117TH CONGRESS
2D SESSION

S. 3507

To improve air quality management and the safety of communities using the best available monitoring technology and data.

IN THE SENATE OF THE UNITED STATES

JANUARY 13 (legislative day, JANUARY 10), 2022

Mr. MARKEY (for himself, Ms. SMITH, Ms. DUCKWORTH, Mr. DURBIN, Mr. BLUMENTHAL, Ms. WARREN, Mr. BENNET, Mr. SANDERS, Mr. VAN HOLLEN, Mr. WHITEHOUSE, Mrs. MURRAY, and Mr. BOOKER) introduced the following bill; which was read twice and referred to the Committee on Environment and Public Works

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A BILL

To improve air quality management and the safety of communities using the best available monitoring technology and data.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the ''Technology Assessment for Air Quality Management Act of 2022''.

SEC. 2. FINDINGS.

Congress finds that—

(1) the Environmental Protection Agency has not established a process to consistently gather information on local air quality monitoring systems across the United States;

(2) it is not yet clear how newer air sensor technologies should be deployed to provide the most benefit, nor how the data should be interpreted;

(3) despite national progress on reducing air pollution, more than 40 percent of people in the United States live in places with unhealthy levels of ozone or particle pollution;

(4) people of color, Indigenous people, and low-income communities bear disproportionately higher exposures and health burdens due to air pollution;

(5) air quality can vary up to 800 percent from block to block within a single neighborhood; and

(6) existing methods that are prescribed for basin-wide air quality monitoring—

(A) are cost-prohibitive for monitoring community-scale air quality; and

(B) do not, as of the date of enactment of this Act, measure the intrinsic variability of persistently poor air quality in environmental justice communities at the neighborhood block level.

SEC. 3. DEFINITIONS.

In this Act:

(1) ADMINISTRATOR.—The term ''Administrator'' means the Administrator of the Environmental Protection Agency.

(2) AIR POLLUTANT.—The term ''air pollutant'' means—

(A) a criteria pollutant for which there are national ambient air quality standards under section 109 of the Clean Air Act (42 U.S.C. 7409) and the precursors to such a pollutant, including ammonia and volatile organic compounds (as defined in section 51.100 of title 40, Code of Federal Regulations (or successor regulations));

(B) a hazardous air pollutant (as defined in section 112(a) of that Act (42 U.S.C. 7412(a))); and

(C) a greenhouse gas.

(3) AREA SOURCE.—The term ''area source'' has the meaning given the term in section 112(a) of the Clean Air Act (42 U.S.C. 7412(a)).

(4) ENVIRONMENTAL JUSTICE.—The term ''environmental justice'' means the fair treatment and meaningful involvement of all people, regardless of race, color, culture, natural origin, or income, in the

development, implementation, and enforcement of environmental laws (including regulations) and policies to ensure that each person enjoys—

(A) the same degree of protection from environmental and health hazards; and

(B) equal access to any Federal agency action relating to the development, implementation, and enforcement of environmental laws (including regulations) and policies for the purpose of having a healthy environment in which to live, learn, work, and recreate.

(5) ENVIRONMENTAL JUSTICE COMMUNITY.—The term ''environmental justice community'' means a community with significant representation of communities of color, low-income communities, or Tribal and Indigenous communities that experiences, or is at risk of experiencing, higher or more adverse human health or environmental effects, as compared to other communities.

(6) GREENHOUSE GAS.—The term ''greenhouse gas'' means any of the following:

(A) Carbon dioxide.

(B) Methane.

(C) Nitrous oxide.

(D) Hydrofluorocarbons.

(E) Perfluorocarbons.

(F) Sulfur hexafluoride.

(7) HYPERLOCAL AIR QUALITY MONITORING SYSTEM.—The term ''hyperlocal air quality monitoring system'' means a method of monitoring ambient air quality, greenhouse gases, and co-pollutants and detecting the presence of other air pollutants that—

(A) yields frequently repeated, ongoing measurements of air pollutants at a geographic scale that is—

(i) as small as practicable to identify communities; and

(ii) not larger than that of a census tract; and

(B) identifies hotspots of persistent elevated levels of air pollutants localized to, and caused by the characteristics of, a specific geographic location.

(8) HYPERLOCAL DATA.—

(A) IN GENERAL.—The term ''hyperlocal data'' means the results returned by a hyperlocal air quality monitoring system.

(B) INCLUSIONS.—The term ''hyperlocal data'' may include data on—

(i) the health impacts of air pollution; and

(ii) sources of pollution.

(9) INDIRECT SOURCE.—The term ''indirect source'' has the meaning given the term in section 110(a)(5)(C) of the Clean Air Act (42 U.S.C. 7410(a)(5)(C)).

(10) MAJOR SOURCE.—The term ''major source'' has the meaning given the term in section 501 of the Clean Air Act (42 U.S.C. 7661).

(11) RELEVANT COMMITTEES OF CONGRESS.—The term ''relevant committees of Congress'' means—

(A) the Committee on Environment and Public Works of the Senate; and

(B) the Committee on Energy and Commerce of the House of Representatives.

SEC. 4. COMPENDIUM OF AIR QUALITY MONITORING TECHNOLOGIES AND USES OF AIR QUALITY INSIGHTS.

Not later than 1 year after the date of enactment of this Act, and annually thereafter, the Administrator shall update the Air Sensor Toolbox of the Environmental Protection Agency or an equivalent online, publicly available compendium—

(1) to describe all types of common air quality monitor technologies, which may include—

(A) Federal Reference Method or Federal Equivalent Method monitors;

(B) mobile monitoring platforms;

(C) low-cost stationary monitors;

(D) satellite sensors and surface monitors;

(E) fenceline monitoring instruments;

(F) high-resolution cameras; and

(G) other technologies, as determined to be appropriate by the Administrator;

(2) to describe the uses of the data associated with the types of common air quality monitor technologies described under paragraph (1);

(3) to update and describe the advantages and limitations of monitoring technologies with respect to different air quality management applications, which may include—

(A) the costs and ease of purchase, installation, operation, and maintenance of monitors;

(B) air pollutant or air pollutants monitored;

(C) spatial resolution;

(D) temporal resolution;

(E) frequency of data collection by monitors;

(F) data quality and data processing needs; and

(G) compatibility, accessibility, and ease of use of a type of monitor with online databases;

(4) to describe—

(A) potential incongruities in air quality monitor measurements and reference methods; and

(B) relevant insights with respect to hyperlocal data, despite the potential incongruities described in subparagraph (A);

(5) to describe the availability of, and how to access, data on—

(A) the location and nature of likely sources of air pollution, including major sources, area sources, and indirect sources; and

(B) potential health impacts that may result from air pollution exposure;

(6) to connect and integrate the Air Sensor Toolbox or equivalent compendium with the EJSCREEN mapping tool of the Environmental Protection Agency, the Environmental Information Exchange Network, and other relevant Federal,

State, and local environmental justice mapping and screening tools—

(A) to inform communities and local air agencies of local air pollution concerns;

(B) to address—

(i) the multiple and cumulative exposures identified in environmental human health analyses under section 3–301(b) of Executive Order 12898 (42 U.S.C. 4321 note; relating to Federal actions to address environmental justice in minority populations and low-income populations); and

(ii) any exclusion from participation in, denial of and the benefits of, or discrimination under programs and activities receiving Federal financial assistance on the ground of race, color, or national origin, as prohibited under section 601 of the Civil Rights Act of 1964 (42 U.S.C. 2000d); and

(C) to strengthen hyperlocal air quality monitoring systems, air quality data visualization, and hyperlocal data integration into decisionmaking; and

(7) to describe how to integrate air quality monitoring technologies and data across spatial and temporal scales to improve quantitative use of low-cost sensors, satellite sensors, and other technologies.

SEC. 5. AIR QUALITY TECHNOLOGY WORKING GROUP.

(a) ESTABLISHMENT.—

(1) IN GENERAL.—Not later than 180 days after the date of enactment of this Act, the Administrator shall establish an Air Quality Technology Working Group (referred to in this section as the ''Working Group'').

(2) MEMBERSHIP.—The Working Group shall consist of 30 members, including—

(A) 1 representative from each Regional Office of the Environmental Protection Agency;

(B) not less than 1 representative with a demonstrated record of experience with device installation, operation, maintenance, and calibration of different air quality monitoring approaches;

(C) not less than 3 representatives with demonstrated records of experience in data science as it pertains to using measurements from monitoring technologies to develop air

quality insights for environmental justice and associated air quality monitoring applications;

(D) not less than 3 representatives of environmental justice community-based organizations, coalitions, networks, or alliances with experience in using new technologies to assess and address air pollution in the communities of those environmental justice community-based organizations, coalitions, networks, or alliances;

(E) not less than 1 representative with a demonstrated record of experience in outreach and engagement with environmental justice communities;

(F) not less than 1 representative from a Federal air agency;

(G) not less than 1 representative from a State air agency;

(H) not less than 1 representative from a local air agency;

(I) not less than 1 representative from a Tribal air agency;

(J) not less than 2 representatives that—

(i) are—

(I) from public health departments; or

(II) public health scientists; and

(ii) have a demonstrated record of experience with translating information collected from monitoring technologies into health insights for environmental justice applications and air quality management; and

(K) not less than 1 representative from the air quality technology industry.

(b) MONITORING SYSTEM TEMPLATE.—Not later than 1 year after the date on which the Working Group is established under subsection (a)(1), the Working Group shall develop and submit to the relevant committees of Congress a report that includes—

(1) templates for integrated air quality monitoring systems ranging in cost estimates, population sizes of communities served, atmospheric dispersion dynamics of air pollutants, and other relevant parameters, as determined to be appropriate by the Working Group, that provide a holistic understanding of local air pollutant measurements across time, which may incorporate—

(A) 1 or more in-situ monitors;

(B) 1 or more satellite sensors;

(C) computer modeling;

(D) multipollutant monitoring options;

(E) single pollutant monitoring options; and

(F) data collection, interpretation, and reporting to relevant Federal, State, local, and Tribal air agencies;

(2) a description of the costs and capacity needs associated with the integrated air quality monitoring systems described under paragraph (1), including—

(A) costs of purchase, operation, maintenance, and calibration of monitor technologies;

(B) workforce needs;

(C) data infrastructure needs; and

(D) any other needs, as determined to be appropriate by the Administrator; and

(3) technology modernization targets for upgrades to integrated air quality monitoring stations.

SEC. 6. NATIONAL INFRASTRUCTURE INVENTORY.

(a) IN GENERAL.—Not later than 180 days after the date of enactment of this Act, the Comptroller General of the United States, in coordination with the Environmental Protection Agency, shall carry out a study to inventory national air quality monitoring infrastructure by documenting—

(1) locations, operation statuses, frequencies of data return, and dates of installation of Federal air quality monitors;

(2) the number of people living within ½ mile of Federal air quality monitors that continuously return data;

(3) in coordination with Regional Offices of the Environmental Protection Agency, and State, local, and Tribal air agencies, the locations, operation statuses, and dates of installation of additional air quality monitors that are managed by State, local, and Tribal air agencies;

(4) data infrastructure and online platforms that are associated with datasets collected by Federal, State, local, and Tribal air quality monitors that are documented under paragraphs (1) and (3); and

(5) existing workforce capacity and needs across Federal, State, local, and Tribal levels.

(b) REPORT.—Not later than 2 years after the date of enactment of this Act, the Administrator shall submit to the relevant committees of Congress a report that includes—

(1) a description of the study carried out under subsection (a);

(2) a description of the results of that study;

(3) a map of high-priority areas for air quality monitor deployment, based on factors such as proximity to or effects on environmental justice communities, discrepancies between monitor readings and satellite or low-cost sensor readings, proliferation of pollution sources, and the lack of existing Federal Reference Method or Federal Equivalent Method monitors; and

(4) recommendations for legislative and regulatory action that would facilitate more effective and targeted air quality management across scales, which may include—

(A) monitor placement;

(B) monitor accuracy;

(C) integration of monitor, modeling, and satellite technologies;

(D) methods for hyperlocal monitoring;

(E) information gathering and sharing; and

(F) maintenance and regular upgrades to monitors and data infrastructure.

SEC. 7. AUTHORIZATION OF APPROPRIATIONS.

There is authorized to be appropriated to the Administrator $11,000,000 for each of fiscal years 2023 through 2027 for the purposes of—

(1) carrying out this Act; and

(2) establishing 8 new full-time equivalent positions to assist the Administrator in carrying out this Act.

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