



Accelerating the Transition to Zero-Emission Residential Buildings

Multistate Memorandum of Understanding

WHEREAS, the Signatory States, as represented by their Environmental Agency Commissioners or Directors, recognize the importance of state leadership and coordinated state action to ensure national progress in the effort to reduce greenhouse gas (GHG) and air pollutant emissions and address climate change;

WHEREAS, the Signatory States have statutory obligations or otherwise seek to significantly reduce statewide GHG emissions by 2050 or sooner, consistent with science-based targets;

WHEREAS, the Signatory States are committed to reducing air pollutant emissions, and have a statutory obligation to provide their citizens with air quality that complies with national health-based standards, which are required to be protective of health and the environment with an adequate margin of safety;

WHEREAS, the states that are members of the Ozone Transport Commission have committed to working together on technical analyses to develop recommendations for NO_x emission reductions from buildings;¹

WHEREAS, buildings burn fossil fuels in equipment such as furnaces and water heaters, emitting over 138,000 tons of harmful nitrogen oxides (NO_x) and 6,000 tons of fine particulate matter each year in Signatory States and contributing to ozone formation, regional haze and, in some regions, non-attainment with the National Ambient Air Quality Standards;

WHEREAS, fossil fuel equipment in buildings emits approximately 173 million metric tons of CO_{2e} emissions each year in Signatory States;

WHEREAS, electrifying end uses in buildings to take advantage of an increasingly renewable energy-powered electric grid is essential to achieving the GHG emission reductions needed to avoid the worst effects of climate change and reduce emissions of NO_x, particulate matter, and toxic air contaminants that adversely impact public health;

¹ Resolution of the OTC on Reducing Emissions of Nitrogen Oxides from Buildings, June 14, 2023. otcair.org/upload/Documents/Formal%20Actions/20230614%20OTC%20Resolution%20buildings%20signed.pdf.

WHEREAS, an increasing variety of building electrification and decarbonization technologies for space and water heating are commercially available, perform well in cold climates, and have the potential to eliminate onsite emissions of criteria air pollutants and GHGs;

WHEREAS, the Signatory States are already implementing market-enabling initiatives to overcome barriers to consumer adoption of building electrification and decarbonization technologies and associated upgrades, ranging from financial incentives to consumer outreach and education programs;

WHEREAS, the Signatory States need to build on these efforts and accelerate the pace of progress in order to achieve GHG emission reduction targets for the building sector;

WHEREAS, the Signatory States have a long history of leadership and innovation in promoting clean air strategies and collaborating on environmental issues; and

WHEREAS, Signatory State environmental agencies are coordinating with their counterparts in state energy and climate offices, as well as agencies responsible for housing, codes, government facilities, economic development and labor, to achieve reductions in building-related emissions.

NOW THEREFORE, as Commissioners or Directors of environmental agencies for the Signatory States, through this memorandum of understanding (MOU), we express our mutual understanding and cooperative relationship as follows:

1. OVERALL COMMITMENT

The Signatory States agree to work together to accelerate the transition to zero-emission buildings through the existing multistate Northeast States for Coordinated Air Use Management (NESCAUM) Building Electrification Initiative Task Force and Northeast Energy Efficiency Partnerships (NEEP) multistate working groups such as the Residential Heating Electrification Working Group and Codes Collaborative, which serve as national forums for state coordination, collaboration, and information-sharing on policy and program design, market transformation, research, and technology advancement.

2. MEASURABLE GOALS

The Signatory States have committed to significantly reducing statewide GHG emissions by 2050 or sooner and recognize that this will necessitate significantly reducing or eliminating emissions from new and existing buildings. In alignment with this goal, the Signatory States agree to pursue, consistent with applicable laws, the following collective targets for the residential building sector:

- Across Signatory States, at least 65% of residential-scale² heating, air conditioning, and water heating equipment shipments³ will be zero-emission heat pump equipment by 2030 and 90% by 2040.

² Residential-scale refers to smaller-sized equipment that is typically installed in single-family residential and small multifamily and commercial buildings (generally, water heaters with a rated heat input capacity less than 400,000 BTUs per hour and heating, ventilation, and air conditioning (HVAC) heat pumps no larger than 5 tons).

³ Shipments are tracked by manufacturers and trade associations and are a proxy for sales to end users, which are more difficult to reliably track. Shipments measure the number of HVAC and water heating equipment units shipped from manufacturers to retailers, distributors, and in some cases, end users.

3. TRACKING MARKET PROGRESS

NESCAUM and NEEP will work with the Signatory States, manufacturers, distributors, and other stakeholders to develop and improve data tracking and reporting systems for zero-emission space and water heater sales, shipments, and installations and electrification of residential building stock. NESCAUM and NEEP will produce an annual report on zero-emissions space and water heater sales that assesses each state's progress toward the 2030 and 2040 targets, the state of the residential building electrification market, key barriers, and high-priority opportunities to accelerate market transition. In 2028, the Signatory States will assess progress toward meeting the 2030 targets and determine whether adjustments are appropriate.

4. MULTISTATE COLLABORATION

Through the Task Force, the Signatory States will identify additional areas that would benefit from multistate collaboration and undertake, to the extent consistent with applicable laws, shared projects to reduce emissions from residential buildings, such as:

- Research on the emissions, health, grid, cost, community, or other impacts and benefits of residential building electrification;
- Alignment on data collection requirements and uniform standards (e.g., communication protocols for grid-interactive water heaters, integrated controls for hybrid heating systems), where appropriate;
- Enforcement and compliance tools and resources to support adoption of relevant codes, standards, and rules;
- Multistate projects that leverage federal funding available under the Bipartisan Infrastructure Law and Inflation Reduction Act to address building-sector emissions; and
- Engagement with the U.S. Environmental Protection Agency, U.S. Department of Energy, National Labs, and other federal agencies as appropriate.

5. ACTION PLAN FOR ZERO-EMISSION RESIDENTIAL BUILDINGS

Within 12 months following execution of this MOU, NESCAUM and NEEP will work with the Signatory States to develop a multistate action plan with priority actions to support widespread electrification of residential buildings (Zero-Emission Residential Buildings Action Plan). In developing the Action Plan, the Task Force will consider:

- Policy and program strategies to accelerate the transition to zero-emission residential buildings, enhance energy affordability, and support a flexible and resilient grid;
- Actions that help residential new construction achieve zero onsite emissions from fossil fuel combustion, including development of zero-emission building codes;
- Funding and programs for affordable whole-home retrofits that pair energy efficiency and electrification, particularly for homes occupied by low- and moderate-income households (e.g., weatherization measures, demand flexibility and controls, and health, safety, and structural upgrades such as electric panels and wiring);
- Market transition strategies to drive widespread adoption of building electrification technologies, including but not limited to: easy-to-access financial incentives and financing options, consumer outreach and education campaigns, workforce development and contractor training, and other approaches to overcome consumer, market, and technology barriers;
- Policy and program strategies to target high-priority residential applications, specifically: (1) converting households that use oil, propane, and electric resistance heat and hot water

- to heat pumps, and (2) promoting installation of heat pumps that provide heating and cooling as an alternative to one-way air conditioners; and
- Other initiatives the Task Force deems a high priority to address emissions from residential buildings.

In developing the Action Plan, the Task Force will consult with and solicit input from key partners and stakeholders.

6. FOCUS ON DISADVANTAGED COMMUNITIES

The Signatory States will seek, consistent with applicable laws, to accelerate deployment of zero-emissions space and water heating technologies in an equitable manner that directly benefits low-income households that face high energy burdens and disadvantaged communities that have been historically burdened with higher levels of air pollution.⁴ Specifically, the Signatory States will strive to direct at least 40% of new investments in efficiency and electrification upgrades for residential buildings (e.g., incentives, financing, and technical assistance under the Inflation Reduction Act) to low-income households and disadvantaged communities. The Signatory States will also aim to use inclusive processes to meaningfully engage these communities in the design and implementation of building electrification policies and programs.

7. ZERO-EMISSION STATE BUILDINGS

To lead by example, each Signatory State will, to the extent feasible and consistent with applicable laws, seek to establish zero-emission standards for construction of new state buildings and promote installation of zero-emission, grid-interactive technologies in existing state buildings.

8. INTERAGENCY COORDINATION WITHIN STATES

The Signatory States will seek to support and facilitate adoption of zero-emission space and water heating in residential buildings through interagency consultation and coordination with environmental, energy, planning, and housing agencies, as well as with state public utility commissions and utilities on activities such as electric distribution system planning, beneficial rate design, and electrification readiness upgrades (e.g., installation of electric panels and wiring).

9. COLLABORATION WITH KEY STAKEHOLDERS

The Signatory States will explore opportunities to cooperate and coordinate, as appropriate, with heat pump manufacturers and distributors, contractors who install heating and hot water equipment and associated upgrades, community and environmental advocates, utilities, financial institutions, and others to accelerate electrification of the building sector.

10. NO LEGAL OBLIGATIONS, RIGHTS OR REMEDIES

This MOU is a voluntary initiative and is made for the sole benefit of the signatories. It creates no legally binding rights or obligations and creates no legally cognizable or enforceable rights or remedies, legal or equitable, in any forum whatsoever. Nothing in this MOU may be the basis of any third-party challenges or appeals.

⁴ Low-income households and disadvantaged communities will be identified according to each Signatory State's existing definitions, or if not specifically defined by the jurisdiction, using the U.S. Department of Energy definition: <https://www.energy.gov/diversity/justice40-initiative>.

The Signatory States each retain all rights, responsibilities, and authorities provided for by law, and this MOU does not prevent or compromise a Signatory State from exercising its rights, responsibilities, or authorities provided by law. Nothing in this MOU delegates any rights, responsibilities, or authorities provided by law to any signatory. In addition, the pledges in this MOU are not conditioned upon reciprocal actions by other Signatory States, and each Signatory State is free to withdraw from the MOU.

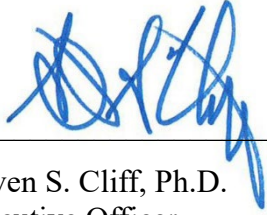
This MOU does not provide for the exchange of funds between the signatories nor does it make any commitment of funds or resources. Nothing in this MOU obligates the Signatory States to expend, exchange, or reimburse funds, services, or supplies, or transfer anything of value, or to enter into any contract, interagency agreement or other obligation.

11. ADDITIONAL PROVISIONS

- a. This MOU may be executed in counterparts.
- b. A Signatory State may terminate its participation in this MOU with a written statement to other Signatory States.
- c. Other states that commit to the conditions of this agreement may sign on to this MOU.
- d. This MOU may be amended in writing upon the collective agreement of the authorized representatives of the Signatory States.

[Signatures on the following pages]

This Multistate Memorandum of Understanding on Accelerating the Transition to Zero-Emission Residential Buildings signed as of the 30th day of January 2024.



Steven S. Cliff, Ph.D.
Executive Officer
California Air Resources Board

This Multistate Memorandum of Understanding on Accelerating the Transition to Zero-Emission Residential Buildings signed as of the 5th day of February 2024.

A handwritten signature in black ink that reads "Will Toor". The signature is written in a cursive, slightly slanted style.

Will Toor
Executive Director
Colorado Energy Office

This Multistate Memorandum of Understanding on Accelerating the Transition to Zero-Emission Residential Buildings signed as of the 30th day of January 2024.



Melanie Loyzim
Commissioner
Maine Department of Environmental Protection

This Multistate Memorandum of Understanding on Accelerating the Transition to Zero-Emission Residential Buildings signed as of the 17th day of January 2024.

A handwritten signature in cursive script, reading "Serena McIlwain".

Serena McIlwain
Secretary
Maryland Department of the Environment

This Multistate Memorandum of Understanding on Accelerating the Transition to Zero-Emission Residential Buildings signed as of the 30th day of January 2024.




Bonnie Heiple
Commissioner
Massachusetts Department of Environmental Protection



Elizabeth Mahony
Commissioner
Massachusetts Department of Energy Resources

This Multistate Memorandum of Understanding on Accelerating the Transition to Zero-Emission Residential Buildings signed as of the 17th day of January 2024.

**STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION**



Shawn M. LaTourette
Commissioner
New Jersey Department of Environmental Protection

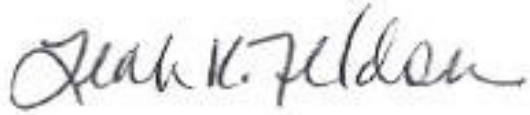
Date: January 17, 2024

This Multistate Memorandum of Understanding on Accelerating the Transition to Zero-Emission Residential Buildings signed as of the 30th day of January 2024.

A handwritten signature in blue ink, appearing to read 'Basil Seggos', written over a horizontal line.

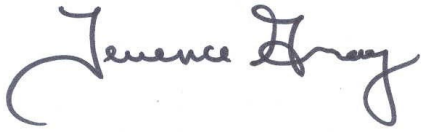
Basil Seggos
Commissioner
New York State Department of Environmental Conservation

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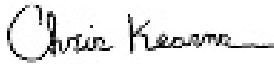
A handwritten signature in black ink, appearing to read "Leah K. Feldon". The signature is fluid and cursive, with the first letters of each word being capitalized and prominent.

Leah Feldon
Director
Oregon Department of Environmental Quality

This Multistate Memorandum of Understanding on Accelerating the Transition to Zero-Emission Residential Buildings signed as of the 30th day of January 2024.



Terrence Gray
Director
Rhode Island Department of Environmental Management



Christopher Kearns
Acting Energy Commissioner
Rhode Island Office of Energy Resources

This Multistate Memorandum of Understanding on Accelerating the Transition to Zero-Emission Residential Buildings signed as of the 24th day of May 2024.

A handwritten signature in black ink, appearing to read 'Richard Jackson', written over a horizontal line.

Richard Jackson
Director
District Department of Energy and Environment