HEALTH CARE AND THE CLIMATE CRISIS: PREPARING AMERICA'S HEALTH CARE INFRASTRUCTURE

III. Reducing Emissions from Health Care Facilities

This is the third part of a Majority Staff Report focused on the U.S. health system and the climate crisis. Part One provides an overview of the problem, description of Chair Neal's 2022 Request for Information (RFI), and summary statistics. Part Two examines how the climate crisis and the prevalence of extreme weather events impact health care organizations – and what they are doing to respond and prepare for future events. This part describes how health care organizations are assessing their climate impact and working to reduce their respective carbon footprints. Part Four summarizes findings and provides a discussion of implications. Part Five is an appendix with survey methodology, limitations, and supplemental tables.

PART THREE: KEY FINDINGS

Summary: Responses to the Ways and Means Committee RFI revealed a diversity in experiences grappling with carbon emissions in the sector – with some respondents having long-established and public sustainability goals; clear tools to measure their scopes 1, 2, and 3 emissions; and data showing millions of dollars in cost-savings associated with the measures. Other respondents had yet to create sustainability goals. Those who had clearly defined goals, measures, and outcomes related to curbing their respective carbon emissions provided insights in the ways targeted interventions could reduce costs. Still, even for respondents who had well-formed climate programs in place, barriers persist – from defining and accurately measuring scope 3 emissions to raising the start-up funds for capital improvement projects.

- U.S. health sector greenhouse gas (GHG) emissions have risen by an estimated six percent between 2010 and 2018 – resulting in the loss of 388,000 disability-adjusted life-years – and represent nearly 10 percent of total U.S. GHG emissions.
- Thirty-one of 63 respondents (13 out of 14 climate innovators and 17 out of 49 providers) said they used at least one tool to measure their carbon footprint across scope 1 and 2 emissions.
- Eighteen of 63 organizations reported scopes 1 and 2 emission estimates in their responses – and nine of these 18 also provided scope 3 estimates. Not all of these nine respondents provided full scope 3 estimates, noting challenges in measuring and defining what fits in the scope 3 category.
- Many climate innovators (10 out of 14) said they have already achieved or are in a position to more quickly achieve sustainability targets established by federal, state, and/or local government, including the White House goal of 50 percent reduction in GHG emissions by 2030 and carbon neutrality by 2050. In contrast, only some providers (15 of 49) said they have already achieved or are in a position to more quickly achieve sustainability targets established by federal, state, and/or local government.
- To meet these sustainability goals, respondents said they are enacting a wide variety of changes, the most common being: 1) operational changes (e.g., recycling, virtual meetings, working groups), 2) electrification of buildings (e.g., light emitting diode (LED) lighting), 3) use of renewable energy, and 4) implementation of transportation measures (e.g., electric vehicles, public transportation).
- A handful of providers (eight of 14 climate innovators and nine out of 49 providers) reported quantifiable cost savings associated with the implementation of energy-efficient initiatives – some citing millions of dollars in cost avoidance because of the reduction in energy usage.
- While a number of respondents reported implementing programs aimed at reducing emissions, many also shared barriers to achieving these goals, which can be grouped into five key barriers: 1) internal resource scarcity, 2) external financial barriers, 3) structural limitations impacting operations, 4) external transportation barriers, and 5) regulatory barriers.
- Many respondents (n = 36) indicated they have attainable goals in place to reduce GHG emissions that were either internally created or in line with local, state, or federal targets. Some organizations have already achieved (or nearly achieved) established goals, while others (38 of 63) did not report having internal sustainability goals.

> ***"The nation's recommitment to the Paris Agreement carries a mandate for us to examine carbon reduction and also offers opportunities to make health infrastructure more efficient and resilient."***
>
> **– Chair Richard E. Neal, press release encouraging the Department of Health and Human Services (HHS) to address the health care industry's role in the climate crisis, April 9, 2021**

Since pre-industrial times, atmospheric carbon dioxide (CO_2) has increased by more than 40 percent, with more than half of that increase occurring since 1970.[1] In 2021, total global energy-related GHG emissions reached their highest recorded level at 40.8 gigatons, surpassing the previous high in 2019, with nearly 89 percent of total energy-related emissions coming directly from CO_2.[2] As discussed in Part One, U.S. health sector GHG emissions have risen by an estimated six percent between 2010 and 2018 – resulting in the loss of 388,000 disability-adjusted life-years – and represent nearly 10 percent of total U.S. GHG emissions.[3]

Commercial buildings in the U.S. (including hospitals) represent 35 percent of all electricity consumption, generate a collective 826 million metric tons of CO_2 emissions, and represent $190 billion in energy expenditures annually.[4] The U.S. Environmental Protection Agency (EPA) has projected that 30 percent of energy used in commercial buildings is wasted.[5] Further, data show that U.S. hospitals rank among the most energy-intensive commercial buildings, requiring more than twice the energy of European hospitals.[6] By reducing the energy consumption of hospitals, organizations can lower costs, reduce air pollution–associated disease burdens, and combat the climate crisis.

Still, upfront investments in infrastructure to reduce emissions can be substantial – and oftentimes, external incentives and supports are necessary – but research shows these investments are worthwhile, having both positive effects on the climate and long-term financial benefits for individual organizations and the economy. For example, Gunderson Health's one-time $2 million dollar investment in energy conservation efforts by retrofitting existing infrastructure reduced annual expenses by $1.2 million dollars, helping lead the health system to achieve energy independence by 2015.[7] Further, Kaiser Permanente has saved $19.6 million dollars since 2013 by improving its energy efficiency and $2.8 million annually by reducing water usage by 15.3 percent.[8] Given the limited information on the ways health care organizations are curbing their carbon footprint, Chair Neal's RFI included a number of questions that sought to elucidate trends and best practices across the industry. This Part summarizes those findings.

ADDRESSING THE CLIMATE CRISIS THROUGH THE HEALTH SECTOR

The following section highlights the ways RFI respondents are working to address their respective carbon footprints, focusing on: 1) organizational commitments to reducing climate impacts, 2) emissions tracking, 3) setting sustainability goals, 4) reducing workforce carbon footprint, and 5) estimating financial impacts.

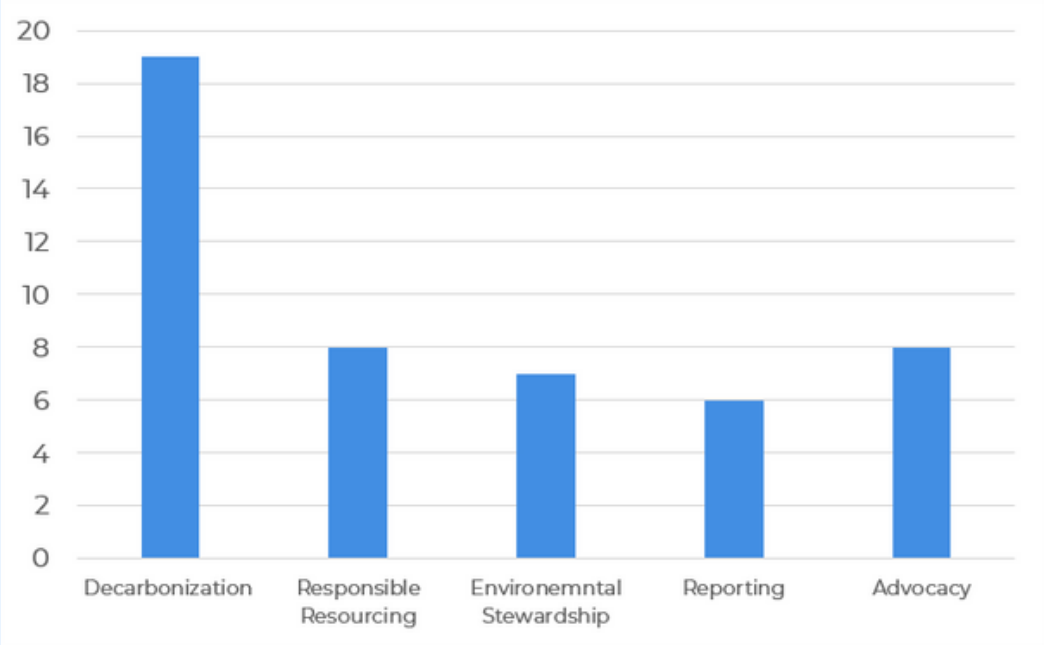
a. *Most respondents recognize importance of investing in reducing climate impact through staffing and workgroups*

> ***"We promote sustainability as part of our commitment to the health and wellbeing of all generations. We are only temporary stewards of our organization and of our planet, and it is the obligation of each of us to preserve and improve them for our posterity."***
>
> **— Dr. Mihaljevic, CEO of Cleveland Clinic**

As discussed in Part Two [insert link], most RFI respondents reported that they have dedicated at least some resources (i.e., standing agenda items at the board level, executive-level working groups, or dedicated staff) to either addressing the impacts of the climate crisis on their organization or their organization's contribution to the climate crisis. Nearly half of climate innovators (six out of 14) and some providers (11 out of 49) reported having a standing board or executive-level meeting dedicated to addressing their contributions to the climate crisis (e.g., carbon footprint). Multi-hospital systems were more likely than other provider types surveyed to report that they have standing board-level meetings or executive level working groups dedicated to addressing their contributions to the climate crisis.

As shown in Figure 1, executive working groups (n=34) focused on five key areas, examined below.

Figure 1. Executive working groups' focus on organizational climate impact



Source: Aggregate RFI survey responses on file with the Committee on Ways and Means.
Notes: Some respondents reported multiple initiatives, so results do not add up to 34.

Executive working groups commonly focused on developing operations to reduce GHG emissions through decarbonization over time, with a focus on scope 1 and 2 emissions. Some respondents also said they have focused their working groups on responsible sourcing from the supply chain (scope 3) by addressing sources of sustainable medical products and equipment and focusing on product usage management, recycling, and waste management.

Further, some respondents (n=7) noted the need to be stewards of the environment by linking sustainability, environmental justice, and social determinants of health. For example, one RFI respondent reported that its executive-level working group coordinated local teams to address environmental effects of their operations on patients to create healthier communities. Another respondent said it is also focusing on equity in its environmental stewardship work by investing in community climate resilience projects like reducing direct emissions from diesel generators that most negatively impact local neighborhoods. A few respondents also said their working groups focus on reporting the progress they have made on addressing their organization's climate impact through the publication of annual sustainability reports, for example. Others said they use their executive-level working groups to publicize their sustainability work and enhance their role as a community leader in this space. In some instances, this leadership manifests in engaging with state and local policymakers as well as other health care stakeholders.

b. Scope 1 and scope 2 emissions measurement within reach for many

While almost half of respondents said they have been working to track their scopes 1 and 2 emissions, many either did not discuss scope 3 or said it was out of reach due to measurement or definitional reasons. More specifically, across the sample of RFI respondents, 31 of 63 (13 out of 14 climate innovators and 18 out of 49 providers) said they used at least one tool to measure

their carbon footprint across scope 1 and 2 emissions. Most commonly, respondents said they used the Energy Star Portfolio Manager (n=25), followed by the GHG Protocol (n=12), and the Science Based Targets Initiative (n=7).[9] One climate innovator that tracks carbon emissions said that it began using the EPA Energy Star Portfolio in 2008 but later "outgrew the capabilities of the Energy Star software" and now uses its own system. The few organizations that reported tracking their scope 3 emissions most commonly used the GHG Protocol Corporate Accounting and Reporting Standard and the GHG Protocol Corporate Value Chain.[10] Other scope 3 measurement tools that were mentioned included: the EPA's Office of Research and Development's Supply Chain Greenhouse Gas Emission Factors for US Industries and Commodities, M+Wastecare, and Sciened Based Targets initiative.[11]

Eighteen of 63 organizations reported scopes 1 and 2 emission estimates in their responses – and nine of these 18 also provided scope 3 estimates. Not all of these nine respondents provided full scope 3 estimates, noting challenges in measuring and defining what fits in the scope 3 category. Some organizations, including Henry Ford, cited difficulties formulating a reliable methodology to measure Scope 3 emissions, specifically when capturing refrigerant usage and emissions from its fleet vehicles across its system. Henry Ford Health also highlighted obstacles that larger organizations may encounter when estimating their carbon emissions, explaining its difficulties managing irregular reporting of utility data from its various vendors.

Other organizations noted inconsistencies in measuring emissions across scopes. For example, Stanford Health Care considers patient travel as a scope 3 emission, which constituted most of its scope 3 emissions in 2019 and 2020, whereas Cleveland Clinic and Kaiser Permanente did not include this estimate in their Scope 3 estimates. Table 1 below lists scope emissions as reported by the 18 RFI respondents who provided data in response to these questions. For context, the average U.S. community hospital (153 beds) emits 8,094.72 metric tons of CO2 annually across scope 1 and 2 emissions.[12]

Table 1. Estimated scope emissions as reported by RFI respondents

Respondent	Scope 1 (in metric tons of C02e)	Scope 2 (in metric tons of C02e)	Scope 3 (in metric tons of C02e)	Year
Average U.S. Community Hospital (153 beds, 326,000 square feet)*	***Scope 1 and 2 combined 8,094.72 (0.0248 tCO2e/sqft.)***		N/A	Annually
Boston Medical Center (climate innovator)	9310.00	19994.40	N/A	N/A
Cleveland Clinic (climate innovator)	118,400	294,600	2.083 million	2020
HCA Healthcare	729,952	1,339,997	N/A	2020
Henry Ford Health (climate innovator, five hospitals and ancillary cites)	Scope 1 and 2 combined: 200,000		N/A	2021

Intermountain Healthcare (climate innovator, across multiple campuses)	Scope 1 and 2 combined: 272,886 (0.0218 tCO2e/sqft.) Scope 1 and 2 combined: 283,022 (0.0216 tCO2e/sqft.) Scope 1 and 2 combined: 287,030 (0.0214 tCO2e/sqft.) Scope 1 and 2 combined: 296,000 (0.0208 tCO2e/sqft.)		N/A N/A N/A N/A	2018 2019 2020 2021
Kaiser Permanente (climate innovator)	318,629	440,584	3,886,287	2019
Mount Sanai Health System (climate innovator, across seven campuses)	Scope 1 and 2 combined: 152,050 (0.01719 tCO2e/sqft.)		35,551 (only tracked for food purchases in 2021)	2020
Providence (climate innovator)	219,672	283,136	1,555,577	2021
Stanford Health Care (climate innovator, single campus)	16,000	1,840	43,490	2020
DaVita, INC (provider)	60,753.3 (global)	229,252.3 (global)	1,316,324.0 (U.S. only)	2020
Fresenius Medical Care AG & Co. KGaA (provider)	262,600	502,900	N/A	2021
Mass General Brigham (provider)	22,000		N/A	2019
NYU Langone Health (provider, across 18 campuses)	0.03297 tCO2e/sqft. 0.02078 tCO2e/sqft.		N/A N/A	2005 2020
Stanford Children's Health (provider)	Scope 1, 2, and 3 combined: 84,041.72 Scope 1 ,2, and 3 combined: 77,812.61 (difference largely attributable to pandemic conditions)			2019 2020
University of Utah Health (provider)	7,243.6	45,953.9	N/A	2021
Seattle Children's (provider)	11,860	560	6,000	N/A
University of California Health (provider)	793,142	96,713	197,720	2020
University of Nebraska Medical Center (provider)	154,000	N/A	N/A	N/A

Source: Aggregate RFI survey responses on file with the Committee on Ways and Means
Notes: "N/A" indicates that the RFI respondent did not provide specific information in its response. Ways and Means staff members were unable to independently verify these numbers.
* Estimate provided to the Committee on Ways and Means by Dr. Matthew Eckelman (see endnote 12).

c. Some health care leaders setting sustainability goals more ambitious than federal and international targets

While responses varied in terms of the sustainability targets organizations said they had in place, most climate innovators (10 out of 14) said they have already achieved or are in a position to more quickly achieve sustainability targets established by federal, state, and/or local government, including the White House goal of 50 percent reduction in GHG emissions by 2030 and carbon neutrality by 2050. In fact, in 2020, Kaiser Permanente had already achieved carbon-neutral status certified by the CarbonNeutral Protocol through improved energy efficiency of operations, increased renewable energy sources and utilization, and carbon offset purchasing.[13] In contrast, only some providers (15 of 49) said they have already achieved or are in a position to more quickly achieve sustainability targets established by federal, state, and/or local government, and this was statistically different when comparing climate innovators to providers ($\chi 2 = 7.58$, $df = 1$, $p < 0.01$). On the other hand, two respondents noted their state or locality did not have sustainability goals – one explained that its "state and local goals are related to [the] continuation [and] use of fossil fuels," and the provider said it will follow those directives over pursuing more sustainable energy sources.

> ***"Our physician leadership believes that the Hippocratic oath, 'First, do no harm,' extends beyond individual patient care to include our operational impact on the environment."***
>
> **– Kaiser Permanente**

In addition to the White House goals, respondents provided a list of goals set by external sources that they are working to meet. For example, Ascension cited the United Nations Race to Zero Campaign as an influence on its own sustainability targets, which aims to achieve net-zero carbon emissions by 2040.[14] Local Law 97 (a New York City law requiring most buildings over 25,000 square feet to reduce 40 percent of emissions by 2030) has influenced New York City-based hospital systems (i.e., Mount Sinai Health System, Northwell Health, NYU Langone Health) to reduce emissions, and, further, these systems have opted into the New York City Mayor's Carbon Challenge that seeks to reduce GHG emissions by 30 percent over 10 years from the time of challenge acceptance.[15] Other programs respondents discussed were:

- *Science Based Targets Initiative*, a climate action network to achieve a zero-carbon economy and boost innovation and sustainable growth (n=7);[16]
- *Health Care Without Harm*, an organization that advocates for health systems and hospitals to adopt environmentally friendly practices (n=5); [17]
- *Department of Energy's Better Buildings Challenge*, an initiative to push organizations to improve the energy efficiency of their portfolio of buildings by at least 20 percent over 10 years (n=3);[18] and
- *National Academy of Medicine's Action Collaborative on Decarbonizing the U.S. Health Sector*, a mission committed to address the health sector's impact on the environment and strengthening the industry's sustainability and resilience (n=2).[19]

In addition to committing to external targets, 20 respondents reported they had created internal sustainability targets, but the types of goals varied significantly across institutions. All nine multi-hospital systems and all eight health systems who responded to this question reported they have sustainability targets. In contrast, one out of six community health centers who responded to the question said they had internal sustainability targets. Of the 20 respondents that signified they had internal sustainability goals, 16 (eight of 14 climate innovators and eight of 49 providers) said their internal sustainability goals are publicly available.

Internal goals most commonly involved: 1) increasing renewable energy, 2) achieving carbon neutrality by a certain year, 3) decreasing GHG emissions under scopes 1 and 2 by a certain percentage, 4) eliminating chemicals of concerns (e.g., various anesthetics), 5) increasing recycling, and 6) decreasing water usage. Providence said it had set an internal goal of not only achieving carbon neutrality but becoming carbon *negative* by 2030. NYU Langone Health emphasized increasing the resiliency and efficiency of its buildings to manage emergencies, address future hazards, and meet its sustainability goals.

d. Achieving sustainability goals requires a wide range of operational changes

To achieve these sustainability goals, respondents described a variety of pathways, indicating no clear roadmap to carbon neutrality exists. The most common changes respondents said they were implementing can be grouped into four broad categories: 1) operational changes (e.g., recycling, virtual meetings, working groups, etc.), 2) electrification of buildings (e.g., light emitting diode (LED) lighting), 3) use of renewable energy, and 4) implementation of transportation measures (e.g., electric vehicles, public transportation). As shown in Table 2, a number of organizations have explored other creative routes to reach their sustainability goals.

Table 2. Examples of initiatives health care organizations have implemented to achieve sustainability goals

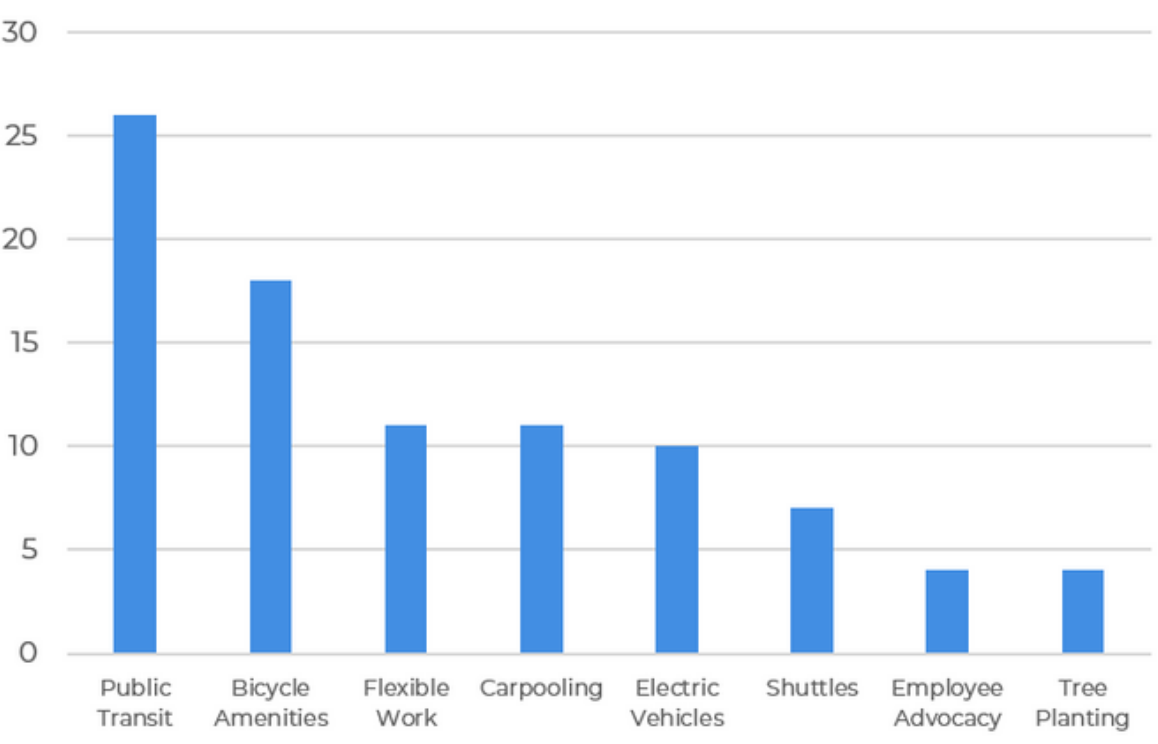
Climate innovators	Providers
• Boston Medical Center entered into a solar power purchase agreement, operates a rooftop farm, and utilizes lower carbon footprint anesthetics. • Kaiser Permanente built its own on-site solar power plant. • Intermountain Healthcare has installed over 80 electric vehicle charging stations.	• Seattle Children's Health is partnering with non-profits to pursue afforestation and reforestation efforts to offset emissions. • Stanford Children's built two 55,000-gallon cisterns to collect rainwater and condensation from building systems to be used for landscaping purposes. • University of California Health has built facilities to divert organic waste and methane from landfills and converts it into biomethane.

i. Workforce programs aimed at reducing carbon footprint vary across health care organizations

Just fewer than half of respondents (30 out of 63) said they have implemented programs targeted at reducing the carbon footprint of their respective workforces, though the types of programs ranged. A higher proportion of climate innovators (12 out 14) reported having implemented programs to reduce the carbon footprint of their workforces, compared to providers (18 out 49) – a statistically significant difference ($\chi 2 = 10.47$, $df = 1$, $p < 0.001$). Multi-hospital systems (15 out of 18) and health systems (10 out of 12) more frequently reported implementing programs aimed at reducing workforce carbon footprint compared to community health centers (four out of 26) and other providers (one out of seven); these differences were also statistically significant ($\chi 2 = 29.29$, $df = 3$, $p < 0.001$). A majority of RFI respondents with locations in the Pacific region (10 out of 16) reported either paying for or subsidizing their employee's public transportation compared to those without a footprint in the Pacific region (16 out of 47), a statistically significant difference ($\chi 2 = 3.99$, $df = 1$, $p < 0.05$).

The types of workforce programs and their uptake varied across respondents who tracked such metrics. Of respondents who reported workforce programs (n = 30), the average percentage uptake was 8.07 percent (M = 8.07, SD = 17.56), with a median of 45.5 percent and a range of zero to 91 percent. Figure 2 below shows some of the most common workforce initiatives, by type.

Figure 2. Common workforce carbon-footprint reduction strategies



Source: Aggregate RFI survey responses on file with the Committee on Ways and Means.
Notes: Some respondents reported multiple initiatives, so results do not add up to 30.

As shown in Figure 2 above, initiatives ranged across organizations, with many reporting multiple approaches to reduce the carbon footprint of their respective workforces. Out of the 30 organizations that reported implementing workforce programs, 25 said they had more than one program. Of those with workforce programs, climate innovators (n=12) had an average of 3.4 programs, while providers (n=18) had an average of 2.8 (this difference was not statistically significant).

Respondents who said they implemented public transit programs provided financial assistance to their workforce, such as providing discounted or free passes or allowing employees the ability to use pre-tax dollars for commute expenses (n= 26). Eleven respondents said they partner with local or regional transit agencies to not only reduce the carbon footprint of their respective workforces but also as a means to engage in the community through the support of public transportation systems and urban planning. A couple respondents partner with micro-mobility companies – specifically scooter companies – to improve employee and community access to a variety of transit methods. Others said they promote the use of bicycles through availability of bike storage, shower facilities, repairs, bike share memberships, and other related

benefits (n=18) to make it easier to bike to work regularly. Some said they have developed partnerships in their communities to support these efforts, including such initiatives as bike-to-work day.

Other common initiatives included flexible work programs to promote remote, hybrid, or flexible work arrangements to reduce commuting (n=11), while carpooling programs incorporated access to vanpooling services (n=11). On average, a typical passenger vehicle emits approximately 4.6 metric tons of CO2 annually.[20] Some respondents also said they had implemented programs to promote the use of electric vehicles through preferred parking, ensuring availability of charging stations on site, or employer-financial incentives for electric car purchasing (n=10). Other programs simply included shuttles between campuses or public transit stations (n=7) to reduce the need for additional cars. Respondents reporting the use of employee advocacy programs described employee-organized education, such as teaching employees how to be more sustainable in their home-life (n=4). Lastly, tree-planting programs incorporated partnerships for respondents' employees to plant or sponsor trees throughout their community (n=4).

Beyond the more ubiquitous programs shown in Figure 2, Gunderson and Johns Hopkins said they both have programs that incentivize employees to purchase homes in neighborhoods close to the workplace to cut down on transportation costs. Seattle Children's and Cincinnati Children's Hospital Medical Center said they have been addressing food-based environmental impacts by offering plant-based meals at the cafeteria and providing staff with discounts for using reusable beverage containers.

ii. Financial assistance programs crucial to helping respondents reduce carbon footprint

Respondents indicated the importance of outside programs – particularly financial assistance – in getting sustainability initiatives off the ground. Across the sample, 34 of 63 reported that they have participated in at least one program (public or private) to assist in reducing their organization's carbon footprint. All climate innovators (14 out of 14) reported they participate in programs, compared to 20 out of 49 providers – a statistically significant difference between the two groups ($\chi 2 = 15.35$, df = 1, $p < 0.001$). More multi-hospital systems (16 of 18) and health systems (11 of 12) reported using programs compared to community health centers (five of 26) and other provider types (two of seven) ($\chi 2 = 30.15$, df = 3, $p < 0.001$).

Of organizations who said they received federal, state, and/or local assistance in meeting climate-related goals, the most common sources of financial support came from: 1) rebates provided by local utility companies, 2) federal and state tax rebates, 3) grants from local/state departments (e.g., Department of Sustainability, Department of Energy), and 4) private grants. Out of all funders, the Federal Emergency Management Agency (FEMA) Hazard Grant Program provided the largest amount of money to individual respondents ($100 million to Ascension and $64 million to Northwell). Stanford Health Care and Stanford Children's Health said they receive rebates from Stanford University's Central Energy Facility, the institution's heat and power plant with grid-sourced electricity. To achieve its solar and wind power generation, DaVita, INC, emphasized the importance of the Investment Tax Credit and Production Tax Credit for electricity generation achieving these two specific sustainability goals.[21] Finally, the University of California Health

said it has received over $100 million in incentives from its Energy Efficiency Partnership with California, which has helped the organization complete more than 1,100 energy efficiency and new construction projects since 2004 and yielded savings of $30 million annually.

Some climate innovators said they utilized resources that did not provide financial support but provided consultations and resources to help them ultimately achieve cost savings, including: the Department of Energy's Better Building Challenge, Practice Greenhealth, the EPA Green Power Partnership, and RE100.[22] Stanford Children's Health and the University of Utah Health emphasized that using these resources leads to not only cost savings but also immense labor savings. For example, Stanford Children's emphasized that Practice Greenhealth saved the institution hundreds of staff work hours by providing guidance and consultation on carbon-reduction opportunities. Through the Department of Energy's Better Buildings Challenge, Ascension said it reduced energy use by 20 percent in 2017 from a 2008 baseline.

iii. Significant cost savings associated with implementing energy-efficient interventions

By reducing energy consumption, Boston Medical Center, reduced its utility bill from $17.2 million in 2011 to under $10 million in 2019, while patient volume grew 20 percent over the same time period.

While reductions in emissions benefit health and the economy writ large, some respondents showed the clear financial benefits of improved energy efficiency and reduced consumption – whether in the form of cost avoidance or a net reduction in energy cost overall as shown in Table 3. Eight of 14 climate innovators reported any quantifiable cost savings associated with the implementation of energy-efficient initiatives compared to nine of 49 providers. Respondents attributed savings to a variety of energy-reduction initiatives, such as the construction of new energy-efficient buildings, implementation of more energy-efficient operations from lower-energy systems like lighting and boilers, and reliance on lower-energy sources like a microgrid cogeneration power plant and the installation of renewable energy sources like solar panels. Many respondents cited millions of dollars in cost avoidance because of the reduction in energy usage.

Table 3. Estimated cost and energy savings from reducing energy consumption

Respondent	Initiative(s) implemented	Estimated Cost savings	Energy/emissions reduction	Timeline
Ascension (climate innovator)	Department of Energy's Better Buildings Challenge	31.6% energy cost reduction $96M across two campuses	N/A	2017-2021
Boston Medical Center (climate innovator)	Clinical campus redesign Cogeneration powerplant	$20-25M annually $1.5M annually	-90% of GHG emissions. -11M kilowatt hours of electricity consumption. N/A	Completed in 2018 Completed in 2017
Cleveland Clinic (climate innovator)	Multiple	N/A	-23.9% of total emissions since 2010.	2010-2020

Gundersen (climate innovator)	Multiple	$4M annually	N/A	Since 2008
Hackensack Meridian Health (climate innovator)	Multiple	$9M annually	N/A	N/A
HCA Healthcare (climate innovator)	Multiple	Approx. $4M annually	-6M kilowatt hours of electricity consumption annually.	2019-2021
Henry Ford Health (climate innovator)	Energy reduction	$400K annually	N/A	N/A
Stanford Health Care (climate innovator)	Energy reduction	$2.09M annually	N/A	N/A
Cincinnati Children's Hospital Medical Center (provider)	Multiple	$2M annually	N/A	N/A
Mass General Brigham (provider)	Multiple	N/A	20% annual energy reduction for each dollar invested.	N/A
NYU Langone Health (provider)	Multiple	$160 million since 2008	N/A	Since 2008
Pueblo Community Health Center (provider)	New energy-efficient clinic compared to older clinic	50% on utility bill	50% lower energy rate.	N/A
Shasta community Health Center (provider)	Solar panels	20% on utility bill	N/A	N/A
Stanford Children's Health (provider)	Multiple	$484,000 annually	N/A	N/A
University of Utah Health (provider)	Multiple	$1.22 million since 2016	-9.2M kilowatt hours of energy consumption.	2016
University of California Health (provider)	Multiple	$30M annually	N/A	Since 2004
CareSouth Carolina (provider)	Multiple	10% on utility bill	N/A	N/A

Source: Aggregate RFI survey responses on file with the Committee on Ways and Means
Notes: "N/A" indicates that the RFI respondent did not provide specific information as indicated in the table.

BARRIERS TO REDUCING CARBON EMISSIONS

Although many respondents reported implementing programs aimed at reducing emissions, their experiences have not been without challenges along the way. Thus, many shared barriers to achieving these goals, which can be grouped into five key groups, as shown in the Table 4: 1) internal resource scarcity, 2) external financial barriers, 3) structural limitations impacting operations, 4) external transportation barriers, and 5) regulatory barriers.

Table 4. Common barriers to reducing carbon emissions

Internal resource scarcity	External financial barriers	Structural limitation impacting operations	External transportation barriers	Regulatory barriers
• Lack of capital funds (x27) • COVID-19 pandemic (x12) • Lack of personnel (x7) • Competing priorities (x6)	• Lack of tax incentives/ rebates/grants (x19) • Lack of central repository of available grants (x6)	• Lack of renewable energy options (x13) • Lack of technical assistance (x9) • Scope 3 limitations (x8) • Unproven sustainable technologies (x2)	• Lack of public transport (x16) • Lack of electric vehicle infrastructure (x8) • Car-centric culture (x8) • Unsafe public transportation (x3)	• Inefficient hospital operations (x5) • Multi-state environmental regulatory standardization issues (x5) • Stringent regulations (x4)

Source: Aggregate RFI survey responses on file with the Committee on Ways and Means.

First, several respondents indicated a lack of personnel, capital, and time to focus on climate issues. For example, a climate innovator listed addressing financial shocks, ensuring access and quality care, and assessing workforce impact of COVID-19 as issues that have overtaken achieving sustainability as priorities for its board of directors. Second, most respondents said that because of their non-profit status, they faced barriers taking advantage of federal tax incentives to reduce their carbon footprint prior to the passage of the *Inflation Reduction Act*.[23] Still, a few non-profit organizations said they have found ways to access these incentives indirectly, such as partnering with third-party entities or creating for-profit subsidiaries. Sun River Health, Inc., described the process of entering into a purchasing agreement with a for-profit entity, which installs and owns the equipment, and then passes along some of its savings from renewable energy credits and other tax benefits to the non-profit partner. The complexity of this arrangement often outweighs the benefit and represents a barrier to clean energy access for many non-profit health care entities, respondents asserted. Though non-profits expressed frustration with their inability to access many tax incentives, a few non-profit organizations suggested an alternative – including climate-related projects and goals in the Internal Revenue Service (IRS) 990 Schedule H Community Benefit incentive as one component of a broader reporting effort.[24]

(The Inflation Reduction Act, which became law following the collection of these survey responses, would allow non-profits greater access to several tax incentives. Notably, the Inflation Reduction Act allows non-profits to receive the value of the Investment Tax Credit and Production Tax Credit for renewable energy in the form of direct payments, regardless of their tax-exempt status. It also creates new credits, similarly accessible through direct payments, for energy storage and microgrid property to improve resiliency. In addition, the Inflation Reduction Act modifies the deduction for energy efficient commercial buildings to allow non-profits to receive the value of the deduction by transferring the deduction to a designer, along with other changes to increase the value of the deduction and increase the applicability to retrofits. Lastly, the Inflation Reduction Act creates a new credit for the purchase of commercial electric and hybrid vehicles, which is accessible to non-profits as direct payments.)

Third, several respondents reported structural limitations impacting operations, particularly in reducing scope 3 emissions and utilizing renewable energy resources due to a lack of renewable energy options in many markets. Stanford Health Care estimates that over 70 percent of its carbon footprint comes from the supply chain alone. A few providers also indicated a willingness to pursue their sustainability goals, but they said they currently lack an understanding of where to start and require technical assistance. Fourth, several indicated that public transportation options are either inadequate or simply do not exist in their region, particularly in rural areas. Even in areas that have public transportation, respondents noted that employees working night shifts are often not able to access such services.

Lastly, respondents said that existing regulatory standards and hospital operations, such as infection control measures, patient safety standards, and the 24/7 provision of care make hospitals and health facilities more energy intensive compared to other commercial operations. Other respondents noted the lack of state and local standardization of environmental regulations have become additional barriers to reducing their carbon footprint. Health organizations that span multiple regions indicated that it is difficult to navigate each state's/locality's policy and regulatory environments, which hinders decarbonization efforts.

BARRIERS TO REDUCING CARBON EMISSIONS

Many respondents (n = 36) indicated they have attainable goals in place to reduce GHG emissions that were either internally created or in line with local, state, or federal targets. Some organizations have already achieved (or nearly achieved) established goals, while others (38 of 63) did not report having internal sustainably goals. This section examines the additional resources respondents plan to dedicate to climate-related issues and new, more ambitious internal targets they hope to achieve.

a. Many organizations plan to dedicate new resources to climate initiatives

Responses from the RFI showed that a number of organizations plan to implement new programs to achieve new or more ambitious sustainability goals. Specifically, 24 respondents (nine out of 14 climate innovators and 15 of 49 providers) said their organizations have future plans in place to dedicate new or additional expert staff to the ongoing assessment of the climate crisis. Among respondents who stated they have plans to dedicate new or additional staff to climate-related issues (n=24), 20 indicated an intention to add additional staff for climate-related efforts while four respondents (three multi-hospital systems and one community health center) plan on adding climate-related staff for the first time.

Figure 3. Respondent Spotlight: Stanford

Stanford Health Care

Spotlighting the sustainability goal timeline establishing by Stanford Health Care.

2025
- Launch a carbon offset program
- Expand GHG emissions tracking to corporate facilities, not just hospital campuses

2022 - 2024
- Establish a surgical residency focused on reducing waste and the carbon footprint of surgical procedures
- Establishing nursing sustainability fellowships

2023
- Establish data disclosure targets for up to two purchasing categories reduce Scope 3 supply chain emissions

Organizations ranged in the goals they said they hoped to achieve when investing new resources in addressing the climate crisis (see Figure 3 for a spotlight on Stanford's goals). Examples included: adding climate as part of the organization's management plans, implementing recommendations from a newly established climate council that reports to the board of directors, and including the climate crisis as part of a strategic multi-year plan related to broad improvements of the organization. Respondents who said they did not have plans to address the climate crisis cited the ongoing COVID-19 pandemic as a barrier, and a few said that once the COVID-19 pandemic becomes endemic or winds down, they plan on having more access to resources to dedicate toward assessing their organizational impact on the climate crisis.

b. Organizations continue to strive for more aggressive sustainability goals

Organizations that have already implemented sustainability goals uniformly said they will continue to strive for more aggressive targets. Of the 20 respondents who reported having internal sustainability targets, 16 respondents said they have future plans to adopt new or additional sustainability targets to guide internal operations in the next three to five years. Only one respondent reported having future plans to adopt new sustainability targets to guide internal operations who did not already have pre-existing sustainability targets. Many of the additional sustainability targets respondents discussed built upon existing goals, creating more ambitious targets and faster deadlines. For example, Ascension has a current goal of achieving a five percent reduction in GHG emissions and six percent reduction in solid waste by fiscal year 2023. In the future, Ascension said it plans to reduce carbon emissions by 50 percent by 2030, recycle 50 percent of non-hazardous waste by 2030, and achieve net-zero emissions and zero waste by 2040 – a decade ahead of the White House carbon neutrality goal.

Likewise, by 2027, Cleveland Clinic said it hopes to have 100 percent of its energy come from renewable sources, in addition to having a fully eclectic vehicle fleet and implementing low-flow anesthetic technologies to reduce GHG emissions. Because Kaiser Permanente reached carbon neutrality in 2020, its focus is now on becoming carbon negative.

THE ROLE OF TRADE ASSOCIATIONS

Although health care trade associations said they were aware of the ongoing challenges their members face in operationalizing interventions to reduce their respective carbon footprints, only one of 13 said they currently provide guidelines on sustainability targets to support members. Still, three associations said they plan to adopt sustainability targets for their members within the next three years. Through its professional member group – the American Society for Health Care Engineering – the American Hospital Association (AHA) has a central repository called the Energy to Care Dashboard that provides resources for the more than 1,300 hospital participants to track, manage, and implement sustainability goals at their facilities related to energy, water use, and GHG reductions. AHA's dashboard allows participants to compare their performance with the average energy use across climate regions. In contrast, a few trade associations frequently reiterated their role as support and advocacy organizations for their members, expressing apprehension to provide directives related to mitigation of the climate crisis outside of acting as a convener, information conduit, and communicator of the needs of their members.

Seven out of 13 trade associations reported awareness of programs (public or private) that could assist their members in meeting climate-related goals; however, these associations said they defer strongly to the direction of their paid membership and primarily focus on direct patient care instead of climate-related issues. Some associations noted that they often hear from their members that they are juggling competing challenges – including responding to clinical care needs, such as the COVID-19 pandemic and the opioid crisis – with some members unclear as to how making certain structural investments that would reduce their carbon footprint.

Associations representing Federally Qualified Health Centers (FQHCs) expressed an eagerness to engage in and support climate-related initiatives, citing the impact of the climate crisis on the health of their patients. Still, these associations said they need more outside support to provide the type of resources and expertise necessary to engage their members in this area.

Regardless of their readiness to assist their members on climate initiatives, nearly all trade associations said that tackling the climate crisis in the health sector will require strong federal leadership. Specifically, respondents asked for support in tracking and addressing the carbon footprint of vendors and suppliers. Most trade associations expressed agreement that any requirements or increased regulatory burden must be met with ongoing financial incentives and resources available to all providers – particularly those serving the safety net with already limited resources.

FEDERAL, STATE, AND LOCAL SUPPORT FOR SUSTAINABILITY

Many respondents provided recommendations on the ways federal, state, and local governments can provide support moving forward (see Table 5), and the message was clear: Public entities – particularly the federal government – have an important role to play in providing financial support and technical assistance to health care organizations engaging in these complicated efforts.

Table 5. Suggested policy proposals at the federal, state, and local levels

Federal	State
• Grant-related supports (x28) • Tax-related supports (x23) • Investments in renewable energy, infrastructure, and technology (x11) • Emissions and reporting (x11) • Investments in public transportation (x3) • Include climate-related risks in the Centers for Disease Control and Prevention (CDC) Social Determinants of Health (x3) • Increase the Centers for Medicare & Medicaid Services (CMS) reimbursement for organizations addressing the climate crisis and include a climate action planning requirement in the CMS participation conditions (x1)	• Clear, updated sustainability policies and guidance (x11) • Funding (including tax-related policies, such as trading renewable energy credits) (x8) • Investments in renewable energy, infrastructure, and technology (x6) • Investments in public transportation (x1) • Increase the indoor and outdoor air quality index measurements in vulnerable communities (x1) • Incentivize the development and use of CO2 removal technologies (x1)
	Local
	• Guidance, cooperation, and funding from local governments (x13) • Investments in public transportation (x6) • Energy, including utility providers' investment in alternative energy sources (x5) • NY Local Law 97 (x2)

Source: Aggregate RFI survey responses on file with the Committee on Ways and Means.

Grant support. Most prominently, respondents suggested a need for increased federal grant funding to support sustainability projects. Several also indicated it was difficult to determine what funding opportunities already exist (along with application requirements). Almost half of respondents suggested that a centralized federal climate grant repository, wider eligibility, and reduced regulatory burdens would lower the barrier to accessing existing federal grants.

Tax investments. Some respondents also suggested that additional tax-related investments would be beneficial to moving the needle in the health sector. A few organizations pointed to tax credits, such as the Investment Tax Credit and Production Tax Credit, though other organizations pointed out that tax incentives are not appealing due to the non-profit structure of their organization (see previous discussion).[25]

Emissions and waste-reduction incentives. Some respondents provided policy suggestions related to electrification, including retrofitting buildings, establishing microgrids, improving energy efficiency, and expanding electric vehicle use, particularly through building charging stations. Others emphasized the importance of reducing and reporting on emissions.

These suggestions included: de-incentivizing single-use medical devices and other single use plastics, streamlining and improving the supply chain, and increasing access to and use of telehealth.

State and local programs. Some state and local policy suggestions mirrored the federal ideas, with the most popular recommendations focused on increased funding, technical assistance, guidance, and cooperation between providers and governments. Respondents also commonly mentioned energy efficiency and electrification, especially in partnership with utility providers, and improving public transit. As with the federal recommendations, there was also a range of more specific policy suggestions, such as Mass General Brigham's state-level suggestion of improving the air quality index measurements in vulnerable communities, and NYU Langone's request regarding the relaxation of centrifugal chiller operation requirements.

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