that meaningful policy change, such as that achieved in transportation standards, takes a longer time than most realize. Many attributed the success of the Paris Agreement to long campaigns in key regions and countries to build domestic support for action, which created a strong sense of the need for and ability of countries to commit in Paris.

Second, market forces played a significant role, especially low and rapidly dropping prices for natural gas in the U.S. and renewables globally. However, these low prices were brought about, in part, through significant policy successes, such as renewable energy programs and incentives in many countries as well as governmental support, decades ago, for oil and gas R&D.

Third, grantees capitalized on the Obama administration's desire to implement domestic and international clean energy and climate policies. Given the attitudes of the current Administration, philanthropy and its grantees will need new approaches.

Fourth, philanthropy's support of improved advocacy and coalition building helped move policy makers to act on climate and clean energy, including President Obama and states such as California and New York, as well as gaining support from a range of policy makers from across the political spectrum. Initially, those successes were largely defensive, fending off attacks on clean energy policies. Over time, they have led to victories, such as the Congressional extension of wind and solar tax credits and stronger clean energy standards in Illinois and Michigan. Regranting foundations have become more sophisticated in their support for broad-based advocacy efforts.

Fourth, pro-climate national leadership helped advance climate and clean energy policies internationally, leading to the Paris and Kigali Agreements. The Trump administration is already reversing U.S. international and federal leadership, a key strategic issue for the next four years.



Fifth, several campaigns to encourage and persuade companies to act on climate have been effective. Campaigns from non-governmental organizations have driven large information technology companies, such as Amazon, Alphabet, Facebook, and Microsoft to adopt ambitious renewable energy targets and engage in supportive policy work; other campaigns have successfully pressured retailers and others to stop sourcing palm oil, a key contributor to deforestation. These campaigns have not only achieved specific reductions from the companies, but are also a key factor in making the business community a major player in the public dialogue on climate and supporting specific policy goals, such as the Paris Agreement. Investors have also been a driving force for corporate action, by pressing for increased disclosure and filing hundreds of shareholder resolutions at companies. Recently, 62.3 percent of shareholders voted to approve a proposal calling for Exxon to disclose the impact on its business of compliance with global climate change, a sharp increase from the 38 percent who voted for it last year.

In addition, grantees and others have launched many successful efforts to work collaboratively with business. For example, grantees are working to build business support for doubling energy productivity, scaling up use of Electric Vehicles, and committing to using 100 percent renewable energy.

Sixth, significant co-benefits of climate policies – such as improved air quality and public health, economic growth and jobs, and national security – have motivated action around the globe. Horrendous air pollution in China and India has created significant pressure for new clean energy policies. Many policy makers have pushed to expand wind and solar energy for economic reasons and have been urged to do so by businesses. In calling for his state to produce 50% of its energy from wind, conservative Governor Sam Brownback (R-KS) said, “We’ve seen massive investment [in wind] and we want to see that continue to take place and grow even faster.” Constituencies outside the environmental community have succeeded in advocating for these policies and often are persuasive voices. .

Seventh, improved coordination among climate funders—a key focus of Hewlett’s 2012 strategy—has created sharper strategies, increased funding, and expanded funding to China and India. Hewlett and other funders have helped to revamp the ClimateWorks Foundation (CWF 2.0) and create new methods for climate and energy funder collaboration. In addition, Hewlett and others have expanded and strengthened the network of Regional Climate Foundations (RCFs), which are knowledgeable in climate policy opportunities in the key countries and regions.

- **Climate giving increased by more than 30 percent among leading foundations with major climate programs.** In addition, foundations give extremely high marks to engaging with other foundations and invited experts to discuss and develop strategy.



One interviewee argued it is valuable to discuss issues with foundations with different views, saying “creative tension can be a good thing.”

- CWF and RCFs **receive high marks for their analytical and technical expertise** on climate and energy, especially in terms of low-carbon technologies, policy and their potential to reduce emissions. In addition, they convene funders and develop detailed strategies. They often possess expertise and capacity, which other foundations, including Hewlett, may not have in particular fields.
- **Funders are more able to rapidly develop new collaborative strategies.** Specific successes in 2016 included the rapid development of the funder response to support the Kigali HFC agreement reached by countries and funder efforts to coordinate increased resources flowing to support climate mitigation activities in India.

Finally, Hewlett and others in Philanthropy receive high marks for its leadership to drive new and innovative investments, especially the creation of two clean energy philanthropic initiatives – the U.S.- India solar finance initiative and the Kigali efficiency fund. Many interviewees felt that the funding community needs more of this type of leadership from others similarly situated to drive innovation.

Hewlett also began work on carbon capture and storage (CCS) and nuclear, which are outside the scope of most of its philanthropic peers. In part, this was due to Hewlett’s decision to focus on areas needed for deep de-carbonization and to sort its strategies into three categories—mature, new, and emerging. Its theory was to focus less staff time and more money on mature campaigns, which could largely be handled by the RCFs, and to devote more staff time to developing new and emerging strategies, which will require less funding, at least at the early stages. The CCS work, the US-India solar finance initiative, and the Kigali efficiency fund are all examples of the focus on new and emerging strategic opportunities.

4. Why have grantees been less successful? What were the barriers to their effectiveness?

There are four barriers to philanthropy’s efforts being more successful on climate and clean energy.

First, many interviewees argued that the climate and energy community has underestimated the impact and effectiveness of some arguments made by climate opponents. Some interviewees said that the community spent too little time focusing a transition plan for coal communities, allowing the “war on coal” rhetoric to win the day in many regions. Others felt that their economic arguments on clean energy jobs or the benefits from clean energy policies were poorly communicated.



Second, our interviews revealed substantial frustration with **the climate and clean energy philanthropic community itself**, including criticism from some within philanthropy. Interviewees were concerned philanthropy engages in too much “group-think” or “monopoly thinking” with little attention to new or disruptive approaches; focuses on bright shiny objects rather than the unsexy work that really reduces emissions; and lacks capacity for key challenges of today, including advocacy and communications skills, a strategy for deep decarbonization, and finance.

Interviewees expressed concern that philanthropy:

- **Engages in too much “group-think” or “monopoly thinking”, with little receptivity to new ideas, grantees or approaches.** This is a very common view. The same group of funders talk with each other and fund the same grantees. Some urged climate philanthropy to avoid “monopoly-thinking” which crowds out innovative and disruptive approaches and grantees. As one interviewee said, “philanthropy is guilty of incest by listening to and funding the same groups over and over.” Indeed, one of the RCFs said it is much easier to get money for “regular project work” than “thinking big”, so it simply concentrates on responding to funder desires. The monopoly danger is particularly high in areas such as China or India, where grantees receive support from fewer foundations than in the U.S. or E.U. Many interviewees also believe climate philanthropy lacks a “vision” for how to get to deep decarbonization coupled with a realistic public policy pathway.

A commonly held view among the interviewees is that philanthropy pays insufficient attention to the non-climate driving forces for action in developing countries – health, economic development, and air quality. Philanthropy has not, they believe, invested in either the analytical work to get the needed information or, most importantly, actively cultivated or supported non-environmental constituencies to advance the climate policies that would be relevant to their interests and motivations. One funder said climate philanthropy “would be more resilient with diverse strategies and consideration of diverse theories of change – not having everyone aligned.” Another interviewee stressed that aligned funding for agreed to strategies deserves ample support but funders should encourage and pursue a diverse range of strategies.

- **Fails to seek out bold “step change” strategies, which can fundamentally alter carbon pathways with new approaches or technologies or fundamental change in the politics.** Some mentioned the successful NGO grantee campaign to cap coal use in China, which was supported initially by the Children’s Investment Fund Foundation and others, including Hewlett, as an example of a strategy that moved beyond the incremental gains to directly take on and reduce coal use. The local RCF is now also supporting this work.



- **Focuses too much on “the bright shiny objects,” such as the U.S. Clean Power Plan or work on individual coal plants, and not enough on the necessary but unsexy and undramatic efforts such as energy efficiency or other clean energy policies.** Several pointed out that clean energy policies, such as tax incentives for renewables or standards for renewable electricity and efficiency have delivered more carbon reductions than carbon-specific policies, but get relatively little attention and funding. Buildings and industry support (including energy efficiency) is frequently mentioned as a critical tool for cutting carbon emissions, but one which is repeatedly under-funded. Some attributed this to foundation staffing; many foundations, including Hewlett, have program officers that focus on clean power and oil, but very few have staff devoted to buildings and industry, carbon sinks, or high-potency greenhouse gases. **Many also pointed out that adoption of a significant policy receives lots of funding attention, but implementation of that policy is an unsexy area which often receives little philanthropic attention.**
- **Has created funding campaigns, which function as siloes and which miss opportunities and may not make sense in the emerging world of low-carbon strategies.** It doesn't make sense, several interviewees argued, to advance EVs separately from the power strategy or to pursue a disruptive idea such as zero-net carbon buildings without combining support for clean power (renewables) and buildings (efficiency). And, as philanthropy and its grantees urge national and sub-national governments to act on climate, this will demand support that integrates work on clean power, oil, buildings and industry, and more under an umbrella of carbon emissions reductions or the predominant issue that each government entity is concerned about.

Third, the NGO capacity in China and India continues to lag — a problem made more difficult by governmental efforts in both nations to increase regulations of foreign funders. However, NGO capacity in China and more strategic focus is beginning to improve.

Fourth, while Hewlett and others in climate philanthropy receive high marks for driving investments in creating popular will for policy change in the U.S., many feel these efforts have just scratched the surface. And in developing countries, there is a strong belief that not enough attention has been paid to reaching out to constituencies concerned about issues other than climate when trying to move the climate agenda. As a broad principle, one interviewee argued that the highly technical philanthropy and grantee community should give greater consideration to how to build popular support for policy proposals from the beginning. More specifically, despite initial successes, many argued that **a real roadblock today in the U.S. is the absence a strong community of climate and clean energy advocates across the full political spectrum.**



There's a need for Hewlett and others in philanthropy to support a wide range of policy solutions that can appeal to a broad political spectrum. This will involve better engaging local leaders and activists, donors, political consultants, and more from all political perspectives.

5. What have we missed in the last five years to move towards deep decarbonization by mid-century?

Recently, more government and scientific studies have looked at what technologies will be needed to achieve the deep decarbonization needed to keep warming below 2 degrees, never mind the new goal in the Paris Agreement of keeping warming below 1.5 degrees. Hewlett and several other foundations are already funding or considering funding efforts to advance Carbon Capture and Technology (CCS) and advanced nuclear power. In addition, CWF has sparked conversations at the Funders Table of carbon negative technologies and nuclear power, but there is not significant Funders Table action on any of these to date. Philanthropic gaps on deep decarbonization include:

- Key sectors where significant reductions are possible now, but have received little to no focus to date, and all of which are needed for deep decarbonization:
 - **The industrial and manufacturing sector:** The industrial sector accounts for 21 percent of global greenhouse gas emissions and 28 percent of U.S. emissions. In the U.S., its carbon emissions are expected to grow 18 percent by 2025. In addition, it is a politically powerful sector, both nationally and in states, and often a big opponent of clean energy. Furthermore, President Trump has said the U.S. cannot act on climate change because it would worsen the competitiveness of the manufacturing sector. However, some leading manufacturers, such as Dow, GM, Procter & Gamble, Nestle, and Unilever, are strong supporters of climate and clean energy action, including renewable energy. The industrial sector is also a key sector for CCS development. The focused industrial campaigns in China and India have achieved success, perhaps in part because of the willingness of the national government to design specific policies targeted at them.
 - **Thermal energy, including heat for industrial processes and buildings:** Thermal energy is approximately 50% of total global final energy demand and 39% of energy-related carbon dioxide emissions. Despite this, the International Energy Agency has said, "The supply of heat is largely ignored in the energy and climate change debate."¹⁰

¹⁰ International Energy Agency (IEA), 2014, "Heating Without Global Warming: Market Developments and Policy Considerations for Renewable Heat (<https://www.iea.org/publications/freepublications/publication/heating-without-global-warming.html>).



- **Reforestation, soils, and land use:** Most of philanthropy's efforts on biological carbon sinks have focused on slowing deforestation. But there are significant opportunities to store carbon by reforesting areas, storing it in soils, or other land use practices. The 2014 New York Declaration on Forests called for restoring 150 million hectares by 2020 (the Bonn Challenge) and an additional 200 million hectares by 2030.¹¹ 38 entities (countries, subnational regions, companies, and NGOs) have made commitments to restore forests.
- **Zero-net carbon buildings:** These buildings, which are highly efficient and generate or purchase as much renewable energy as they need for operations, are beginning to scale up. It is a disruptive design concept for buildings, which have been traditionally hard to address. But there is relatively little philanthropic effort to support them, and philanthropy is not well organized to do so, because this work merges efficiency and renewables.
- **Transmission for renewable energy:** Deep decarbonization will require massive amounts of inexpensive renewable energy, most of which is produced in rural areas. Major new transmission construction will be needed to bring this clean electricity to the urban areas where it is used. And the scale is large; proposed renewable transmission to the eastern US is 33.5 gigawatts, equal to 65 fossil power plants.
- **Energy Storage:** Storing energy cost-effectively is a critical advance needed to advance renewable energy in the electricity sector and electric vehicles (EVs) in the transportation sector. To meet the 2-degree target and decarbonize the electricity sector, IEA says 310 GW of additional grid-connected electricity storage capacity would be needed in the United States, Europe, China and India.¹² And there is significant opportunity to move forward now as prices are "dropping much faster than anyone expected, due to the growing market for consumer electronics and demand for electric vehicles (EVs)."¹³ Because storage is a disruptive technology in both electricity and transportation, philanthropy could develop an integrated strategy for both sectors to scale up storage rapidly.
- **Cities:** With two thirds of the world's population living in cities by 2050, the energy choices of cities will be critical to achieving deep decarbonization. Cities may also be a place where an integrated view of how to approach carbon reductions, rather than the current campaign silos, may be appropriate.

¹¹ United Nations, September 2014, "Forests: Action Statements and Action Plans" (<http://www.un.org/climatechange/summit/wp-content/uploads/sites/2/2014/07/New-York-Declaration-on-Forest-%E2%80%93-Action-Statement-and-Action-Plan.pdf>).

¹² International Energy Agency, 2014, "Energy Technology Perspectives 2014" (<https://www.iea.org/publications/freepublications/publication/energy-technology-perspectives-2014.html>).

¹³ McKinsey & Company, June 2017, "Battery storage: The next disruptive technology in the power sector" (<http://www.mckinsey.com/business-functions/sustainability-and-resource-productivity/our-insights/battery-storage-the-next-disruptive-technology-in-the-power-sector>).



- **Research and development for technological breakthroughs needed for deep decarbonization.** At the Paris climate negotiations, 22 countries and the EU pledged to double their government clean energy research and development investment over five years. This “Mission Innovation” focuses on technologies such as **advanced nuclear; large scale carbon removal technologies and approaches, such as CCS and large scale conversion of carbon to commercially viable matter and materials; fuels for transportation sectors that cannot be electrified such as trucking, aviation, and shipping; and energy storage.** The goal is to get big technological breakthroughs to reduce carbon emissions. Such efforts will also need to be accompanied by other work to ensure rapid deployment. Few in philanthropy are funding efforts to advance this work and there are opportunities in key countries, as well as diplomatically, to keep this effort on track. There may be opportunities for foundation presidents to work at a senior executive level with members of the Breakthrough Energy Coalition on supporting Mission Innovation and a variety of other policy initiatives.
- On finance, **philanthropy has limited expertise in finance**, according to many interviewees. Some philanthropies, such as CWF, are just starting to get needed staff expertise. Further, one financial expert stressed **philanthropy must be much clearer on its finance objectives** because the skill set that staff will need varies widely depending on the objectives. These objectives could include: seeking more lending by the International Financial Institutions (IFIs) and bilateral aid programs, facilitating commercial lending for clean energy projects; or seeking program-related investment or other investments beyond grants. And while finance came up from numerous interviewees as an area that deserved more support, one funder argued that philanthropy need not actively engage in this area.

6. What lessons or implications can Hewlett and others in climate philanthropy learn from the past five years?

There are several key lessons which Hewlett should draw from the experiences of the past five years.

First, **the collective efforts of climate funders are working, but must accelerate dramatically.** To meet the 2-degree target, much greater progress must be made by 2030 in the technologies we have today—renewable energy, energy efficiency, electric vehicles, and more. Philanthropy must take bigger steps and risks to accelerate this change.

Second, **too little is being done to advance strategies for deep decarbonization.** Many deep decarbonization strategies will require long and unsexy campaigns to ensure that



breakthrough technologies will be available for use starting in 2030. And philanthropy has paid little attention to many areas, such as the industrial sector or reforestation, which are large sources of emissions or potential reductions.

Third, philanthropy should listen to “dissenting voices on strategy” and seek **innovative approaches for technology and public policy solutions to climate**. Numerous interviewees pointed to the perils of getting trapped in the echo chamber of climate philanthropy conventional wisdom, noting that it requires conscious effort to identify and listen to voices outside of the core grantees, consultants and experts that foundations come to rely on for information and guidance. Endowed foundations have a unique responsibility to ensure that climate philanthropy seek outside thinking. Hewlett and other endowed foundations have helped to lead innovative philanthropic approaches on transportation, carbon capture and storage, finance, and building public will. The challenge of climate and our current politics require that the largest and endowed funders harness their board, staff, and financial resources to drive innovation that identifies and scales up the dramatic changes the globe needs to address this problem.

C. Recommendations

Based on this assessment and its findings, we recommend Hewlett and others in philanthropy pursue two related approaches.

First, **Hewlett and others should launch a series of new funding initiatives designed to capture and drive bold, innovative new “step change” actions to allow the U.S. and key regions to realize both reductions between now and 2030 and to lay the groundwork for the much bigger deep decarbonization needed between 2030 and 2050**. In each area, Hewlett and its philanthropic colleagues should scope out the opportunities and then, as appropriate, invest further. This effort should aim to attract new grantees, as well as new approaches.

These efforts should have three prongs, which will certainly have considerable synergies and overlaps:

1. **Driving deep decarbonization:** Hewlett should explore how it and others in philanthropy might fill at least the deep decarbonization gaps identified above – the industrial and manufacturing sector; thermal energy, especially heat; reforestation, soils, and land use; net-zero buildings; transmission for renewables; energy storage; cities; and research and development for technological breakthroughs needed for deep decarbonization.



2. **Advancing climate change internationally:** President Trump's withdrawal from the Paris agreement fundamentally alters the global landscape on climate. Hewlett and others should seek out innovative approaches to:
 - a. **Continue collective international movement**, especially opportunities to have China, India, and the EU be substantive and diplomatic leaders to fill the U.S. leadership vacuum. This includes helping countries, especially China and India, meet and exceed their Nationally Determined Commitments (NDCs) from the Paris Agreement, maintain momentum for Mission Innovation, and exploring how to best advance implementation of NDCs in other rapidly growing countries in Africa and Asia.
 - b. **Improve communications approaches**, with a special focus on communications around the non-climate arguments for action, such as air quality, health, economic growth, and national security. One funder said, "What we need now is creating political will, ambition and communicating."

3. **Making progress in the U.S.:** Hewlett should seek out innovative approaches to address climate and clean energy in a vastly different political environment than in the past five-year strategy. We suggest four innovation opportunities:
 - a. **Organize the coalition of the willing:** there is a rapidly emerging and large coalition of states, cities, businesses, and others that aim to meet the Paris Agreement targets. Philanthropy should support this coalition of the willing and help them achieve their objectives.
 - b. **Offer much more robust support for groups that bring constituencies and leaders to the table from across the political spectrum:** Hewlett needs to provide support to a range of groups engaging with a diverse array of policymakers offering creative approaches and genuine solutions, particularly at the state level.
 - c. **Better engage the business community to drive market change and policy:** Large businesses and other institutional consumers are not only driving renewable energy markets, but also policy. Hewlett and others should seek innovative ideas to both encourage and pressure large companies and their supply chains to cut carbon emissions and increase purchases of clean energy and electric vehicles and push for policy. This could be coordinated with the efforts of other large institutions, such as governments at all levels, colleges and universities, hospitals and others.
 - d. **Improve communications:** Hewlett should seek out innovative approaches to understanding the arguments climate opponents are making, and supporting groups that are organizing new constituencies for climate action and making persuasive arguments. Among the issues for which communications plans are needed are the clean energy transition in major fossil fuel producing regions and



the role efficiency and renewable energy can play in cutting consumers energy costs and helping families who feel economic distress.

In essence, we recommend Hewlett launch a set of new and emerging strategies needed for deep decarbonization. This effort will require substantial staff time and some resources, possibly initially through scoping grants. But Hewlett should still initially devote the bulk of its funding portfolio to its mature strategies, most of which the RCFs can manage, thus requiring less Hewlett staff time to manage. As part of this effort, it may be useful for Hewlett to assess its portfolio against two dimensions – the amount devoted to mature, emerging and new strategies and the amount devoted to incremental improvements as opposed to transformative or step-change policies. After Hewlett completes this two-dimensional assessment, it should ask other funders to do the same so it can view the entire philanthropic portfolio as a whole.

Second, to implement these initiatives, endowed climate philanthropies may wish initially to pursue them through direct grants or new regrating mechanisms, as existing non-endowed regrating organizations could only undertake them if there is broad interest in climate philanthropy.

1. **Discuss the potential for new deep decarbonization funding initiatives with other funding partners, especially endowed foundations.** It will be easier to drive change with the support of other funders.
2. For each area of innovation, **assess the degree of interest and capacity with the existing network of regrating organizations. Where there is interest, capacity and alignment, endowed foundations can work with the regrating organizations. If those factors do not exist (and they may not, especially at the early scoping stages), endowed foundations may wish to make direct grants or find other regranters.**