DISCUSSION PAPER

Emissions Disclosures and Energy Use Reporting by Hospitals in the United States

Ana Abel, MPH, HHS Office of Climate Change and Health Equity; **Joseph McCannon,** HHS Agency for Health Research and Quality; **Hollynd Boyden, MPH,** HHS Office of Climate Change and Health Equity; **Jenny Keroack, MPH,** HHS Office of Climate Change and Health Equity; **Katie Lichter, MD, MPH,** HHS Office of Climate Change and Health Equity; **Aparna Bole, MD,** HHS Agency for Health Research and Quality; and **John Balbus, MD, MPH,** HHS Office of Climate Change and Health Equity

November 18, 2024

ABSTRACT | *The health sector accounts for approximately 8.5 percent of US greenhouse gas emissions, and hospital care makes up the greatest portion of the sector's emissions. As the impacts of climate change intensify, it is imperative that the health sector reduces its emissions. Tracking and reporting annual building energy use and emissions data is a critical first step toward reducing emissions. Across the United States, there are various federal, state, and local reporting requirements along with voluntary commitments that organizations have made to regularly disclose their emissions. This discussion paper summarizes reporting requirements and provides, for the first time to our knowledge, an estimate of the total number and percent of US hospitals that are required to or are voluntarily reporting their emissions on a regular basis. These data provide insight into the current state of health sector decarbonization and the nationwide programs that are holding them accountable.*

Background

As the impacts of climate change mount and pose greater threats to human health, it is imperative that the health sector, which accounts for approximately 8.5 percent of US greenhouse gas (GHG) emissions, enhances its climate resilience and reduces its emissions (Eckelman, et al., 2020). Within the health sector, hospital care makes up the greatest portion of the sector's emissions at 35 percent, and according to the American Hospital Association (AHA), there were 6,120 total hospitals nationwide as of 2022 (AHA, 2024; AHRQ, 2022).

A critical and foundational step in health sector emissions reduction is the tracking and public reporting of annual GHG emissions related to health care delivery (Downar, et al., 2021). A number of health systems have been estimating and tracking their GHG emissions privately in the interest of their organizational sustainability and cost-savings goals. The Environmental Protection Agency (EPA) tracks that approximately 3,500 hospitals use the EPA ENERGY STAR Portfolio Manager to estimate GHG emissions and energy use through a practice known as benchmarking (EPA, n.d.a; EPA and HHS, 2023). However, the extent to which health systems are sharing emissions data publicly has remained uncertain. With the growing interest in climate action in the health sector, as well as more broadly across all sectors, there is increasing need for health care delivery organizations to share their emissions estimates publicly for transparency, accountability, and standardization of the practice. The recent introduction of a voluntary Decarbonization and Resilience Initiative from the Centers for Medicare & Medicaid (CMS) Innovation Center offering technical assistance on decarbonization and, for the first time, collecting voluntarily submitted emissions data also demonstrates interest in GHG reporting at the US Department of Health and Human Services (HHS).

The Greenhouse Gas Protocol, a globally-accepted reporting standard, defines three categories, or "scopes," of GHG emissions. Scope 1 constitutes direct emissions from the organization's facilities; Scope 2 comes indirectly from energy uses that generate GHG emissions; and Scope 3 comprises emissions associated with supply chains, client use of products, and organizational investments (WBCSD and WRI, n.d.). Portfolio Manager incorporates facility data from on-site fuel combustion (Scope 1) and purchased utilities (Scope 2) to produce a value of Energy Use Intensity (EUI) in units of kBtu/ft2, which is a measure of total energy

consumed by a building in one year relative to the gross floor area of the building (EPA, n.d.b). Energy consumption by fuel type is used to calculate GHG emissions in Portfolio Manager, highlighting the value of publicly reported EUI data to understand facility-level emissions (EPA, 2023a).

More specific information is required on the degree to which organizations are reporting their emissions data either through federal, state, or local requirements or through voluntary initiatives where individual organizations commit to transparency. Public disclosure of emissions data is mandated by federal regulation for some organizations, and increasingly states and municipalities are also passing mandates for reporting. Federal agencies are also required to estimate and publicly disclose GHG emissions associated with their operations under Executive Order 14057 (EO 14057), which is relevant to the health sector for those agencies with health care delivery operations (EOP, 2021). Last, public disclosure of GHG emissions can be the result of voluntary actions and commitments. This discussion paper aims to summarize data on the cumulative extent of public reporting of annual GHG emissions and/or energy use data by hospital facilities across the United States and identify additional reporting rules and requirements that are pending or soon to come into effect.

Methods

Data on reporting hospitals were first identified from federal reporting sources. The authors sequentially analyzed data from the EPA Greenhouse Gas Reporting Program (GHGRP) and the EPA National Emissions Inventory (NEI), data from agencies with federal hospitals that fall under EO 14057 (i.e., Defense Health Agency (DHA), the Veterans Health Administration (VHA), and the Indian Health Service (IHS)), and data from the HHS Office of Climate Change & Health Equity (OCCHE) on organizations that have made public commitments to report emissions through the White House/HHS Health Sector Climate Pledge. State and local reporting requirements were identified using a map of benchmarking policies from the Institute for Market Transformation (IMT, 2023). Data from Health Care Without Harm (HCWH) on organizations that have voluntarily committed to reporting in the United Nations' Race to Zero initiative were included, as well. Reporting is not limited to hospitals, so data were collected on all facility types from the sources described above. These data were then filtered and summated in RStudio for each dataset individually, de-duplicated, and then added together to estimate the total number of hospitals publicly reporting.

GHGRP, NEI, and state and local datasets included data on facilities of different property types. Some data sources used North American Industry Classification System (NAICS) codes to identify property types, and codes beginning with 622 were used to identify hospitals. The NEI dataset, which does not require GHG emissions reporting for all facilities, was also filtered to only include those reporting GHGs. In sources where Portfolio Manager property types were used, the property types "Hospital (General Medical & Surgical)" and "Other—Specialty Hospital" were selected to identify hospitals. A select few data sources did not include either NAICS codes or Portfolio Manager property types. For datasets from Massachusetts, Chula Vista, CA, Brisbane, CA, and Austin, TX, hospitals were identified by searching for building names and owners that included the word "hospital" or "medical center."

The list of organizations, including multi-hospital systems, that have signed on to the White House/HHS Health Sector Climate Pledge was used to find location data for all pledge signee hospitals. Pledge hospitals as of April 2024 were identified by reviewing the websites of each pledge signee. The list of organizations that have signed on to the Race to Zero included only one US organization that was not also a White House/HHS Health Sector Climate Pledge signee. The hospital locations for that organization were identified by reviewing their website.

Location data across all datasets were reviewed and duplicates were systematically removed.

Results

Hospitals Responding to Federal Requirements

At the federal level, there are a few key programs that require reporting of GHG emissions and other emissions by specified facilities, including some hospitals. GHGRP mandates reporting of GHG data and other relevant information from facilities that exceed 25,000 metric tons of CO2 emission per year (EPA, 2024). GHGRP data is available from 2010 through 2022, with approximately 34 hospitals reporting as emission sources for the year 2022 (EPA, 2022). NEI provides air pollutant emissions estimates for point sources (including health care facilities), nonpoint sources, onroad sources, nonroad sources, and fire sources (EPA, 2023b). The EPA Air Emissions Reporting Rule specifies the emissions reporting thresholds for state and local air agencies that classify certain facilities as point sources (EPA, 2008). NEI data on point sources has been published every three years from 2008 to 2020. Point source data on 364 hospitals not already identified in the GHGRP dataset were identified in the 2020 NEI dataset (EPA, 2020).

In 2021, President Biden signed EO 14057, which aims to achieve a 100 percent carbon pollution-free electricity

sector by 2035 and net-zero emissions across the economy by 2050. The Executive Order outlines government-wide goals to achieve these targets, including a net-zero emissions building portfolio by 2035 and reducing Scope 1 and Scope 2 GHG emissions by 65 percent by 2030, relative to 2008 levels. Additionally, agencies set specific targets to reach the goals set forth in the Executive Order, and report annually on their progress toward these targets (EOP, 2021). Among the entities affected by this order, there are 222 federal hospitals, including those within the DHA, the IHS, and the VHA that were not already identified in any other dataset in this analysis (DHA, 2024; IHS, 2023; VA, 2024).

Hospitals Responding to State and Local Requirements

Currently, four states—Massachusetts, California, Washington, and Oregon—and the District of Columbia require certain buildings to annually report GHG emissions and/or energy use and make this data publicly available. Four additional states— New Jersey, Maryland, Minnesota, and Colorado—have implemented state-wide benchmarking programs, although they have not shared data from facilities covered by these programs. Among the states with publicly reported emissions and energy use data, 228 hospitals that were not already identified in the GHGRP, NEI, and federal hospital datasets were identified in the most recent year of data shared by each state.

At the local (e.g., city) level, 46 benchmarking policies across 17 states have been identified. Of these, 29 localities make annual GHG emissions and/or energy use data publicly available. Altogether, 171 hospitals that were not already identified in the GHGRP, NEI, federal hospital, and state-level datasets were identified in the most recent year of data shared by these localities.

Voluntary Commitments

Signees of the White House/HHS Health Sector Climate Pledge commit to publicly accounting for annual progress on organizational emissions reduction. Many organizations that have signed the pledge publicly share emissions data through other reporting requirements detailed in this analysis, but not all pledge signee hospitals fall under those requirements, so their data should be shared on a voluntary basis. As of April 2024, 139 organizations, representing 943 hospitals, had signed the pledge (HHS OCCHE, 2024). This number includes 756 hospitals that were not already identified in any other dataset in this analysis.

The Race to Zero is a global United Nations campaign that aims to reduce global emissions by 50 percent by 2030 and member organizations commit to publicly reporting annual progress on emissions reduction targets. According to HCWH, the health care partner for the Race to Zero, over 60 health care organizations, representing 14,000 hospitals and health centers across 26 countries are members of the Race to Zero (HCWH, n.d.). There are nine US health care organizations, including three hospitals that were not already identified in any other dataset in this analysis, participating in this campaign.

Current Totals

Based on the data collected above, an estimated 1,778 hospitals (or 29 percent of all hospitals) across the United States are required to or are voluntarily committed to publicly report GHG emissions and/or energy use data. All reporting programs and the number of hospitals reporting under each program are further outlined in *Tables 1–3*.

Future Requirements

The US Securities and Exchange Commission (SEC) released a final rule in March 2024 called "The Enhancement and Standardization of Climate-Related Disclosures for Investors," that will require some publicly traded companies in the United States to report annual GHG emissions and to report on risks their company faces due to climate change and risks created by the company's contributions to climate change (SEC, 2022). Under the rule, large-accelerated filers and accelerated filers will be required to report their Scope 1 and Scope 2 emissions if their emissions are material (SEC, 2024). According to Senay and colleagues (2023), 26 percent of US hospitals are owned by for-profit health care organizations and may be affected by the rule. A proposed amendment to the Federal Acquisition Regulation would also require certain federal contractors to set science-based targets to reduce their GHG emissions and disclose their GHG emissions and climate-related financial risk (87 FR 68312) (DOD, GSA, and NASA, 2022). If finalized, this regulation could further increase public reporting among health care organizations to the degree they are suppliers to the US government.

Some states and localities have recently introduced reporting policies that have only just begun or have not yet taken effect but could have substantial impacts on the number of hospitals required to publicly report annual data. These include Maryland, Minnesota, Washington, Detroit, MI, Madison, WI, and Honolulu, HI. States and localities that only began reporting programs in 2023 (and therefore did not have reporting data publicly available when this analysis was conducted) include New Jersey, Miami, FL, and Oak Park, IL. In 2023, California also passed into law

TABLE 1 | Emissions Reporting Requirement Types

Type	Total programs	Total programs with publicly available reporting data	Total deduplicated hospitals
Federal	4	3	620
State	13	5	228
Local	46	29	171
Voluntary	2	2	759
Totals	65	39	1,778

SOURCE: Developed by authors.

SB-253 and SB-261, which will create more rigorous state-level reporting requirements. CA SB-253 will require that, beginning in 2026, all US companies with annual revenues over $1 billion that do business in California must report, receive third-party verification, and publicly share emissions data (Wiener et al., 2023). CA SB-261 will require that, beginning in 2026, all US companies with annual revenues over $500 million that do business in California must create a climate-related financial risk report that includes information on climate-related financial risk created by the company and actions being taken to decrease or adapt to climate-related financial risk, which will create more rigorous state-level reporting requirements (Stern et al., 2023).

When all the pending regulations and legislation noted here go into effect, it is expected that the total number of additional hospitals in the country that will be publicly reporting will increase significantly.

Discussion

This is the first analysis to comprehensively capture all the hospitals in the United States that are either currently required to publicly disclose their GHG emissions or have voluntarily committed to doing so at present. As stated previously, estimating, tracking, and disclosing health care sector GHG emissions are essential first steps to ultimately reducing the sector's significant emissions.

The estimate of 29 percent of the nation's hospitals is significant, especially considering that evidence suggests social norms can be altered by a large minority (Centola et al., 2018; Xie et al., 2011). Furthermore, the number of hospitals reporting will decidedly increase with the additional number of federal, state, and local emission disclosure programs that are soon starting and are therefore not included in this estimate. As an increasing proportion of the nation's health care system gains knowledge and experience in tracking its GHG emissions, its ability to take actions to reduce them will also grow. The gains in knowledge and experience will also facilitate the spread of emissions tracking and reporting to other parts of the sector not currently required or committed to report.

There are a number of limitations to this initial analysis. While efforts were made to locate all hospitals in the United States that are reporting emissions or energy use data, documentation of these programs is not uniform, so it is possible that some hospitals were missed in this analysis. It is also likely that some duplicates were not removed due to human error in the de-duplication process. Moreover, misclassification of facility property types as hospitals and differences in the most recent year of data available among programs may have contributed error in the estimated number of hospitals reporting. Public reporting by hospitals under voluntary initiatives was not verified, although the health systems they fall under have publicly stated their commitment to doing so. It is also worth noting that even hospitals that fall under public reporting mandates could opt for the non-compliance penalties rather than report their emissions. However, most programs still publicly document non-compliance in their datasets. With these considerations in mind, it is important to emphasize that this number is solely an initial estimate, and further research will hopefully develop more definitive information.

This analysis is only focused on US hospitals. While hospital energy intensity is generally greater than other health care providing facilities, a more complete study would include other provider types. Furthermore, this analysis is mostly limited to reporting of direct and purchased emissions (Scopes 1 and 2), but the majority of emissions in the sector comes from Scope 3 emissions. Further studies are required to estimate the current reporting activities of stakeholders in the value chain.

The estimate that 29 percent of US hospitals are required to or are voluntarily publicly reporting their GHG emissions, coupled with multiple relevant pending regulations and legislation, suggests important progress toward transparency and accountability regarding GHG emissions within the health care sector. While the goal of reducing the impacts of climate change requires not just reporting but also sharp reduction of GHG emissions, this analysis has documented that a large minority of hospitals in the United States are committed to taking these first steps. While more urgency is needed, these efforts are meaningful, and facilities' efforts to increase sustainability should be further fueled by financial resources made available by the Biden administration's Inflation Reduction Act, as well as tools and technical assistance from federal agencies and private entities. The authors recommend that future work focus on interventions that will increase disclosures of GHG emissions within the US health sector and accelerate action on decarbonization.

TABLE 2 | Emissions Reporting Programs (Public Data Available)

Reporting program name	Reporting level	State	Locality	Data Source	Data Year	Hospitals	Description
EPA Greenhouse Gas Reporting Program (GHGRP)	Federal	N/A	N/A	(EPA, 2022)	2022	34	GHGRP mandates reporting of GHG data and other relevant information from large GHG emission sources, fuel and industrial gas suppliers, and carbon dioxide equivalent (CO_2e) injection sites in the United States. Large GHG emission sources include facilities that exceed 25,000 metric tons of CO_2e emissions per year (EPA, 2009; EPA, 2024).
EPA National Emissions Inventory (NEI)	Federal	N/A	N/A	(EPA, 2020)	2020	364	NEI provides air pollutant emissions estimates for point sources, nonpoint sources, onroad sources, nonroad sources, and fire sources. The EPA Air Emissions Reporting Rule specifies the emissions reporting thresholds for state and local air agencies that classify certain facilities as point sources. NEI data on point sources is published every three years (EPA, 2008; EPA, 2023b).
Executive Order 14057: Executive Order on Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability	Federal	N/A	N/A	(DHA, 2024; IHS, 2023; VA, 2024)	2023 and 2024	222	In 2021, President Biden signed Executive Order 14057, which aims to achieve a 100% carbon pollution-free electricity sector by 2035 and net-zero emissions economy-wide by 2050. Government-wide goals to meet these targets are outlined in the Executive Order and include a net-zero emissions building portfolio by 2035 and a 65% reduction in Scope 1 and Scope 2 GHG emissions by 2030 from 2008 levels. Additionally, agencies must create targets to reach the goals set forth in the Executive Order and report annual progress toward meeting the set targets (EOP, 2021).
The Massachusetts Department of Environmental Protection (MassDEP) Greenhouse Gas Emissions Reporting Program	State	MA	N/A	(MassDEP, 2022)	2021	23	MassDEP enacted 310 CMR 7.00: Air Pollution Control, which requires GHG reporting by facilities that emit more than 5,000 short tons per year of CO_2e or facilities required to report air emissions data to MassDEP under the Clean Air Act (MassDEP, 2024a; MassDEP, 2024b).

Continued

Reporting program name	Reporting level	State	Locality	Data Source	Data Year	Hospitals	Description
DC's Benchmarking Program and DC's Building Energy Performance Standard	State	DC	N/A	District of Columbia DOEE, 2023)	2022	11	Under DC's Clean and Affordable Energy Act of 2008 (DC Law 17-250), buildings 25,000 sq. ft. and larger are required to report energy and water benchmarking data annually using Portfolio Manager. The CleanEnergy DC Omnibus Amendment Act of 2018 (DC Law 22-257) expanded this program so that, beginning in 2025, all privately-owned buildings over 10,000 sq. ft. will be required to benchmark. Additionally, the CleanEnergy DC Omnibus Amendment Act of 2018 established a building energy performance standard program for privately-owned buildings 50,000 sq. ft. and larger and municipal buildings 10,000 sq. ft. and larger in an effort to help reach citywide commitments to reduce GHG emissions by 50% by 2032 and carbon neutrality by 2050 (Council of the District of Columbia, 2008; Council of the District of Columbia 2019; District of Columbia DOEE, n.d.a; District of Columbia DOEE, n.d.b.).
California's Building Energy Benchmarking Program	State	CA	N/A	(California Energy Commission, 2024b)	2022	186	The California Regulations Implementing Building Energy Use Data Access, Benchmarking, and Public Disclosure Procedures of Assembly Bill 802 require that commercial buildings larger than 50,000 sq. ft. and multifamily buildings larger than 50,000 sq. ft. and with 17 or more utility accounts annually report energy use data to the California Energy Commission (California Energy Commission, 2024a; Williams, 2015).
Washington's Greenhouse Gas Reporting Program	State	WA	N/A	(Washington State Department of Ecology, 2024)	2022	1	Under Washington's Title 173-441 WAC, facilities that emit 10,000 metric tons of carbon dioxide equivalent (MT CO2e) or more per year are required to annually report their greenhouse gas emissions. In addition to tracking emissions, business that emit over 25,000 MT CO2e of covered emissions must comply with Washington's cap-and-invest program, which aims to reduce Washington's GHG emissions to 45% below 1990 levels by 2030, 70% below 1990 levels by 2040, and 95% below 1990 levels and net-zero carbon emissions by 2050 (Washington State Department of Ecology, n.d.; Washington State Legislature, 2024a; Washington State Legislature, 2022a).
Oregon's Greenhouse Gas Reporting Program	State	OR	N/A	(Oregon DEQ, 2023)	2022	7	According to Oregon's Greenhouse Gas Reporting Rule (OAR 340-215), facilities with air quality permits that have GHG emissions greater than or equal to 2,500 MT CO2e must annually report GHG emissions to the Oregon Department of Environmental Quality (Oregon DEQ, 2024; Oregon DEQ, n.d.).

Continued

Reporting program name	Reporting level	State	Locality	Data Source	Data Year	Hospitals	Description
Boston, MA's Building Emissions Reduction and Disclosure Ordinance (BERDO)	Local	MA	Boston	(City of Boston, 2023b)	2023	21	In Boston, MA, BERDO requires that non-residential buildings 20,000 sq. ft. or larger, residential buildings with 15 or more units, and tax parcels with multiples buildings that are 20,000 sq. ft. or larger or have at least 15 residential units annually report energy and water use. The emissions standards set by BERDO aim to decrease emissions over time to reach net-zero in all covered buildings by 2050 (City of Boston, 2024; City of Boston, 2023a).
Cambridge MA's Building Energy Use Disclosure Ordinance (BEUDO)	Local	MA	Cambridge	(Cambridge Community Development Department, 2024)	2022	1	BEUDO requires that parcels with one or more non-residential buildings 25,000 sq. ft. or larger, parcels with one or more residential buildings with 50 or more units, and municipal buildings 10,000 sq. ft. or larger annually report energy and water use data to the Cambridge Community Development Department. Amendments to BUEDO made in 2023 require that buildings 100,000 sq. ft. or larger reach net-zero emissions by 2035 and buildings between 25,000 sq. ft. and 99,999 sq. ft. reach net-zero emissions by 2050 (Cambridge Community Development Department, n.d.; City of Cambridge, 2023).
Atlanta, GA's Commercial Building Energy Efficiency Program	Local	GA	Atlanta	(Atlanta Office of Sustainability and Resilience, 2023)	2022	1	Under the Commercial Building Energy Efficiency Program, city properties and non-city properties 25,000 sq. ft. and larger are required to report their utility data. The City of Atlanta must make public benchmarking data for all city properties and for non-city properties that have an energy performance equal to or better than an EPA ENERGY STAR Score of 55 (City of Atlanta, 2024).
Bloomington, MN's Large Building Benchmarking Program	Local	MN	Bloomington	(Hennepin County, Minnesota, 2024)	2022	0	Under § 10.6 of the Bloomington, MN Code of Ordinances all buildings 75,000 sq. ft. and larger must annually report energy use data (City of Bloomington Minnesota, 2024a; City of Bloomington Minnesota, 2024b).
Chicago, IL's Energy Benchmarking Program	Local	IL	Chicago	(City of Chicago, 2024a)	2022	6	The Chicago Energy Benchmarking Ordinance was passed in 2013 and requires that buildings 50,000 sq. ft. or larger and properties with buildings that have a combined square footage of 50,000 or larger report energy use data to the City of Chicago (City of Chicago, 2024b; City of Chicago, 2013).
Columbus, OH's Energy & Water Benchmarking and Transparency Ordinance	Local	OH	Columbus	(City of Columbus, 2024a)	2022	10	Under Chapter 4117 of the Columbus, Ohio Code of Ordinances, city properties larger than 25,000 sq. ft. and non-city properties larger than 50,000 sq. ft. are required to annually report energy and water use to the City of Columbus (CIty of Columbus, 2024b; City of Columbus, 2024c).

Continued

Reporting program name	Reporting level	State	Locality	Data Source	Data Year	Hospitals	Description
Austin, TX's Energy Conservation Audit and Disclosure Ordinance	Local	TX	Austin	(City of Austin, 2018)	2017	3	Under § 6-7-31 of the Austin, TX Code of Ordinances, buildings larger than 10,000 sq. ft. that receive electric service from the Austin Electric Utility must annually report energy use ratings to the director of the Austin Electric Utility (Austin Energy, 2024; City of Austin, 2024).
Boulder, CO's Building Performance Ordinance Program	Local	CO	Boulder	(City of Boulder, 2024a)	2022	2	Under Ordinance No. 8071 of the Boulder, CO Municipal Code, owners of buildings 20,000 sq. ft. or larger and city-owned buildings 5,000 sq. ft. or larger are required to annually report energy use data to the City of Boulder, CO (City of Boulder, 2024b; City of Boulder, 2024c).
Energize Denver	Local	CO	Denver	(City and County of Denver, 2024b)	2022	13	According to Ordinance 20211310, the owners of commercial, multifamily, and city-owned buildings 25,000 sq. ft. or greater must annually report energy use data, including GHG emissions. Energize Denver aims to reduce GHG emissions from commercial and multifamily buildings by 80% by 2040 (City and County of Denver, 2021; City and County of Denver, 2024a).
Berkeley, CA's Annual Energy Benchmarking Program	Local	CA	Chula Vista	(City of Chula Vista, 2024)	2022	0	According to Ordinance No. 3498 of the Chula Vista, CA Municipal Code, owners of commercial and multifamily buildings 20,000 sq. ft. or larger are required to annually report energy use data to the City of Chula Vista's Office of Sustainability Conservation Section. Buildings that do not meet high performance standards must show improvement in energy performance as outlined in the ordinance (City of Chula Vista, 2022; City of Chula Vista, n.d.).
Edina MN's Efficient Buildings Ordinance	Local	MN	Edina	(Hennepin County Minnesota, 2024)	2022	2	According to the Section 20-625 of the City of Edina Code of Ordinances, all city-owned buildings or group of buildings on the same tax lot, containing 25,000 or more gross square feet of an occupancy use other than industrial are required to annually report energy and water use data, including GHG emissions, using Portfolio Manager (City of Edina, 2024; City of Edina, n.d.).
Evanston IL's Benchmarking Ordinance	Local	IL	Evanston	(City of Evanston, 2021)	2019	0	According to the City of Evanston's Energy and Water Benchmarking Ordinance (33-0-16), all commercial buildings with a gross floor area of 20,000 sq. ft. or greater and municipal buildings with a gross floor area of 10,000 sq. ft. or greater are required to annually report energy and water use data using Portfolio Manager (City of Evanston, 2024; City of Evanston, n.d.).
Fort Collins, CO's Building Energy and Water Scoring Program	Local	CO	Fort Collins	(City of Fort Collins, 2024a)	2022	0	According to the Section 12-201 of Fort Collins's Municipal Code, all commercial and multifamily buildings 5,000 sq. ft. or larger but less than 50,000 sq. ft. are required to annually report energy and water use data using Portfolio Manager (City of Fort Collins, 2024b; City of Fort Collins, n.d.).

Continued

Reporting program name	Reporting level	State	Locality	Data Source	Data Year	Hospitals	Description
Kansas City, MO's Energy and Water Benchmarking Program	Local	MO	Kansas City	(Kansas City, 2022a; Kansas City, 2022b)	2021	2	According to Chapter 17 of Kansas City's Code of Ordinances, buildings 50,000 sq. ft. or larger and any municipal buildings 10,000 sq. ft. or larger are required to annually report energy and water use data using Portfolio Manager (Kansas City, 2024; Kansas City, n.d.).
Lexington MA's Building Energy Use Disclosure	Local	MA	Lexington	(Town of Lexington, 2024b)	2022	0	According to Chapter 20 of the Code of the Town of Lexington, buildings 25,000 sq. ft. or larger and any town-owned buildings are required to annually report energy and water use data, including GHG emissions using Portfolio Manager. The Town of Lexington is striving to achieve net-zero emissions by 2050 or earlier (Town of Lexington, 2024a; Town of Lexington, n.d.).
Los Angeles, CA's Existing Buildings Energy & Water Efficiency Program	Local	CA	Los Angeles	(City of Los Angeles, 2024b)	2022	5	In the City of Los Angeles, Ordinance 184674, requires that buildings owned by the City of Los Angeles that are 7,500 sq. ft. or larger, privately-owned buildings 20,000 sq. ft. or larger, and any buildings 20,000 sq. ft. or larger owned by a local agency of the state annually report energy and water use data using the Portfolio Manager. This ordinance establishes the Existing Buildings Energy and Water Efficiency Program which is one program within the Los Angeles Green Building Code (City of Los Angeles, 2024a; City of Los Angeles, 2024c).
Minneapolis, MN's Energy Benchmarking Program	Local	MN	Minneapolis	(City of Minneapolis, 2024c; City of Minneapolis, 2024d)	2022	0	Under Section 47.190 of Minneapolis's Code of Ordinances, commercial and multifamily buildings 50,000 sq. ft. or larger and city-owned buildings 25,000 sq. ft. or larger are required to annually report energy and water use data, including GHG emissions, using Portfolio Manager (City of Minneapolis, 2024a; City of Minneapolis, 2024b).
Montgomery County, MD's Benchmarking Law	Local	MD	Montgomery	(Montgomery County, 2024b)	2022	5	The Montgomery County, Maryland City Council's Bill 16-21 requires that commercial buildings and multifamily buildings 25,000 sq. ft. or larger annually report energy data for all fuels including but not limited to electric, gas, steam, chilled water, generator power, and solar using Portfolio Manager. This bill is intended to help Montgomery County achieve its climate action goal of zero greenhouse gas emissions by 2035 (Montgomery County, 2024a; Montgomery County, 2024c).

Continued

Reporting program name	Reporting level	State	Locality	Data Source	Data Year	Hospitals	Description
New York, NY's Benchmarking and Energy Efficiency Rating Program	Local	NY	New York	(City of New York, 2022)	2021	71	According to Local Law 84 of 2009 and as amended by Local Law 133 of 2016 of the City of New York, city buildings that are 10,000 sq. ft. or larger, all other buildings larger than 50,000 sq. ft., two or more buildings on the same tax lot that combined are larger than 100,000 sq. ft., or two or more condominium buildings that are governed by the same board of managers that combined are larger than 100,000 sq. ft. are required to annually report energy and water use data using Portfolio Manager (City of New York, 2024a; City of New York, 2024b).
Orlando FL's Building Energy & Water Efficiency Strategy	Local	FL	Orlando	(City of Orlando, 2024a)	2023	0	Under Section 15 of the City of Orlando's Code of Ordinances, city-owned buildings that are larger than 10,000 sq. ft., commercial or multifamily buildings larger than 50,000 sq. ft., and two or more condominium buildings that are governed by the same board of managers that combined are larger than 50,000 sq. ft. are required to annually report energy and water use, including GHG, data using Portfolio Manager. These requirements are identified in the Orlando's Building Energy and Water Efficiency Strategy which is a key strategy identified in the Green Works Orlando Community Action Plan (City of Orlando, 2024b; City of Orlando, 2024c).
Portland ME's Energy Benchmarking Program	Local	ME	Portland	(City of Portland, ME, n.d.b)	2022	2	According to Chapter 6 of the City of Portland's Code of Ordinances, non-residential buildings that are 20,000 sq. ft. or larger, and residential buildings that singly or together contain 50 or more residential dwelling units are required to annually report energy and water use, including GHG emissions, data using Portfolio Manager (City of Portland, ME, n.d.a; City of Portland, ME, 2016).
Portland, OR's Commercial Building Energy Reporting Program	Local	OR	Portland	(City of Portland, OR, 2020)	2019	4	Under the City of Portland's Ordinance No. 187095, commercial buildings that are 20,000 sq. ft. or larger are required to annually report energy and water use, including GHG emissions, data using the Portfolio Manager. The goal of Portland's Commercial Building Energy Reporting is to reduce energy costs and carbon emissions in accordance with the city's 2009 Climate Action Plan (City of Portland, OR, 2024a; City of Portland, OR, 2024b).
Reno NV's Energy and Water Efficiency Program	Local	NV	Reno	(City of Reno, 2023)	2022	0	According to Chapter 14.30 of the City of Reno's Administrative Code, mandatory city properties that are 10,000 sq. ft. or larger and any agency properties and private sector properties 30,000 sq. ft. or larger are required to annually report energy and water use, including GHG emissions, data using Portfolio Manager. This is part of the City of Reno's commitment to reduce GHG emissions 28% by 2025 and 40% by 2030 to combat climate change and move to a low emission resilient society through its commitment to the Global Covenant of Mayors on Energy and Climate (City of Reno, 2024; City of Reno, n.d.).

Continued

Reporting program name	Reporting level	State	Locality	Data Source	Data Year	Hospitals	Description
San Francisco, CA's Existing Buildings Energy Ordinance	Local	CA	San Francisco	(San Francisco Environment Department, 2024)	2022	3	Chapter 20 of San Francisco's Environment Code requires that non-residential buildings 10,000 sq. ft. or larger and residential and mixed-use buildings 50,000 sq. ft. or larger annually report energy and water use, including carbon dioxide equivalent emissions, data using the Portfolio Manager. San Francisco's goal is to achieve zero GHG emissions from large buildings by 2035 (City of San Francisco, 2024; San Francisco Environment Department, n.d.).
Seattle, WA's Energy Benchmarking Program	Local	WA	Seattle	(Office of Sustainability & Environment, 2024)	2021	14	Under Chapter 22.920 of Seattle's Municipal Code, non-residential and multifamily buildings 20,000 sq. ft. or larger are required to annually report energy and water use data using the Portfolio Manager. Under Seattle's 2018 updated Climate Action Plan, Seattle is committed to eliminating climate pollution and transitioning to 100% clean energy in its buildings and vehicles by 2050 (City of Seattle, 2024; Office of Sustainability & Environment, n.d.).
St. Louis, MO's Building Energy Awareness Ordinance	Local	MO	St. Louis	(City of St. Louis, 2023)	2021	5	Ordinance number 70474 of the City of St. Louis requires that privately-owned buildings and municipal buildings 50,000 sq. ft. or larger annually report energy and water use, including direct and indirect GHG emissions, data using Portfolio Manager. This ordinance was passed in 2017 as one of the programs that would result in energy efficiency identified by the City of St. Louis Sustainability Plan (City of St. Louis, 2024; City of St. Louis, 2017).
St. Louis Park, MN's Efficient Building Benchmarking Ordinance	Local	MN	St. Louis Park	(Hennepin County Minnesota, 2024)	2022	0	Under Section 6-301 of the St. Louis Park City Code, all commercial, multifamily, and public buildings 25,000 sq. ft. or larger are required to annually report energy and water use data using Portfolio Manager. This ordinance was created to help reach the St. Louis Park Climate Action Plan goal of reducing citywide carbon emissions by 55% by 2030, and to reach net-zero emissions by 2040 (St. Louis Park City, 2021; St. Louis Park City, n.d.).
Energize Saint Paul	Local	MN	Saint Paul	(Hennepin County Minnesota, 2024)	2022	0	According to Ordinance 19-81 of the City of St. Paul, all commercial and multifamily buildings 50,000 sq. ft. or larger and city-owned buildings 25,000 sq. ft. or larger are required to annually report energy and water use data using Portfolio Manager. This is part of the City of St. Paul's commitment to the Global Covenant of Mayors on Energy and Climate and the City's adopted goal of reaching carbon neutrality in building energy use by 2050 (City of St. Paul, 2024; City of St. Paul, n.d.).

Continued

Reporting program name	Reporting level	State	Locality	Data Source	Data Year	Hospitals	Description
The White House/ HHS Health Sector Climate Pledge	Voluntary	N/A	N/A	N/A	2024	756	Pledge signers commit to: (1) At minimum, reduce organizational emissions by 50% by 2030 (from a baseline no earlier than 2008) and achieve net-zero by 2050, publicly accounting for progress on this goal every year. (2) Designate an executive-level lead for their work on reducing emissions by 2023 or within six months of signing the pledge and conduct an inventory of Scope 3 (supply chain) emissions by the end of 2024. (3) Develop and release a climate resilience plan for continuous operations by the end of 2023 or within six months of signing the pledge, anticipating the needs of groups in their community that experience disproportionate risk of climate-related harm (HHS OCCHE, 2024).
Race to Zero	Voluntary	N/A	N/A	N/A	N/A	3	Members commit to publicly reporting emissions reduction progress annually with Health Care Without Harm. Race to Zero members also commit to reaching net-zero emissions target by 2050 or sooner and reducing emissions by 50% by 2030 (HCWH, n.d.).

SOURCE: Developed by authors.

TABLE 3 | Emissions Reporting Programs (Public Data Unavailable)

Reporting program name	Reporting level	State	Locality	Description
The Enhancement and Standardization of Climate-Related Disclosures for Investors	Federal	N/A	N/A	The US Securities and Exchange Commission (SEC) released a final rule in March 2024 called "The Enhancement and Standardization of Climate-Related Disclosures for Investors" (89 FR 21668), that will require some publicly traded companies in the United States to report annual GHG emissions and to report on risks their company faces due to climate change and risks created by the company's contributions to climate change (SEC, 2022). Under the rule, large-accelerated filers and accelerated filers will be required to report their Scope 1 and Scope 2 emissions if their emissions are material (SEC, 2024).
California's Climate Corporate Data Accountability Act and Greenhouse Gases: Climate-Related Financial Risk Act	State	CA	N/A	California's Climate Corporate Data Accountability Act (CA SB-253) will require that, beginning in 2026, all US companies with annual revenues over $1 billion that do business in California must report, receive third-party verification, and publicly share emissions data (Wiener et al., 2023). Furthermore, the Greenhouse Gases: Climate-Related Financial Risk Act (CA SB-261) will require that, beginning in 2026, all US companies with annual revenues over $500 million that do business in California must create a climate-related financial risk report that includes information on climate-related financial risk created by the company and actions being taken to decrease or adapt to climate-related financial risk, which will create more rigorous state-level reporting requirements (Stern et al., 2023).
MassHealth Providers RY 2025 Acute Hospital Request for Applications (RFA)	State	MA	N/A	Beginning in 2025, Massachusetts acute hospitals that are members of MassHealth (Massachusetts providers who accept Medicaid and Children's Health Insurance Program (CHIP)) will be required to report their Scope 1 and Scope 2 emissions to MassHealth (Commonwealth of Massachusetts, n.d.; Executive Office of Health and Human Services, 2024).
Maryland's Building Energy Performance Standards	State	MD	N/A	In Maryland, the Climate Solutions Now Act of 2022 was established to reduce GHG emissions in buildings 35,000 sq. ft. or larger. This policy will require that owners of covered buildings submit data on GHG emissions annually beginning in 2025 (Hogan, 2022; Maryland Department of the Environment, n.d.).
New Jersey's Clean Energy Program	State	NJ	N/A	Under the New Jersey Clean Energy Act of 2018, commercial buildings over 25,000 sq. ft. are required to benchmark their energy and water usage annually using Portfolio Manager. Reporting under this program began in 2023 and there is not currently publicly available data (New Jersey Legislature, 2018; NJCEP, n.d.).
Minnesota's Building Energy Use Benchmarking Program	State	MN	N/A	Under Section 34. of Chapter 60--H.F.No. 2310 of Minnesota's 2023 Regular Session Laws, Minnesota properties 100,000 sq. ft. and larger are required to benchmark energy use data beginning in 2025 and properties larger than 50,000 sq. ft. are required to start benchmarking energy use data in 2026. Benchmarking under this policy applies to buildings located in Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington Counties, or in cities with over 50,000 residents and one or more buildings larger than 50,000 sq. ft (Minnesota Department of Commerce, 2024; Minnesota Legislature, 2023).
Colorado's Building Performance Program	State	CO	N/A	The Colorado Energy Performance for Buildings statute (HB21-1286) requires that buildings larger than 50,000 sq. ft. report energy use data annually. Under this policy, buildings must reduce energy consumption to meet specified weather-normalized site EUI goals based on property type. This statute is part of an effort to reduce sector-wide emissions by 20% by 2030 from 2021 levels. Reported facility data for this program is not currently publicly available (Colorado Energy Office, 2024; Colorado General Assembly, 2021).
Washington's Clean Buildings Performance Standard	State	WA	N/A	Washington is beginning the Clean Buildings Performance Standard for reporting by buildings larger than 20,000 sq. ft. Tier 1 covered buildings include commercial buildings larger than 50,000 sq. ft. Tier 1 buildings will be required to benchmark energy use, create an energy management plan, and meet an energy performance metric by either meeting an EUI target based on a building type average or by performing an energy audit and installing cost-effective efficiency measures. Tier 2 covered buildings include commercial buildings larger than 20,000 sq. ft. and multifamily buildings 50,000 sq. ft. or larger. Tier 2 buildings must benchmark energy use and create an energy management plan. Tier 1 reporting will begin in 2026 on a phased in schedule and tier 2 reporting will begin in 2027 (Washington Department of Commerce, 2024; Washington State Legislature, 2022b).

Continued

Reporting program name	Reporting level	State	Locality	Description
Washington's Medicaid Quality Incentive	State	WA	N/A	For Washington hospitals, there is an incentive for Prospective Payment System hospitals to earn up to a 1% increase in inpatient Medicaid payments for reporting on certain Medicaid Quality Incentive measures. In 2023, this included reporting a measure of hospital GHG emissions (Washington State Hospital Association, n.d.; Washington State Legislature, 2024b).
Chelsea, MA's Building Emissions Reduction and Disclosure Ordinance (BERDO)	Local	MA	Chelsea	BERDO requires that residential and non-residential buildings 20,000 sq. ft. or larger, residential buildings with 20 or more units, and all Chelsea Housing Authority buildings to annually report energy use data to the City of Chelsea, MA. Data under this policy is not currently publicly available (City of Chelsea, 2023; City of Chelsea, n.d.).
Ann Arbor, MI's Energy and Water Benchmarking and Disclosure Ordinance	Local	MI	Ann Arbor	Under the Energy and Water Benchmarking and Disclosure Ordinance (ORD-21-30) city properties 10,000 sq. ft. or larger are required to annually report energy and water use beginning in 2021. In 2022, this requirement expanded to include all non-city properties 100,000 sq. ft. or larger, and in 2023, it expanded again to include all non-city properties 50,000 sq. ft. or larger. In 2024, the ordinance will cover all city properties 10,000 sq. ft. or larger and all non-city properties 20,000 sq. ft. or larger. Data under this policy is not currently publicly available (City of Ann Arbor, 2024; City of Ann Arbor, 2021).
Aspen, CO's Building IQ	Local	CO	Aspen	Ordinance No. 5 of the Aspen, CO Municipal Code was passed in 2022 and requires that city-owned properties and commercial properties 15,000 sq. ft. or larger annually report energy and water use data, including total GHG emissions. Beginning in 2024, commercial properties 10,000 sq. ft. and larger and multifamily properties 20,000 sq. ft. and larger will also be required to report. By 2025, commercial properties 5,000 sq. ft. and larger and multifamily properties 15,000 sq. ft. and larger will be required to report. This program is part of an Aspen, CO initiative to reduce GHG emissions to zero by 2050. Data under this policy is not currently publicly available (City of Aspen, 2024; City of Aspen, n.d.).
Brisbane, CA's Building Efficiency Program	Local	CA	Brisbane	Under Chapter 15.77 of the Brisbane, CA Municipal Code, owners of commercial buildings 10,000 sq. ft. and larger and city-owned buildings 10,000 sq. ft. and larger are required to annually report energy and water use data using Portfolio Manager to the City of Brisbane's Department of Public Works. Buildings that do not meet energy and water performance standards, actions must be taken to improve performance. Data for this program is not currently publicly available (City of Brisbane, 2024; City of Brisbane, n.d.).
Detroit MI's Benchmarking Ordinance	Local	MI	Detroit	The Detroit Benchmarking Ordinance requires that owners of commercial and multifamily buildings larger than 100,000 sq. ft. and all municipal buildings report energy and water use data, including GHG emissions, beginning in 2024. Beginning in 2025, commercial and multifamily buildings larger than 25,000 sq. ft. will also be required to report. There is not currently publicly available data under this policy (City of Detroit, 2024; City of Detroit, 2023).
Honolulu, HI's Better Buildings Benchmarking Program	Local	HI	Honolulu	According to Ordinance 22-17 of the City and Council of Honolulu, buildings are required to annually report energy and water use data using Portfolio Manager. Owners of commercial and multifamily buildings 100,000 sq. ft. or larger are required to annually report this data. In 2024, owners of commercial and multifamily buildings 50,000 sq. ft. or larger will be required to report this data, and in 2025 owners of buildings 25,000 sq. ft. or larger must do the same. This ordinance was identified as a step to fulfilling the O'ahu Climate Action Plan (CAP), which aims to reduce GHG emissions by 45% from 2020-2025 and reach carbon neutrality by 2045. Data under this policy is not currently publicly available (City and County of Honolulu, 2024; Office of Climate Change, Sustainability, and Resilience, n.d.).
Des Moines, IA's Benchmarking DSM	Local	IA	Des Moines	The Des Moines, IA Energy and Water Benchmarking Ordinance requires that owners of buildings 25,000 sq. ft. and larger annually report energy and water use data to the City of Des Moines (City of Des Moines, 2024; City of Des Moines, n.d.). Data for this program is available on a map. However, the map appeared to be out of date and information on each individual facility was unable to be accessed.

Continued

Reporting program name	Reporting level	State	Locality	Description
Indianapolis, IN's Benchmarking and Transparency Program	Local	IN	Indianapolis	Under Chapter 710 of the City-County Council of the City of Indianapolis and of Marion County, Indiana, municipal buildings larger than 25,000 sq. ft. and non-city buildings larger than 100,000 sq. ft. are required to annually report energy and water use data using Portfolio Manager. In 2024, non-city buildings larger than 50,000 sq. ft. must also report this data. This ordinance is part of the Indianapolis Thriving Buildings Program which aims to increase community resiliency and sustainability. Data under this policy is not currently publicly available (City of Indianapolis, 2024; Indianapolis Office of Sustainability, n.d.).
Madison WI's Building Energy Savings Program	Local	WI	Madison	According to the Section 29.4 of the Madison General Ordinances, non-residential commercial buildings 25,000 sq. ft. or larger will be required to annually report energy use data using Portfolio Manager. Owners of buildings larger than 100,000 sq. ft. will begin reporting in 2024, buildings 50,000 sq. ft. to 99,999 sq. ft. will begin reporting in 2025, and buildings 25,000 sq. ft. to 49,999 sq. ft. will begin reporting in 2026. This ordinance builds on the Madison Sustainability Plan which was updated in 2017 and calls for the city to reduce overall energy consumption 50% by 2030 in the public and private sectors, and to achieve 100% renewable energy and net-zero carbon emissions for city operations by 2030 and community-wide by 2050 (City of Madison, 2024; City of Madison, n.d.).
Miami, FL's Building Efficiency 305 Benchmarking Program	Local	FL	Miami	Section 10-147 of the City of Miami Code of Ordinances describes Miami's Building Efficiency 305 Program and states that starting in 2023 municipal buildings are required to annually report energy and water use data using Portfolio Manager. In 2023, municipal buildings larger than 100,000 sq. ft. must report this data. In 2024, buildings larger than 50,000 sq. ft. must report this data. In 2025, buildings larger than 20,000 sq. ft. must report this data. This program is part of Miami Forever Carbon Neutral which is a roadmap to achieve carbon neutrality by 2050. Data under this policy is not currently publicly available (City of Miami, 2024; City of Miami, n.d.).
New York, NY's Greenhouse Gas Emissions Reporting Program	Local	NY	New York	In New York City, NY, Local Law 97 of 2019 requires that owners of buildings larger than 25,000 sq. ft., two or more buildings on the same tax lot that combined are larger than 50,000 sq. ft., or two or more condominium buildings that are governed by the same board of managers that combined are larger than 50,000 sq. ft. annually submit a GHG emissions report showing that the building is in compliance with annual GHG emissions limits (City of New York, 2024c; City of New York, n.d.).
Oak Park IL's Building Benchmarking Program	Local	IL	Oak Park	According to Article 14 of the Oak Park, IL Code of Ordinances, buildings 10,000 sq. ft. or larger are required to annually report energy and water use data, including GHG, using Portfolio Manager beginning in 2023. This is part of Oak Park's Climate Ready Oak Park which includes commitments of decreasing community-wide GHG emissions by 60% by 2030 and achieving community-wide net-zero GHG emissions by 2050 among others. Oak Park, IL energy and water use benchmarking data is expected to be made publicly available (Village of Oak Park, 2024; Village of Oak Park, n.d.).
Philadelphia, PA's Building Energy Performance Program	Local	PA	Philadelphia	According to Regulation 9-3402 of the Philadelphia Code, buildings that are 50,000 sq. ft. or larger, and any building participating in the Commercial Property Assessed Clean Energy (C-PACE) program are required to annually report energy and water use data using the Portfolio Manager. The Philadelphia, PA energy and water use benchmarking data source was down as of 2/27/2024, although benchmarking reports that analyze energy use data based on building type are available (City of Philadelphia, 2024; City of Philadelphia, 2021).
Pittsburgh, PA's Building Benchmarking Program	Local	PA	Pittsburgh	Under Section 629 of the City of Pittsburgh's Code of Ordinances, non-residential buildings that are 50,000 sq. ft. or larger, and non-residential portions of mixed-use buildings where 50,000 sq. ft. or more of indoor floor space is devoted to any non-residential use are required to annually report energy and water use data using Portfolio Manager. Building benchmarking is part of Pittsburgh's OnePGH resilience strategy which includes the City of Pittsburgh's goals of 50% energy use reduction, 50% transportation emission reduction, and becoming zero-waste. Data under this policy is not currently publicly available although a benchmarking report from 2017 that analyzes energy use data based on building type is available and the benchmarking website says that data is coming soon (City of Pittsburgh, 2024; City of Pittsburgh, n.d.).

Continued

Reporting program name	Reporting level	State	Locality	Description
Salt Lake City, UT's Elevate Buildings Program	Local	UT	Salt Lake City	Under Chapter 18.94 of Salt Lake City's Code of Ordinances, all city properties and governed buildings that are 25,000 sq. ft. or larger are required to annually report energy and water use, including GHG emissions, data using Portfolio Manager. This ordinance was shaped from the conclusions drawn by Salt Lake City's Elevate Buildings 2016 initiative. The ordinance requires that a map of all commercial buildings that received an ENERGY STAR score of 50 or above be published, however data for all reporting buildings is not publicly available (Salt Lake City, 2024; Salt Lake City, n.d.).
San Diego, CA's Building Energy Benchmarking Program	Local	CA	San Diego	According to Regulation 1412 of San Diego's Municipal Code, commercial buildings 50,000 sq. ft. or larger and multifamily and mixed-use buildings 50,000 sq. ft. or larger and with 17 or more residential accounts are required to annually report energy and water use, including GHG emissions, data using Portfolio Manager. This policy was implemented to help reach the San Diego CAP goal of reaching community-wide net-zero emissions by 2035. Data under this policy is not currently publicly available (City of San Diego, 2019; City of San Diego, n.d.).
San Jose, CA's Energy and Water Building Performance Ordinance	Local	CA	San Jose	Ordinances 30197 and 30550 of San Jose's Code of Ordinances require that non-residential and multifamily buildings 20,000 sq. ft. or larger annually report energy and water use, including carbon dioxide equivalent emissions due to energy use, data using the Portfolio Manager. This policy aims to help reach the goals of Climate Smart San Jose, which is an initiative with the goal of reaching community-wide carbon neutrality by 2030. The San Jose Beyond Benchmarking Ordinance enacted in 2023 requires that some covered buildings that report poor energy and water efficiency complete an efficiency improvement plan. Data under this policy is not currently publicly available (City of San Jose, 2024; City of San Jose, n.d.).

SOURCE: Developed by authors.

References

1. AHA (American Hospital Association). 2024. *Fast Facts on U.S. Hospitals*, 2024. Available at: https://www.aha.org/statistics/fast-facts-us-hospitals#:~:text=There%20are%206%2C120%20hospitals%20in,hospitals%20in%20the%20United%20States (accessed: June 1, 2024).
2. AHRQ (Agency for Healthcare Research and Quality). 2022. *Reducing Healthcare Carbon Emissions: A Primer on Measures and Actions for Healthcare Organizations to Mitigate Climate Change*. Available at: https://www.ahrq.gov/sites/default/files/wysiwyg/healthsystemsresearch/decarbonization/decarbonization.pdf (accessed June 1, 2024).
3. Atlanta Office of Sustainability and Resilience. 2023. *Atlanta Energy Benchmarking Map*. Available at: https://gis.atlantaga.gov/cbeeo/?data_id=dataSource_1-18a75870a69-layer-6%3A1446 (accessed April 2, 2024).
4. Austin Energy. 2024. *Energy Conservation Audit and Disclosure Ordinance*. Available at: https://austinenergy.com/energy-efficiency/ecad-ordinance#:~:text=The%20Energy%20Conservation%20Audit%20and,located%20within%20Austin%20city%20limits. (accessed January 10, 2024).
5. California Energy Commission. 2024a. *Building Energy Benchmarking Program*. Available at: https://www.energy.ca.gov/programs-and-topics/programs/building-energy-benchmarking-program (accessed January 25, 2024).
6. California Energy Commission. 2024b. *2022_Download_ADA* [Dataset]. Available at: https://www.energy.ca.gov/media/8751 (accessed January 25, 2024).
7. Cambridge Community Development Department. 2024. *Cambridge Building Energy Use Disclosure Ordinance (BEUDO) Data 2015-2022* [Dataset]. Available at: https://data.cambridgema.gov/Energy-and-the-Environment/Cambridge-Building-Energy-Use-Disclosure-Ordinance/72g6-j7aq/about_data (accessed January 26, 2024).
8. Cambridge Community Development Department. n.d. *Building Energy Use Disclosure Ordinance*. Available at: https://www.cambridgema.gov/CDD/zoninganddevelopment/sustainabledevelopment/buildingenergydisclosureordinance (accessed January 26, 2024).
9. Centola, D., J. Becker, D. Brackbill, and A. Baronchelli. 2018. Experimental evidence for tipping points in social convention. *Science* 360(6393):1116-1119. Available at: https://www-science-org.hhsnih.idm.oclc.org/doi/10.1126/science.aas8827 (accessed August 27, 2024).
10. City and County of Denver. 2024a. *Energize Denver Hub – Existing Buildings*. Available at: https://www.denvergov.org/Government/Agencies-Departments-Offices/Agencies-Departments-Offices-Directory/Climate-Action-Sustainability-and-Resiliency/Cutting-Denvers-Carbon-Pollution/High-Performance-Buildings-and-Homes/Energize-Denver-Hub (accessed January 30, 2024).
11. City and County of Denver. 2024b. *Energize Denver 2022 Final Master Dataset* [Dataset]. Available at: https://opendata-geospatialdenver.hub.arcgis.com/datasets/geospatialDenver::energize-denver-2022-final-master-dataset/about (accessed January 30, 2024).
12. City and County of Denver. 2022. *Revised Municipal Code of the City and County of Denver*, Ordinance No. 20211310. Available at: https://denvergov.org/files/assets/public/v/1/climate-action/documents/energize-denver-hub/21-1310_recorded_bill_energize_denver.pdf (accessed January 30, 2024).
13. City and County of Honolulu. 2024. *Better Buildings Benchmarking Program, City and County of Honolulu Code of Ordinances*, Chapter 16C. Available at: https://codelibrary.amlegal.com/codes/honolulu/latest/honolulu/0-0-0-59089 (accessed March 1, 2024).
14. City of Ann Arbor. 2024. *Energy and Water Benchmarking and Disclosure Ordinance*. Available at: https://www.a2gov.org/departments/sustainability/Sustainability-Me/Businesses/Pages/Commercial-Benchmarking.aspx (accessed March 1, 2024).
15. City of Ann Arbor. 2021. *Energy and Water Benchmarking*, Ann Arbor City Code, Chapter 104. Available at: https://www.a2gov.org/departments/city-clerk/Documents/ORD-21-30%20Approval%20Notice.pdf (accessed March 1, 2024).
16. City of Aspen. 2024. *Benchmarking Reporting*, City of Aspen Municipal Code, Sec. 8.60.050. Available at: https://library.municode.com/co/aspen/codes/municipal_code?nodeId=TIT8BUBURE_

CH8.60ENBEREGRGAEM_S8.60.050BERE (accessed March 1, 2024).
17. City of Aspen. n.d. *Building IQ*. Available at: https://aspen.gov/1245/Building-IQ (accessed March 1, 2024).
18. City of Atlanta. 2024. *Energy and Water*, Chapter 2, Article J. Available at: https://library.municode.com/ga/atlanta/codes/code_of_ordinances?nodeId=PTIIICOORANDECO_PT8COHUDE_CH2BURE_ARTJENWA (accessed April 2, 2024).
19. City of Austin. 2024. *Energy Conservation*, City of Austin Code of Ordinances, Chapter 6-7. Available at: https://library.municode.com/tx/austin/codes/code_of_ordinances?nodeId=TIT6ENCOCO_CH6-7ENCO (accessed January 10, 2024).
20. City of Austin. 2018. ECAD 2017 *Commercial Annual Benchmarking (7/25/2018)* [Dataset]. Available at: https://data.austintexas.gov/Utilities-and-City-Services/ECAD-2017-Commercial-Annual-Benchmarking-7-25-2018/rs4a-x7f5/about_data (accessed January 10, 2024).
21. City of Berkeley. 2024a. *Annual Energy Benchmarking*. Available at: https://berkeleyca.gov/construction-development/green-building/building-emissions-saving-ordinance-beso/annual-energy (accessed January 30, 2024).
22. City of Berkeley. 2024b. *BESO Building Energy Data and Compliance Status - 15,000 sqft and Greater* [Dataset]. Available at: https://data.cityofberkeley.info/Energy-and-Environment/BESO-Building-Energy-Data-and-Compliance-Status-15/5vy5-rwja/about_data (accessed January 30, 2024).
23. City of Berkeley. 2024c. *Building Emissions Saving, Berkeley Municipal Code*, Chapter 19.81. Available at: https://berkeley.municipal.codes/BMC/19.81 (accessed January 30, 2024).
24. City of Boston. 2024. *Building Emissions Reduction and Disclosure*. Available at: https://www.boston.gov/departments/environment/berdo#:~:text=Boston%27s%20Building%20Emissions%20Reduction%20and,greenhouse%20gas%20emissions%20over%20time.&text=For%20reporting%20questions%3A,from%209%20a.m.%20%2D%205%20p.m (accessed January 26, 2024).
25. City of Boston. 2023. *Building Emissions Reduction and Disclosure*, City of Boston Municipal Code, Chapter 7-2.2. Available at: https://codelibrary.amlegal.com/codes/boston/latest/boston_ma/0-0-0-15739 (accessed January 26, 2024).
26. City of Boston. 2023b. *2023 Reported Energy and Water Metrics* [Dataset]. Available at: https://data.boston.gov/dataset/building-emissions-reduction-and-disclosure-ordinance/resource/cb9ad2aa-eec6-4726-a308-945a215056d5 (accessed January 26, 2024).
27. City of Boulder. 2024a. *Boulder Building Performance Program Results*. Available at: https://maps.touchstoneiq.com/boulder/ (accessed February 26, 2024).
28. City of Boulder. 2024b. *Building Performance Ordinance*. Available at: https://bouldercolorado.gov/services/building-performance-ordinance (accessed February 26, 2024).
29. City of Boulder. 2024c. *Commercial and Industrial Energy Efficiency*, Boulder, Colorado Municipal Code, Chapter 7.7. Available at: https://library.municode.com/co/boulder/codes/municipal_code?nodeId=TIT10ST_CH7.7COINENEF (accessed February 26, 2024).
30. City of Bloomington Minnesota. 2024a. *Energy Benchmarking*, Bloomington, MN Code of Ordinances, Article 10. Available at: https://codelibrary.amlegal.com/codes/bloomington/latest/bloomington_mn/0-0-0-121657 (accessed January 29, 2024).
31. City of Bloomington Minnesota. 2024b. *Large Building Benchmarking Program*. Available at: https://www.bloomingtonmn.gov/cob/large-building-benchmarking-program (accessed January 29, 2024).
32. City of Brisbane. 2024. *Building Efficiency Program*, City of Brisbane Municipal Code, Chapter 15.77. Available at: https://library.municode.com/ca/brisbane/codes/municipal_code?nodeId=TIT15BUCO_CH15.77BUEFPR (accessed March 1, 2024).
33. City of Brisbane. n.d. *Building Efficiency Program*. Available at: https://www.brisbaneca.org/bbep (accessed March 1, 2024).
34. City of Cambridge. 2023. *Building Energy Use*, Ordinance No. 2021-26. Available at: https://www.cambridgema.gov/-/media/Files/CDD/Climate/2023BEUDOAmendmentsFinal.pdf (accessed January 26, 2024).
35. City of Chelsea. 2023. *Energy Reporting and Disclosure*, City of Chelsea Code of Ordinances, Part II, Sec. 6-34. Available at: https://library.municode.com/ma/chelsea/codes/code_of_ordinances?nodeId=PTIICOOR_CH6BUFIPRRE_

ARTIIBURECO_S6-34ENREDI (accessed March 1, 2024).

36. City of Chelsea. n.d. *Climate Resilience & Sustainability*. Available at: https://www.chelseama.gov/departments/housing_and_community_development/climate_resilience_sustainability.php#:~:text=On%20June%2027%2C%20the%20Chelsea,to%20net%2Dzero%20by%202050 (accessed March 1, 2024).
37. City of Chicago. 2024a. *Chicago Energy Benchmarking* [Dataset]. Available at: https://data.cityofchicago.org/Environment-Sustainable-Development/Chicago-Energy-Benchmarking/xq83-jr8c/about_data (accessed January 29, 2024).
38. City of Chicago. 2024b. *Chicago Energy Benchmarking Homepage*. Available at: https://www.chicago.gov/city/en/progs/env/building-energy-benchmarking---transparency.html (accessed January 22, 2024).
39. City of Chicago. 2013. *Building Energy Use Benchmarking*, Municipal Code of Chicago, Chapter 18-14. Available at: https://www.chicago.gov/content/dam/city/progs/env/EnergyBenchmark/BenchmarkingOrdinance11SEP2013.pdf (accessed January 29, 2024).
40. City of Chula Vista. 2024. *Building Energy Saving Ordinance*. Available at: https://benchmark.chulavistaca.gov/map (accessed January 30, 2024).
41. City of Chula Vista. 2022. *Energy Code*, Chula Vista Municipal Code, Chapter 15.26. Available at: https://chulavista.municipal.codes/CVMC/15.26 (accessed January 30, 2024).
42. City of Chula Vista. n.d. *Building Energy Saving Ordinance*. Available at: https://www.chulavistaca.gov/departments/clean/benchmarking (accessed January 30, 2024).
43. City of Columbus. 2024a. *Energy and Water Benchmarking and Transparency*, Touchstone IQ. Available at: https://maps.touchstoneiq.com/columbus/ (accessed February 26, 2024).
44. City of Columbus. 2024b. *Energy and Water Benchmarking and Transparency Policy*. Available at: https://www.columbus.gov/Services/Public-Utilities/About-Public-Utilities/Office-of-Sustainability/Energy-and-Water-Benchmarking-and-Transparency-Policy (accessed February 26, 2024).
45. City of Columbus. 2024c. *Energy Benchmarking*, City of Columbus Code of Ordinances, Chapter 4117. Available at: https://library.municode.com/oh/columbus/codes/code_of_ordinances?nodeId=TIT41BUCO_CH4117ENBE (accessed February 26, 2024).
46. City of Des Moines. 2024. *Energy and Water Use Benchmarking*, Code of Ordinances, Chapter 26, Article IX. Available at: https://library.municode.com/ia/des_moines/codes/code_of_ordinances?nodeId=MUCO_CH26BUBURE_ARTIXENWAUSBE_S26-900PU (accessed March 1, 2024).
47. City of Des Moines. n.d. *Benchmarking DSM*. Available at: https://www.dsm.city/initiatives/buildingbenchmarking.php#:~:text=Benchmarking%20DSM,-Across%20the%20country&text=In%20effort%20to%20create%20a,their%20energy%20and%20water%20usage. (accessed March 1, 2024).
48. City of Detroit. 2024. *Energy and Water Benchmarking Ordinance*. Available at: https://detroitmi.gov/government/mayors-office/office-sustainability/energy-and-water-benchmarking-ordinance (accessed March 1, 2024).
49. City of Detroit. 2023. Ordinance No 2023-42, Detroit City Code, Chapter 8, Article 15. Available at: https://app.smartsheet.com/b/publish?EQBCT=69b487419b2f42a5987f5e31825a7b02 (accessed March 1, 2024).
50. City of Edina. 2024. *Efficient Building Benchmarking*, City of Edina Code of Ordinances, Article XI. Available at: https://library.municode.com/mn/edina/codes/code_of_ordinances?nodeId=SPACOOR_CH20HEEN_ARTXIEFBUBE (accessed January 30, 2024).
51. City of Edina. n.d. *Business/Commercial Buildings & Energy*. Available at: https://www.edinamn.gov/1672/BusinessCommercial-Programs-Requirements#:~:text=Efficient%20Buildings%20Ordinance%2D%20Buildings%2025%2C000,with%20the%20Energy%20Assessment%20requirements (accessed January 30, 2024).
52. City of Evanston. 2024. *Building and Energy Water Use Benchmarking*, City of Evanston Code of Ordinances, Title 4, Chapter 22. Available at: https://library.municode.com/il/evanston/codes/code_of_ordinances?nodeId=TIT4BURE_CH22BUENWAUSBE (accessed January 23, 2024).

53. City of Evanston. 2021. *Evanston Energy and Water Benchmarking - 2019 Data Reported in 2020* [Dataset]. Available at: https://data.cityofevanston.org/dataset/Evanston-Energy-and-Water-Benchmarking-2019-Data-R/qrk5-ztyw/about_data (accessed January 23, 2024).
54. City of Evanston. n.d. *Benchmarking Ordinance*. Available at: https://www.cityofevanston.org/government/departments/community-development/building-inspection-services/benchmarking-ordinance (accessed January 23, 2024).
55. City of Fort Collins. 2024a. *Building Energy and Water Scoring*. Available at: https://maps.touchstoneiq.com/fortcollins/ (accessed January 31, 2024).
56. City of Fort Collins. 2024b. *Building Energy and Water Scoring*, Fort Collins, Colorado Municipal Code, Chapter 12, Article XI. Available at: https://library.municode.com/co/Fort_Collins/codes/municipal_code?nodeId=CH12HEEN_ARTXIBUENWASC (accessed January 31, 2024).
57. City of Fort Collins. n.d. *Building Energy and Water Scoring*. Available at: https://www.fcgov.com/bews/ (accessed January 31, 2024).
58. City of Indianapolis. 2024. *Energy Benchmarking and Transparency*, City of Indianapolis Code of Ordinances, Chapter 710. Available at: https://library.municode.com/in/indianapolis_-_marion_county/codes/code_of_ordinances?nodeId=TITIIIPUHEWE_CH710ENBETR (accessed March 1, 2024).
59. City of Madison. 2024. *Building Energy Savings Code*, City of Madison Code of Ordinances, Chapter 29.40. Available at: https://library.municode.com/wi/madison/codes/code_of_ordinances?nodeId=COORMAWIVOICH1--10_CH29BUCO_BUENSA_29.40BUENSACO (accessed March 1, 2024).
60. City of Madison. n.d. *Building Energy Savings Program*. Available at: https://www.cityofmadison.com/sustainability/energy/buildings/building-energy-savings-program (accessed March 1, 2024).
61. City of Miami. 2024. *Building Energy and Water Consumption Benchmarking and Retuning*, City of Miami Code of Ordinances, Chapter 10, Article XII. Available at: https://library.municode.com/fl/miami/codes/code_of_ordinances?nodeId=PTIITHCO_CH10BU_ARTXIIBUENWACOBERE&wdLOR=c17369428-711C-42BF-8278-FA40E4A7EBDF (accessed March 1, 2024).
62. City of Miami. n.d. *Miami BE305*. Available at: https://www.benchmark305.com/ (accessed March 1, 2024).
63. City of Minneapolis. 2024a. *Commercial and Multifamily Residential Building Rating and Disclosure*, Minneapolis, Minnesota Code of Ordinances, Title 3, Chapter 47.190. Available at: https://library.municode.com/mn/minneapolis/codes/code_of_ordinances?nodeId=COOR_TIT3AIPOENPR_CH47ENAIPO_47.190COMUREBURADI (accessed February 9, 2024).
64. City of Minneapolis. 2024b. *Energy Benchmarking*. Available at: https://www.minneapolismn.gov/government/programs-initiatives/environmental-programs/energy-benchmarking/ (accessed February 9, 2024).
65. City of Minneapolis. 2024c. *Energy Benchmarking 2022 Results – Public Buildings*. Available at: https://www.minneapolismn.gov/media/-www-content-assets/documents/2022-Benchmarking-Results_public-buildings.pdf (accessed February 9, 2024).
66. City of Minneapolis. 2024d. *Energy Benchmarking 2022 Results – Private Buildings*. Available at: https://www.minneapolismn.gov/media/-www-content-assets/documents/2022-Benchmarking-Results_private-individual-buildings.pdf (accessed February 9, 2024).
67. City of Los Angeles. 2024a. *Existing Buildings Energy & Water Efficiency Program*. Available at: https://www.ladbs.org/services/green-building-sustainability/existing-buildings-energy-water-efficiency-program (accessed February 12, 2024).
68. City of Los Angeles. 2024b. *Existing Buildings Energy & Water Efficiency (EBEWE) Program* [Dataset]. Available at: https://data.lacity.org/City-Infrastructure-Service-Requests/Existing-Buildings-Energy-Water-Efficiency-EBEWE-P/9yda-i4ya/about_data (accessed February 12, 2024).
69. City of Los Angeles. 2024c. *Existing Building Energy and Water Efficiency Program*, City of Los Angeles Municipal Code, Chapter IX, Article 1, Division 97. Available at: https://codelibrary.amlegal.com/codes/los_angeles/latest/lamc/0-0-0-293702 (accessed February 12, 2024).
70. City of New York. 2024a. *Benchmarking and Energy Efficiency Rating, NYC Buildings*. Available at: https://www.nyc.gov/site/buildings/codes/

benchmarking.page#:~:text=The%20NYC%20Benchmarking%20Law%2C%20Local,through%20a%20process%20called%20benchmarking. (accessed June 14, 2024).

71. City of New York. 2024b. *Benchmarking Energy and Water Use and Disclosure of Energy Efficiency Scores and Grades*, City of New York Administrative Code, Title 28, Article 309. Available at: https://codelibrary.amlegal.com/codes/newyorkcity/latest/NYCadmin/0-0-0-158418 (accessed June 14, 2024).
72. City of New York. 2024c. *Building Energy and Emissions Limits*, New York City Administrative Code, Title 28, Article 320. Available at: https://codelibrary.amlegal.com/codes/newyorkcity/latest/NYCadmin/0-0-0-158878 (accessed March 1, 2024).
73. City of New York. 2022. *Energy and Water Data Disclosure for Local Law 84 2022 (Data for Calendar Year 2021)* [Dataset]. Available at: https://data.cityofnewyork.us/Environment/Energy-and-Water-Data-Disclosure-for-Local-Law-84-/7x5e-2fxh/about_data (accessed June 14, 2024).
74. City of New York. n.d. *Greenhouse Gas Emission Reporting*. Available at: https://www.nyc.gov/site/buildings/codes/greenhouse-gas-emission-reporting.page (accessed March 1, 2024).
75. City of Orlando. 2024a. *BEWES Building Data* [Dataset]. Available at: https://data.cityoforlando.net/dataset/BEWES-Building-Data/f63n-kp6t/about_data (accessed June 14, 2024).
76. City of Orlando. 2024b. *Building Energy Benchmarking*, Orlando Code of Ordinances, Chapter 15. Available at: https://library.municode.com/fl/orlando/codes/code_of_ordinances?nodeId=TITIICICO_CH15SU_PTIBUENBE (accessed June 14, 2024).
77. City of Orlando. 2024c. *Building Energy & Water Efficiency Strategy*. 2024c. Available at: https://www.orlando.gov/Initiatives/Building-Energy-Water-Efficiency-Strategy (accessed June 14, 2024).
78. City of Philadelphia. 2024. *Building Energy Programs*. Available at: https://www.phila.gov/programs/building-energy-programs/building-energy-performance-program/ (accessed March 1, 2024).
79. City of Philadelphia. 2022. *Benchmarking Energy and Water Use*, City of Philadelphia Code, Chapter 9-3402. Available at: https://codelibrary.amlegal.com/codes/philadelphia/latest/philadelphia_pa/0-0-0-280004 (accessed March 1, 2024).
80. City of Pittsburgh. 2024. *Building Benchmarking*, City of Pittsburgh Code of Ordinance, Chapter 629. Available at: https://library.municode.com/pa/pittsburgh/codes/code_of_ordinances?nodeId=COOR_TITSIXCO_ARTIISU_CH629BUBE (accessed March 1, 2024).
81. City of Pittsburgh. n.d. *About Benchmarking*. Available at: https://pittsburghpa.gov/dcp/building-benchmarking (accessed March 1, 2024).
82. City of Portland, ME. 2016. *Buildings and Building Regulations*, City of Portland Code of Ordinances, Chapter 6. Available at: https://content.civicplus.com/api/assets/c5af4c63-b877-4ea8-9d29-8420cbad7717?cache=1800 (accessed January 31, 2024).
83. City of Portland, ME. n.d.a. *Energy Benchmarking*. Available at: https://www.portlandmaine.gov/1359/Energy-Benchmarking (accessed January 31, 2024).
84. City of Portland, ME. n.d.b. *2022 Energy Benchmarking Disclosure Report*. Available at: https://content.civicplus.com/api/assets/c1c1eba1-4efc-4a14-8a1c-add25edca2c3?cache=1800 (accessed January 31, 2024).
85. City of Portland, OR, 2024a. *Commercial Building Energy Performance Reporting*, City of Portland, OR Code, Chapter 17.104. Available at: https://www.portland.gov/code/17/104 (accessed January 31, 2024).
86. City of Portland, OR, 2024b. *Commercial Building Energy Reporting*. Available at: https://www.portland.gov/bps/climate-action/energy-reporting (accessed January 31, 2024).
87. City of Portland, OR. 2020. *City of Portland Commercial Building Energy Performance Reporting* [Dataset]. Available at: https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.portland.gov%2Fbps%2Fclimate-action%2Fenergy-reporting%2Fdocuments%2F2019-energy-performance-information-individual%2Fdownload&wdOrigin=BROWSELINK (accessed January 31, 2024).
88. City of Reno. 2024. *Energy and Water Efficiency Program*, Reno, Nevada Administrative Code, Chapter 14.30. Available at: https://library.municode.com/nv/reno/codes/administrative_code?nodeId=PT2READCO_TIT14BUCO_CH14.30ENWAEFPR (accessed February 1, 2024).

89. City of Reno. 2023. *2022 Data File* [Dataset]. Available at: https://www.reno.gov/community/sustainability/energy-and-water-efficiency (accessed February 1, 2024).
90. City of Reno. n.d. *Energy and Water Efficiency*. Available at: https://www.reno.gov/community/sustainability/energy-and-water-efficiency (accessed February 1, 2024).
91. City of San Diego. 2019. *Energy Efficient Building Benchmarking*, San Diego Municipal Code, Chapter 14, Article 12. Available at: https://docs.sandiego.gov/municode/MuniCodeChapter14/Ch14Art12Division01.pdf (accessed March 1, 2024).
92. City of San Diego. n.d. *Building Energy Benchmarking*. Available at: https://www.sandiego.gov/sustainability-mobility/climate-action/bd/benchmarking (accessed March 1, 2024).
93. City of San Francisco. *Existing Buildings Energy Performance*, San Francisco Environment Code, Chapter 20. Available at: https://codelibrary.amlegal.com/codes/san_francisco/latest/sf_environment/0-0-0-1758 (accessed January 23, 2024).
94. City of San Jose. 2024. *City of San Jose Energy and Water Building Performance Ordinance*, San Jose Code of Ordinances, Chapter 17.85. Available at: https://library.municode.com/ca/san_jose/codes/code_of_ordinances?nodeId=TIT17BUCO_CH17.85CISAJOENWABUPEOR (accessed March 1, 2024).
95. City of San Jose. n.d. *Energy and Water Building Performance Ordinance*. Available at: https://www.sanjoseca.gov/your-government/departments-offices/environmental-services/climate-smart-san-jos/energy-and-water-building-performance-ordinance (accessed March 1, 2024).
96. City of Seattle. 2024. *Energy Use Benchmarking*, Seattle, Washington Municipal Code, Chapter 22.920. Available at: https://library.municode.com/wa/seattle/codes/municipal_code?nodeId=TIT22BUCOCO_SUBTITLE_XMIRURE_CH22.920ENUSBE (accessed January 23, 2024).
97. City of St. Louis. 2024. *Building Energy Awareness*, St. Louis, Missouri, Code of Ordinances, Chapter 25.70. Available at: https://library.municode.com/mo/st._louis/codes/code_of_ordinances?nodeId=TIT25BUCO_CH25.70BUENAW (accessed January 31, 2024).
98. City of St. Louis. 2023. *Cycle 1 Report 07Feb2023* [Dataset]. Available at: https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.stlbenchmarking.com%2FPDFs%2FCycle%25201%2520Report%252007Feb2023.xlsx&wdOrigin=BROWSELINK (accessed January 31, 2024).
99. City of St. Louis. 2017. *City of St. Louis Building Energy Awareness Ordinance*. Available at: https://www.stlbenchmarking.com/ (accessed January 31, 2024).
100. City of St. Paul. 2024. *Energy Benchmarking*, City of St. Paul Code of Ordinances, Part II, Title XXXI, Chapter 440. Available at: https://library.municode.com/mn/st._paul/codes/code_of_ordinances?nodeId=PTIILECO_TITXXXICISURE_CH440ENBE (accessed February 27, 2024).
101. City of St. Paul. n.d. *Energize St. Paul*. Available at: https://www.stpaul.gov/departments/mayors-office/energize-saint-paul (accessed February 27, 2024).
102. Colorado Energy Office. 2024. *Colorado's Building Performance Program*. Available at: https://energyoffice.colorado.gov/bpc (accessed March 1, 2024).
103. Colorado General Assembly. 2021. HB21-1286 Energy Performance for Buildings. Available at: https://leg.colorado.gov/bills/hb21-1286 (accessed March 1, 2024).
104. Commonwealth of Massachusetts. n.d. *MassHealth*. Available at: https://www.mass.gov/topics/masshealth (accessed October 4, 2024).
105. Council of the District of Columbia. 2019. *D.C. Law 22-257*. CleanEnergy DC Omnibus Amendment Act of 2018. Available at: https://code.dccouncil.gov/us/dc/council/laws/22-257 (accessed January 22, 2024).
106. Council of the District of Columbia. 2008. ***D.C. Law 17-250***. Clean and Affordable Energy Amendment Act of 2008. Available at: https://code.dccouncil.gov/us/dc/council/laws/17-250 (accessed January 22, 2024).
107. District of Columbia DOEE (Department of Energy and Environment). 2023. *Building Energy and Water Performance Benchmarking* [Dataset]. Available at: https://opendata.dc.gov/datasets/DCGIS::building-energy-benchmarking/explore?location=38.894655%2C-77.015000%2C9.97 (accessed January 22, 2024).
108. District of Columbia DOEE. n.d.a. *Benchmarking*

& Third-Party Verification. Available at: https://dc.beam-portal.org/helpdesk/kb/benchmarking/ (accessed January 22, 2024).
109. District of Columbia DOEE. n.d.b. *Building Energy Performance Standard*. Available at: https://dc.beam-portal.org/helpdesk/kb/BEPS/ (accessed January 22, 2024).
110. DHA (Defense Health Agency). 2024. *DHA Hospitals*. Available at: https://www.health.mil/About-MHS/Defense-Health-Networks (accessed April 2, 2024).
111. DOD (US Department of Defense), GSA (US General Services Administration), and NASA (US National Aeronautics and Space Administration). 2022. 87 FR 68312: Federal acquisition regulation: disclosure of greenhouse gas emissions and climate-related financial risk. Available at: https://www.federalregister.gov/documents/2022/11/14/2022-24569/federal-acquisition-regulation-disclosure-of-greenhouse-gas-emissions-and-climate-related-financial (accessed June 1, 2024).
112. Downar, B., J. Ernstberger, S. Richelstein, S. Schwenen, and A. Zaklan. 2021. The impact of carbon disclosure mandates on emissions and financial operating performance. *Review of Accounting Studies* 26:1137-1175. https://doi.org/10.1007/s11142-021-09611-x.
113. Eckelman, M. J., K. Huang, R. Lagasse, E. Senay, R. Dubrow, and J. D. Sherman. 2020. Health care pollution and public health damage in the United States: An update. *Health Affairs* 39(12):2071-2079. https://doi.org/10.1377/hlthaff.2020.01247.
114. EPA (US Environmental Protection Agency). 2024. *Greenhouse Gas Reporting Program (GHGRP)*. Available at: https://www.epa.gov/ghgreporting (accessed June 1, 2024).
115. EPA. 2023a. *ENERGY STAR Portfolio Manager: Greenhouse Gas Emissions*. Available at: https://portfoliomanager.energystar.gov/pdf/reference/Emissions.pdf?_gl=1*ihpn5t*_ga*NTcxMzY2NTcwLjE2OTYzNjYwODY.*_ga_S0KJTVVLQ6*MTcxMDUxODIyNi41Mi4xLjE3MTA1MTgyNzguMC4wLjA (accessed June 1, 2024).
116. EPA. 2023b. *National Emissions Inventory (NEI)*. Available at: https://www.epa.gov/air-emissions-inventories/national-emissions-inventory-nei (accessed June 1, 2024).
117. EPA. 2022. *GHG Search*. Available at: https://enviro.epa.gov/envirofacts/ghg/search (accessed March 1, 2024).
118. EPA. 2020. *2020 NEI Supporting Data and Summaries*. Available at: https://www.epa.gov/air-emissions-inventories/2020-nei-supporting-data-and-summaries (accessed March 1, 2024).
119. EPA. n.d.a. *About ENERGY STAR for Commercial Buildings*. Available at: https://www.energystar.gov/buildings/about-us (accessed June 1, 2024).
120. EPA. n.d.b. *What is Energy Use Intensity (EUI)?* ENERGY STAR. Available at: https://www.energystar.gov/buildings/benchmark/understand-metrics/what-eui (accessed June 1, 2024).
121. EPA. 2009. 74 FR 56374: Mandatory Reporting of Greenhouse Gases. Available at: https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-98 (accessed June 1, 2024).
122. EPA. 2008. 40 CFR Part 51 Subpart A. Available at: https://www.ecfr.gov/current/title-40/part-51/subpart-A (accessed June 1, 2024).
123. EPA and HHS (US Department of Health and Human Services). 2023. *Using ENERGY STAR Portfolio Manager to Track Energy Use and GHG reductions: Guidance for the Health Sector*. Available at: https://www.hhs.gov/sites/default/files/epa-portfolio-manager-for-health-sector.pdf (accessed June 1, 2024).
124. EOP (Executive Office of the President). 2021. EO 14057: Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability. Available at: https://www.federalregister.gov/documents/2021/12/13/2021-27114/catalyzing-clean-energy-industries-and-jobs-through-federal-sustainability (accessed June 1, 2024).
125. Executive Office of Health and Human Services. *RY2025 Acute Hospital RFA*. Available at; https://www.commbuys.com/bso/external/bidDetail.sdo?docId=BD-25-1039-EHS01-ASHWA-107272&external=true&parentUrl=close (accessed October 4, 2024).
126. Hennepin County Minnesota. 2024. *Efficient Buildings Collaborative Benchmarking Map*. Available at: https://efficientbuildingsmap.hennepin.us/ accessed January 29, 2024).
127. HCWH (Health Care Without Harm). n.d. *Race to Zero Partner*. Available at: https://healthcareclimateaction.org/racetozero (accessed June 1, 2024).
128. HHS OCCHE (US Department of Health and Human Services Office of Climate Change and

Health Equity). 2024. *Health Sector Commitments to Emissions Reduction and Resilience*. Available at: https://www.hhs.gov/climate-change-health-equity-environmental-justice/climate-change-health-equity/actions/health-sector-pledge/index.html (accessed June 1, 2024).

129. Hogan, L. 2022. Senate Bill 528: Climate Solutions Now Act of 2022, 2022 Laws of Maryland, Chapter 38. Available at: https://mgaleg.maryland.gov/2022RS/Chapters_noln/CH_38_sb0528e.pdf (accessed March 1, 2024).
130. IHS (Indian Health Services). 2023. *Locations*. Available at: https://www.ihs.gov/locations/ (accessed March 1, 2024).
131. IMT (Institute for Market Transformation). 2023. *U.S City, County, and State Policies for Existing Buildings: Benchmarking, Transparency, and Beyond*. Available at: https://imt.org/wp-content/uploads/2023/07/IMT-Benchmarking-Map-10132023-CURRENT-1-scaled.jpg (accessed June 1, 2024).
132. Indianapolis Office of Sustainability. n.d. *Benchmarking and Transparency*. Available at: https://www.indy.gov/activity/benchmarking-and-transparency#:~:text=Indy%27s%20benchmarking%20program%2C%20referred%20to,air%20quality%20for%20Indianapolis%20residents (accessed March 1, 2024).
133. Kansas City. 2024. *Energy Empowerment*, Kansas City, Missouri Code of Ordinances, Chapter 17. Available at: https://library.municode.com/mo/kansas_city/codes/code_of_ordinances?nodeId=PTIICOOR_CH17ENEM (accessed January 23, 2023).
134. Kansas City. 2022a. 2021 K*ansas City Energy and Water Consumption Benchmarking for City-Owned Buildings* [Dataset]. Available at: https://data.kcmo.org/Sustainability/2021-Kansas-City-Energy-and-Water-Consumption-Benc/9xwa-2b59/about_data (accessed January 23, 2023).
135. Kansas City. 2022b. 2021 *Kansas City Energy and Water Consumption Benchmarking for Community-Wide Buildings*. Available at: https://data.kcmo.org/Sustainability/2021-Kansas-City-Energy-and-Water-Consumption-Benc/j5a7-mcmg/about_data (accessed January 23, 2023).
136. Kansas City. n.d. *Energy Benchmarking Compliance Home*. Available at: https://www.kcmo.gov/programs-initiatives/energy-and-water-benchmarking (accessed January 23, 2024).
137. Maryland Department of the Environment. n.d. *Building Energy Performance Standards*. Available at: https://mde.maryland.gov/programs/air/ClimateChange/Pages/BEPS.aspx (accessed March 1, 2024).
138. MassDEP (Massachusetts Department of Environmental Protection). 2024a. *MassDEP Greenhouse Gas Emissions Reporting Program*. Available at: https://www.mass.gov/orgs/massachusetts-department-of-environmental-protection (accessed January 24, 2024).
139. MassDEP. 2024b. 310 CMR 7.00: Air Pollution Control. Available at: https://www.mass.gov/regulations/310-CMR-700-air-pollution-control#current-regulations (accessed January 24, 2024).
140. MassDEP. 2022. *2022 Summary: MassDEP GHG Reporting Program* [Dataset]. Available at: https://www.mass.gov/lists/massachusetts-greenhouse-gas-ghg-reporting-program-data#facility-ghg-emissions-reports- (accessed January 24, 2024).
141. Montgomery County. 2024a. *Building Energy Use Benchmarking and Performance Standards*, Montgomery County Code, Chapter 18A, Article 6. Available at: https://codelibrary.amlegal.com/codes/montgomerycounty/latest/montgomeryco_md/0-0-0-126764 (accessed January 23, 2024).
142. Montgomery County. 2024b. *2022 Disclosed Benchmarking Data for All Covered Buildings* [Dataset]. Available at: https://docs.google.com/spreadsheets/d/11gM8WsxNyFmfTrcdiHIRBGF83qnpEmFKxUxChDMpM5U/edit?gid=0#gid=0 (accessed January 23, 2024).
143. Montgomery County. 2024c. *Energy Benchmarking Requirements*, Department of Environmental Protection. Available at: https://www.montgomerycountymd.gov/dep/energy/commercial/energy-benchmarking.html (accessed January 23, 2024).
144. Minnesota Department of Commerce. 2024. *Benchmarking Energy Use Data*. Available at: https://mn.gov/commerce/energy/consumer/energy-programs/benchmarking-energy-use.jsp#:~:text=The%20purpose%20of%20the%20program,building%20energy%20code)%3B%20and (accessed March 1, 2024).
145. Minnesota Legislature. 2023. *Energy Benchmarking*, Chapter 60, Article 12, Sec. 34. Available at: https://www.revisor.mn.gov/laws/2023/0/60/laws.12.34.0#laws.12.34.0 (accessed March 1,

2024).
146. New Jersey Legislature. 2018. Bill A3723, P.L. 2018, Chapter 17. Available at: https://pub.njleg.gov/Bills/2018/PL18/17_.PDF (accessed March 1, 2024).
147. NJCEP (New Jersey's Clean Energy Program). n.d. *Energy Benchmarking*. Available at: https://www.njcleanenergy.com/energy-benchmarking (accessed March 1, 2024).
148. Office of Climate Change, Sustainability and Resiliency. n.d. *Better Buildings Benchmarking*. Available at: https://www.resilientoahu.org/benchmarking (accessed March 1, 2024).
149. Office of Sustainability & Environment. 2024. *2021 Building Energy Benchmarking* [Dataset], City of Seattle. Available at: https://data.seattle.gov/Built-Environment/2021-Building-Energy-Benchmarking/bfsh-nrm6/about_data (accessed January 23, 2024).
150. Office of Sustainability & Environment. n.d. *Energy Benchmarking*. Available at: https://www.seattle.gov/environment/climate-change/buildings-and-energy/energy-benchmarking (accessed January 23, 2024).
151. Oregon DEQ (Department of Environmental Quality). 2024. *Oregon Greenhouse Gas Reporting Program*, Chapter 340-215. Available at: https://secure.sos.state.or.us/oard/displayDivisionRules.action?selectedDivision=1538 (accessed January 25, 2024).
152. Oregon DEQ. 2023. *2010-2022 – Greenhouse Gas Emissions From Facilities Holding Air Quality Permits* [Dataset]. Available at: https://www.oregon.gov/deq/ghgp/Pages/GHG-Emissions.aspx (accessed January 25, 2024).
153. Oregon DEQ. n.d. *Greenhouse Gas Reporting*. Available at: https://www.oregon.gov/deq/ghgp/pages/ghg.aspx (accessed January 25, 2024).
154. Salt Lake City. 2024. *Commercial Building Benchmarking and Market Transparency*, Salt Lake City Code of Ordinances, Chapter 18.94. Available at: https://codelibrary.amlegal.com/codes/saltlakecityut/latest/saltlakecity_ut/0-0-0-62046 (accessed March 1, 2024).
155. Salt Lake City. n.d. *Elevate Buildings*. Available at: https://www.slc.gov/sustainability/elevate-buildings/#:~:text=Elevate%20Buildings%20is%20a%20Salt,quality%2C%20and%20decreasing%20energy%20waste. (accessed March 1, 2024).
156. San Francisco Environment Department. 2024. *Existing Buildings Energy Performance Ordinance Report* [Dataset]. Available at: https://data.sfgov.org/Energy-and-Environment/Existing-Buildings-Energy-Performance-Ordinance-Re/96ck-qcfe/about_data (accessed January 23, 2024).
157. San Francisco Environment Department. n.d. *San Francisco's Existing Building's Ordinance*. Available at: https://www.sfenvironment.org/san-franciscos-existing-buildings-ordinance (accessed January 23, 2024).
158. SEC (Securities Exchange and Commission). 2024. 89 FR 21668: The Enhancement and Standardization of Climate-Related Disclosures for Investors. Available at: https://www.federalregister.gov/documents/2024/03/28/2024-05137/the-enhancement-and-standardization-of-climate-related-disclosures-for-investors (accessed June 1, 2024).
159. SEC. 2022. 87 FR 21334: The Enhancement and Standardization of Climate-Related Disclosures for Investors. Available at: https://www.federalregister.gov/documents/2022/04/11/2022-06342/the-enhancement-and-standardization-of-climate-related-disclosures-for-investors (accessed June 1, 2024).
160. Senay, E., I. Liu, G. Mickel, T. Cort, and J. Sherman. 2023. Proposed SEC climate rules: Implications for the U.S. health care sector. *NEJM Catalyst*. Available at: https://catalyst.nejm.org/doi/full/10.1056/CAT.23.0293 (accessed June 1, 2024).
161. Stern, H., J. Becker, L. Gonzalez, and S. Wiener. 2023. Greenhouse gases: climate-related financial risk, Pub. L. No. SB-261, § 38533. Available at: https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202320240SB261 (accessed June 1, 2024).
162. St. Louis Park City. 2021. *Efficient Building Benchmarking*, St. Louis Park City Code, Article VIII. Available at: https://www.stlouisparkmn.gov/home/showpublisheddocument/24695/638118993713900000 (accessed January 31, 2024).
163. St. Louis Park City. n.d. *Efficient Building Benchmarking Ordinance*. Available at: https://www.stlouisparkmn.gov/government/departments-divisions/sustainability/efficient-building-benchmarking-ordinance#:~:text=The%20ordinance%20requires%20commercial%2C%20multifamily,Compare%20energy%20usage

(accessed January 31, 2024).
164. Town of Lexington. 2024a. *Buildings, Energy Use*, Town of Lexington, MA General Bylaws, Chapter 20. Available at: https://ecode360.com/41461386#41461386 (accessed January 23, 2024).
165. Town of Lexington. 2024b. *Lexington Building Energy Use Disclosure*. Available at: https://experience.arcgis.com/experience/bd985b6e81df461badacd1bf795dae74/#data_s=id%3AdataSource_4-1916b78ff87-layer-4%3A348 (accessed January 23, 2024).
166. Town of Lexington. n.d. *Building Energy Use Disclosure*. Available at: https://www.lexingtonma.gov/1645/Building-Energy-Use-Disclosure (accessed January 23, 2024).
167. VA (US Department of Veterans Affairs). 2024. *Locations*. Available at: https://www.va.gov/directory/guide/allstate.asp (accessed March 1, 2024).
168. Village of Oak Park. 2024. *Energy and Water Benchmarking*, Oak Park, Illinois Code of Ordinances, Chapter 7, Article 14. Available at: https://codelibrary.amlegal.com/codes/oakparkil/latest/oakpark_il/0-0-0-23625 (accessed March 1, 2024).
169. Village of Oak Park. n.d. *Building Benchmarking*. Available at: https://www.oak-park.us/your-government/environmental-sustainability/building-benchmarking (accessed March 1, 2024).
170. Washington Department of Commerce. 2024. *Clean Building Performance Standard (CBPS)*. Available at: https://www.commerce.wa.gov/cbps/ (accessed March 1, 2024).
171. Washington State Department of Ecology. 2024. *GHG Reporting Program Publication* [Dataset]. Available at: https://data.wa.gov/Natural-Resources-Environment/GHG-Reporting-Program-Publication/idhm-59de/about_data (accessed January 25, 2024).
172. Washington State Department of Ecology. n.d. *Mandatory Greenhouse Gas Reports*. Available at: https://ecology.wa.gov/air-climate/reducing-greenhouse-gas-emissions/tracking-greenhouse-gases/mandatory-greenhouse-gas-reports (accessed January 25, 2024).
173. Washington State Hospital Association. n.d. *Medicaid Quality Incentive*. Available at: https://www.wsha.org/clinical-excellence/projects/medicaid-quality-incentive/#:~:text=The%20Medicaid%20Quality%20Incentive%20was,quality%20and%20financial%20reporting%20requirements. (accessed July 1, 2024).
174. Washington State Legislature. 2024a. *Greenhouse Gas Emissions—Cap and Invest Program*, Chapter 70A.65 RCW. Available at: https://app.leg.wa.gov/RCW/default.aspx?cite=70A.65 (accessed September 27, 2024).
175. Washington State Legislature. 2024b. *Hospital Safety Net Assessment Fund*, Chapter 74.60 RCW. Available at: https://apps.leg.wa.gov/rcw/default.aspx?cite=74.60&full=true (accessed July 1, 2024).
176. Washington State Legislature. 2022a. *Reporting of Emissions of Greenhouse Gases*, Chapter 173-441 WAC. Available at: https://app.leg.wa.gov/WAC/default.aspx?cite=173-441 (accessed January 25, 2024).
177. Washington State Legislature. 2022b. *Substitute Senate Bill 5722*. Available at: https://lawfilesext.leg.wa.gov/biennium/2021-22/Pdf/Bills/Senate%20Passed%20Legislature/5722-S.PL.pdf?q=20220329121607 (accessed March 1, 2024).
178. WBCSD (World Business Council for Sustainable Development) and WRI (World Resources Institute). n.d. *A Corporate Accounting and Reporting Standard*. Available at: https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf (accessed June 1, 2024).
179. Wiener, S., L. Gonzalez, and H. Stern. 2023. *Climate corporate Data Accountability Act*, Pub. L. No. SB-253, § 38532. Available at: https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=202320240SB253 (accessed June 1, 2024).
180. Williams. 2015. *Energy Efficiency*, Pub. L. No. AB-802. Available at: https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201520160AB802 (accessed January 24, 2024).
181. Xie, J., S. Sreenivasan, G. Korniss, W. Zhang, C. Lim, and B. K. Szymanski. (2011). Social consensus through the influence of committed minorities. *Physical Review E* 84(1):011130. Available at: https://journals-aps-org.hhsnih.idm.oclc.org/pre/abstract/10.1103/PhysRevE.84.011130 (accessed August 27, 2024).

DOI

https://doi.org/10.31478/202411c

Suggested Citation

Ana A., J. McCannon, H. Boyden, J. Keroack, K. Lichter, A. Bole, J. Balbus. 2024. Emissions disclosures and energy use reporting by hospitals in the United States. *NAM Perspectives*. Discussion Paper, National Academy of Medicine, Washington, DC. https://doi.org/10.31478/202411c.

Author Information

Ana Abel, MPH, is an Oak Ridge Institute for Science and Education Fellow with the HHS Office of Climate Change and Health Equity. **Joseph McCannon** is Senior Advisor to the Director at the Agency for Health Research and Quality, and a Senior Consultant in the HHS Office of Climate Change and Health Equity. **Hollynd Boyden, MPH,** is a Presidential Management Fellow detailed as a Public Health Analyst with the HHS Office of Climate Change and Health Equity. **Jenny Keroack, MPH,** is detailed as a Policy Advisor in the HHS Immediate Office of the Secretary. **Katie Lichter, MD, MPH,** is a research fellow in the HHS Office of Climate Change and Health Equity and the University of California's Center for Climate, Health, and Equity. **Aparna Bole, MD,** serves as Special Expert in the Office of the Director at the Agency for Healthcare Research and Quality, and a Senior Consultant in the HHS Office of Climate Change and Health Equity. **John Balbus, MD, MPH,** is the Director of the HHS Office of Climate Change.

Conflict-of-Interest Disclosures

None to disclose.

Correspondence

Questions or comments should be directed to Ana Abel (ana.abel@hhs.gov).

Disclaimer

The views expressed in this paper are those of the authors and not necessarily of the authors' organizations, the National Academy of Medicine (NAM), or the National Academies of Sciences, Engineering, and Medicine (the National Academies). The paper is intended to help inform and stimulate discussion. It is not a report of the NAM or the National Academies. Copyright by the National Academy of Sciences. All rights reserved.