VIA E-MAIL to:

Walter T, Mosely – NYS Secretary of State
Matthew Tebo – NYS Secretary of State's Designee
James Cable – NYS Fire Commissioner
Benjamin Keller – NYS Fire Commissioner's Designee
RuthAnne Visnauskas – Commissioner, NYS Housing & Community Renewal
Michael Weber – Commissioner's Designee, NYS Housing & Community Renewal
Joseph Palozzola - Commissioner's Designee, NYS Housing & Community Renewal
Roberta Reardon – Commissioner, NYS Department of Labor
Vincent Rapacciuolo – Commissioner's Designee, NYS Department of Labor
Eric Adams – Mayor – City of New York
Keith Wen – Mayor's Designee, City of New York
Michael Spano - Mayor - City of Yonkers
Michael Sabatino – Mayor's Designee - City of Yonkers
Joseph M. DeStefano – Mayor - City of Middletown
Joseph Toomey - Fire Service Official
Shawn Hamlin - Registered Architect
Timothy DeRuyscher - Professional Engineer
Robert Hughes - Code Enforcement Official
William W. Tuyn - Builders Representative
Patrick Dolan - Trade Union Representative
Dominic Marinelli - Persons with Disabilities Representative

July 24, 2024

Re: Comments urging adoption of parts 1229 and 1240 to implement NY's All Electric Building Law, in the upcoming code revisions

Dear Members of the NY State Fire Prevention and Building Codes Council:

Please find below comments in the matter listed above.

Sincerely,

Bill Nowak
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My name is Bill Nowak. I reside in Buffalo, NY. I am a board member of the New York Geothermal Energy Organization (NY-GEO) and I served on the Climate Action Council Energy Efficiency and Housing Advisory Panel. I am submitting these comments as an individual as follow up and supplement to the 3-minute verbal comments made at the June 28th Codes Council meeting.

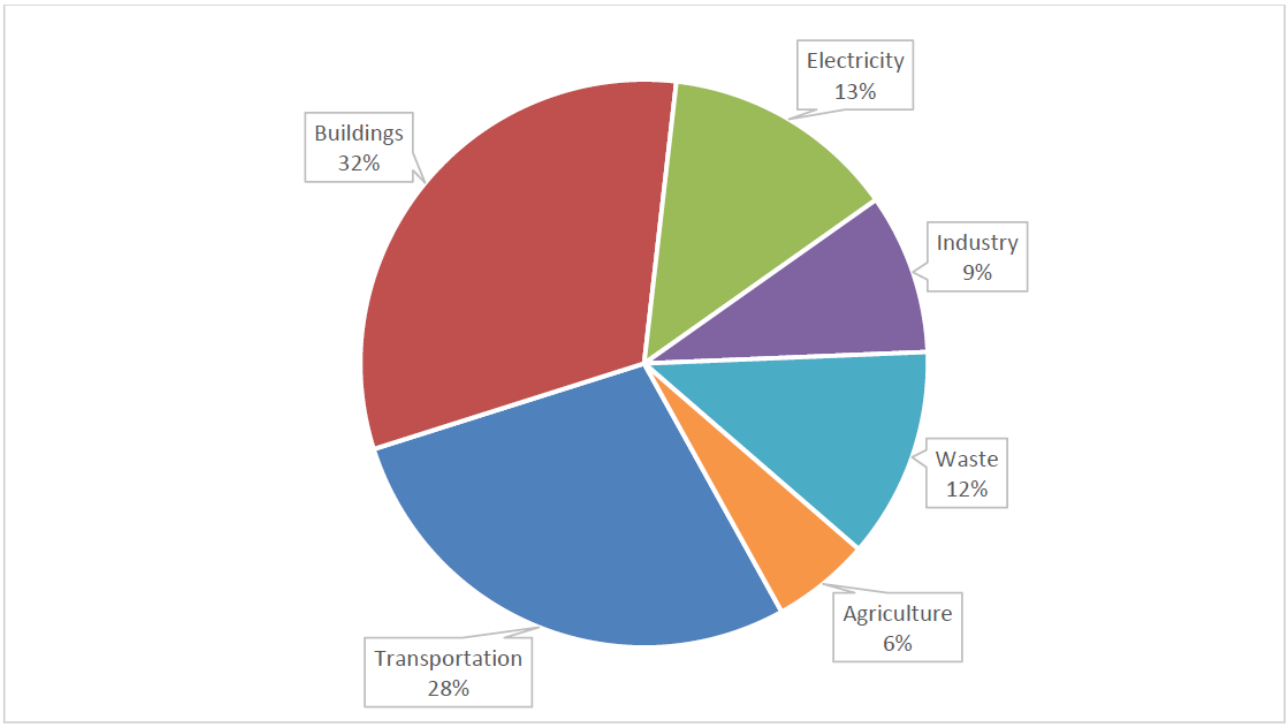
I write to emphasize that fully adopting parts 1229 and 1240 to implement NY's All Electric Building Law is the responsible thing to do.

Conversely, it is irresponsible to continue building with fossil fuels for two primary reasons. The first is the Climate Crisis and the second focuses on Economics.

Climate Crisis

First, as established in the 3 year long process of developing New York's Climate Action Scoping Plan, greenhouse gases from the building sector are the largest source of climate emissions in our state, followed closely by those from the transportation sector. The building sector emissions primarily come from space and water heating in buildings. Air conditioning, lighting and other electric load emissions are credited to the electric generation sector which is responsible for less than half the emissions of the building sector.

Figure 2. 2019 New York State GHG Emissions by Scoping Plan Sector



It is crucial that New York meets its legally mandated climate goals, which include reducing greenhouse gas emissions by 85% by 2050. This means systematically phasing out almost all fossil fuel heating systems by then. The All-Electric Building Act, which starts with new construction, where eliminating fossil fuels is easiest and least

expensive, is a minimal first step in New York's decarbonization journey. None of the sector strategies in the Climate Scoping plan will be easy to carry out, and backsliding on any of them is dangerous. That is especially true for buildings, as NY's worst sector for emissions.

Across the globe, the climate crisis is already severe and immediate. The last 12 months have all seen CO_2 levels above 1.5 degrees Celsius, a commonly accepted upper limit for avoiding the worst impacts of climate change. Drought, famine, flooding, climate driven refugee migrations, spreading disease vectors, species extinction, rising sea levels, and destructive hurricanes, tornadoes and other severe weather events are all growing, contributing to severe suffering and deprivation.

New York State is often seen as a climate haven with traditionally moderate temperatures and relatively low exposure to severe weather events. Yet in recent years we've experienced Hurricane Sandy, a bomb cyclone that killed 47 in Western New York, orange skies and toxic air from Canadian wildfires last summer, a brutal summer of heat so far this year and, most recently, a rare cluster of tornadoes in Western New York as the remnants of Hurricane Beryl passed through.

It is easy enough to blind ourselves to the fact that the current climate impacts we're experiencing are just the tip of the iceberg unless we enact swift and all-encompassing action to eliminate fossil fuel burning. But our children, grandchildren and future generations depend on us not to steal their chance to inhabit a livable planet. And we are currently failing them more dramatically every year as greenhouse gases build up in the atmosphere. The NY Codes Council is holding one of the most powerful keys to reversing this trend. Please don't be shy about using it. Let's face the climate crisis without blinders and responsibly carry out New York's climate laws – the All-Electric Building Act, the Climate Leadership and Community Protection Act, and the Advanced Building Codes, Appliance and Equipment Efficiency Standards Act of 2022.

The climate benefit and impact of eliminating fossil fuels from new buildings is more than reason enough to fully adopt the provisions of 1229 and 1240, but there is more…

Economics

The second reason it is irresponsible to continue building with fossil fuels is purely economic.

Federal tax incentives available today often mean that a new building with geothermal heat pumps for heating, cooling, and domestic hot water is close to the same cost, or even cheaper to build (first cost!) than a traditional gas + AC system.

New York's Clean Heat program rebates make the value proposition even better for installing all electric geothermal heat pumps in new buildings.

For individuals building new homes, geothermal heat pumps qualify for an uncapped 30% federal tax credit, a 25% NY State tax credit currently capped at $5,000 and NY Clean Heat rebates, which together bring the payback relative to a gas system with

traditional A/C down to a maximum of a few years, after which time the household living in the home will have stable heating and cooling bills, likely to become significantly lower than they would with gas + AC, and certainly lower than oil or propane + AC.

For commercial buildings, geothermal heat pumps also qualify for an uncapped 30% federal tax credit, and the credit is refundable (direct pay) to non-profit or municipal entities, and tradeable (transferable) for for-profit entities.

Undaunted K-12 has great resources that show how the tax credit brings costs for GSHP to lower than gas +AC. Here is an example. [1]

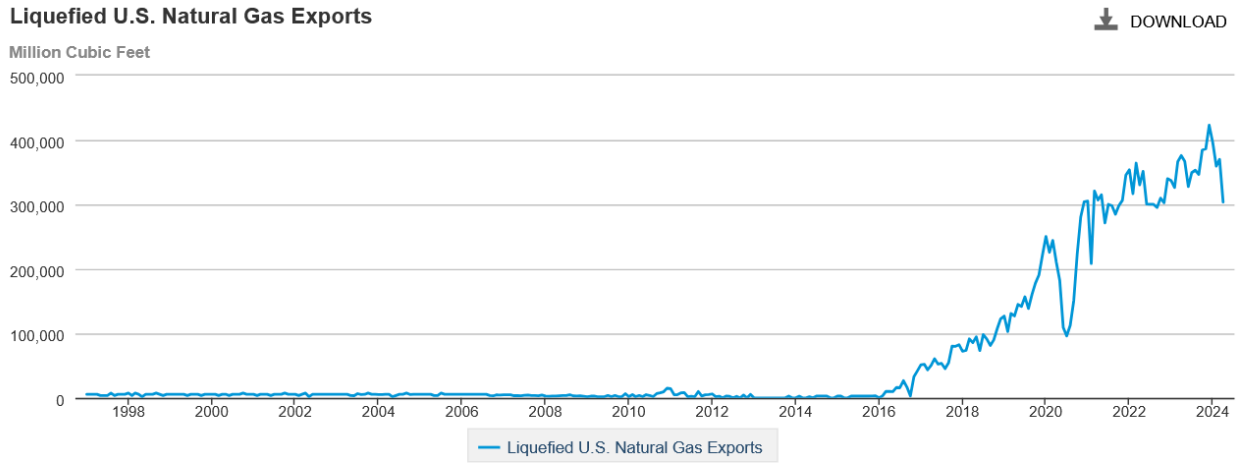
Geothermal heat pumps also qualify for 5 year accelerated depreciation and can help building owners qualify for other federal tax credits and deductions for energy efficient buildings.

In addition, it is irresponsible to new home buyers to continue installing fossil-fuel appliances, because New York's adopted climate policies indicate that those gas appliances will soon be obsolete. They will be increasingly expensive to repair and need to be replaced with electric heating units – a process that can be much more expensive and troublesome than starting with electrical appliances.

When heating systems in new homes being built today break down, both the price of gas and evolving policy measures make it very unlikely they will be replaced with fossil fuel systems.

The price of gas has been more unstable historically than that of electricity. Gas is likely to become much less affordable over the next decade for 3 reasons.

The first reason is the boom in gas exports from the US as illustrated below in this graph from the US Energy Information Agency. [2]



[1] https://drive.google.com/file/d/1_hauK1ZF5t3DWE90mSbGk6oTN0TruPEg/view Accessed 2024 07 24
[2] https://www.eia.gov/dnav/ng/hist/n9133us2M.htm Accessed 2024 07 16

It can be argued that the domestic price impact of gas exports has so far been dampened by increased US gas productivity, but the laws of supply and demand specify that as demand rises for gas exports, that demand creates pressure for gas prices to rise.

The second reason gas will become less affordable is the Cap & Invest (NYCI) program that is currently being developed under New York's Climate Action Plan. A primary goal of NYCI is to provide a price signal to New Yorkers to reduce the use of fossil fuels while embracing clean alternatives, thus reducing greenhouse gas emissions in a timely fashion to reach our goals. To one degree or another this means gas prices are going up, and it also means they will continue to rachet up as necessary to reach greenhouse gas reduction goals. NYCI is also designed to generate funds to help New Yorkers – particularly for low income homeowners and tenants in disadvantaged communities to pay for the transition away from fossil fuel use.

The Legislature recently passed the Climate Superfund Act, which is designed to generate $3 Billion per year from fossil fuel polluters to help pay for resiliency measures New York's communities need to initiate in response to climate damage and climate threats. While the Superfund Act targets legacy polluters, it will likely exert some pressure on fossil fuel heating prices in NY State, reinforcing the impact of NYCI.

The two reasons above will lead to a third. Gas infrastructure is paid off over decades and is the bulk of what we pay for on the delivery side of our gas bills. In New York the delivery side is often more than 50% of a typical residential gas bill[3]. As more and more customers stop heating with gas, fewer will be left to pay the built-up cost for all the gas pipes and other infrastructure and a spiral will result where increasing bills drive customers away, leaving fewer customers holding the bag until gas infrastructure becomes a "stranded asset" – one that is unused but still needs to be paid for. It will be challenging, but New York needs to come up with a strategy for addressing this spiral. In the meantime, adding new buildings with gas systems will exacerbate this predictable trend, and the All-Electric Building Act provides for a timely course correction.

NYS policy has united behind electrification as the chief strategy for decarbonizing buildings. But because the necessary transition is just getting started, the degree to which electrification is THE primary way forward for heating buildings may not be clear to all Codes Council members. I fear that, in the absence of a robust understanding of NY's Climate Action Scoping Plan, as well as knowledge of national and worldwide trends, Council members may be coasting on an assumption that fossil fuel heating might somehow remain available and affordable indefinitely into the future. Unless New York abandons its legally enforceable goal to reduce greenhouse gas emissions 85% by 2050, that assumption is false.

It is important that all on the Codes Council are fully aware of how widespread and well supported the trend to electrification has become. It is often said that New York's

[3] https://dps.ny.gov/gas-utility-ten-year-historic-average-monthly-bill-data-typical-customers - accessed 2024 07 23

Climate Law (the CLCPA) is "nation-leading". There are aspects of the CLCPA that are truly note-worthy, but, in reality, New York is just one among many jurisdictions that are simultaneously embracing a housing sector without fossil fuels.

Some NY examples which are helpful to keep in mind:

- NY Homes and Community Renewal has begun successfully implementing its Sustainability Guidelines by starting several all-electric affordable housing projects in Buffalo, Albany, NY City and elsewhere
- Local Law 97 in New York City is stimulating numerous all-electric building projects there
- Ithaca has adopted a Green New Deal plan to electrify all 6,000 of the City's buildings
- Con Edison's Select Pricing Plan[4], designed to reflect the true cost savings heat pumps – particularly geothermal heat pumps – can provide to the grid. This new rate has demonstrated significant bill savings[5] and points the way to significant benefits for owners of all-electric homes
- Beacon, NY - On March 20, 2023, the Beacon City Council unanimously adopted Local Law No. 1 of 2023 prohibiting the use of fossil fuels in new commercial and residential buildings, starting January 1, 2024. [6]

Moving out of State, and here's where Codes Council members can take assurance they aren't putting New York too far ahead of the status quo…

- In February of this year, 9 states (California, Colorado, Maine, Maryland, Massachusetts, New Jersey, New York, Oregon and Rhode Island) pledged to make heat pumps 90% of residential heating, air conditioning and water heating sales by 2040
- In California, the Bay Area Air Quality Management District has adopted rules that will stop the installation of new gas fired water heaters and furnaces in 2027 for both new builds and appliance replacements
- Maine's Green Economy effort has created 15,000 jobs and has installed over 100,000 heat pumps. In that really cold state of only 1.4 million people, heat pumps are now more common than oil heat in new homes
- Massachusetts utility Eversource has completed a 125 customer Thermal Energy Network in Framingham and the Massachusetts Department of Public Utilities has set the explicit policy goal of transitioning the state from natural gas
- Maryland Gov. Wes Moore has ordered a zero-emission heating equipment standard
- Minnesota is home to a growing number of networked geothermal systems
- Washington, D. C. has ordered their gas utility to come up with a new pipe replacement plan to minimize stranded assets as ratepayers move to electric appliances
- Washington State has established a single rate base for utility Puget Sound Energy to allow the transition away from gas for all its customers

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[4] https://www.coned.com/en/accounts-billing/select-pricing-plan - accessed 2024 07 22

[5] https://lite.coned.com/_external/cerates/documents/reports/rate-IV-assessment.pdf - accessed 2024 07 22

[6] https://beaconny.gov/wp-content/uploads/2023/03/COB-PR-2023-Electrification-Law.pdf - accessed 2024 07 22

- Washington State has amended the state's "obligation to serve" for gas utilities to allow them to sell thermal energy instead of gas to customers
- In Seattle all existing commercial and multifamily residential buildings over 20,000 square feet will need to reach net-zero emissions by 2050. Meeting that target will effectively require building owners to replace oil and gas-powered furnaces, water heaters, gas stoves, and other appliances with electric alternatives like heat pumps and induction stoves
- The Washington State Building Code Council voted 11 to 3 to require all-electric heating in commercial buildings starting in 2023

And beyond the U.S….

- Toronto Green Standard (TGS) implementation dates for the Greenhouse Gas Emission limits accelerated to 2025 and 2028 so that buildings constructed on or after 2030 are near zero emissions [7]
- Vancouver has mandated heat pumps in retrofits [8], and it has gone more smoothly than expected[9]. It can be done.
- European Union - Aiming to achieve a fully decarbonised building stock by 2050, the Energy Performance of Buildings Directive contributes directly to the EU's energy and climate goals [10]
- Norway banned the use of heating oil in buildings in 2020 [11]
- In Germany new oil and gas heating systems were essentially banned in 2024 in in areas of new residential developments and the ban will extend country-wide by 2028. [12]
- South Korea's building codes require new public buildings with an area of at least 1,000 m2 to have net-zero energy consumption. By 2030, all new structures of at least 500 m2, both public and private, will have to be net zero in energy consumption.[13]

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[7] https://www.toronto.ca/city-government/planning-development/official-plan-guidelines/toronto-green-standard - accessed 2024 07 22

[8] https://vancouver.ca/home-property-development/mechanical-permit.aspx#:~:text=As%20of%20January%201%2C%202023,cooling%20(electric%20heat%20pumps) – accessed 2024 07 22.

[9] https://www.mcjcollective.com/my-climate-journey-podcast/chris-higgins - accessed 2024 07 22

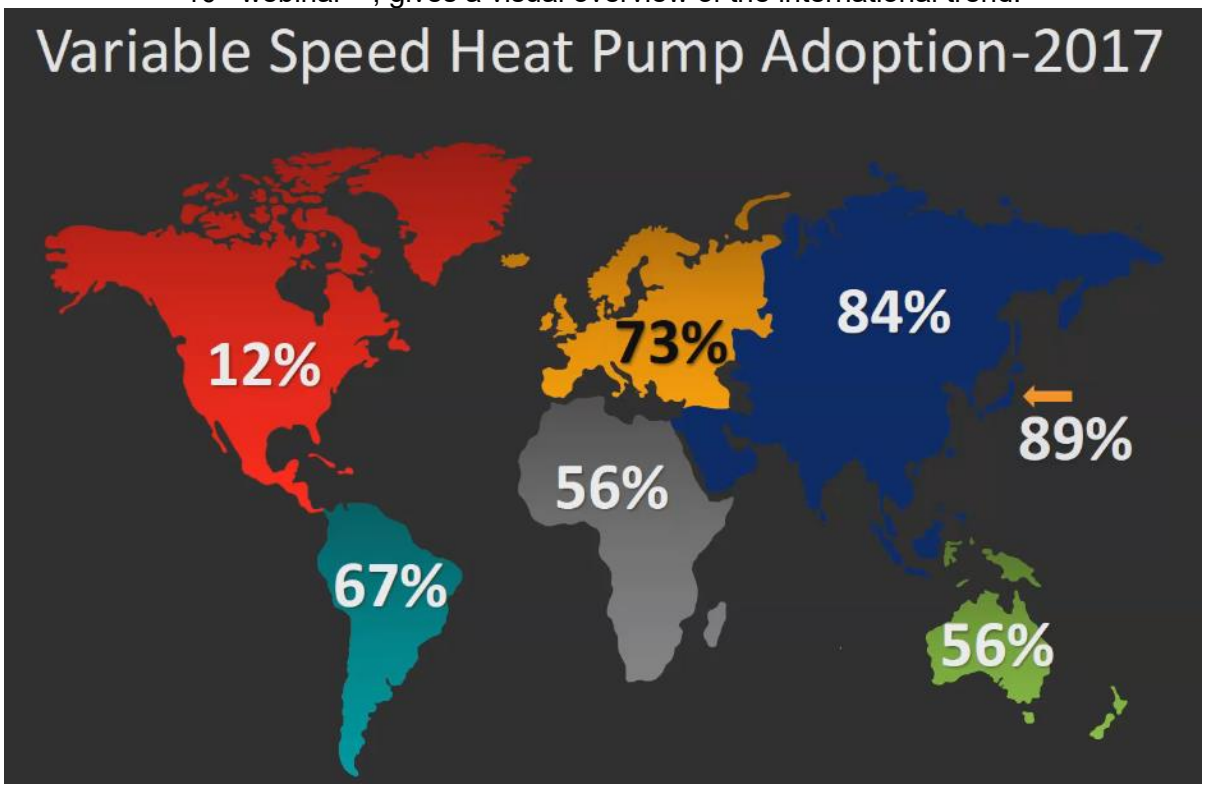
[10] https://energy.ec.europa.eu/topics/energy-efficiency/energy-efficient-buildings/energy-performance-buildings-directive_en - accessed 2024 07 22 -- Stephen Bielby, Operations Manager & Secretariat, UK Ground Source Heat Pump Association for information on European electrification trends

[11] https://www.reuters.com/article/business/energy/oil-producer-norway-bans-use-of-heating-oil-in-buildings-idUSL8N1JC45Z/ - accessed 2024 07 22

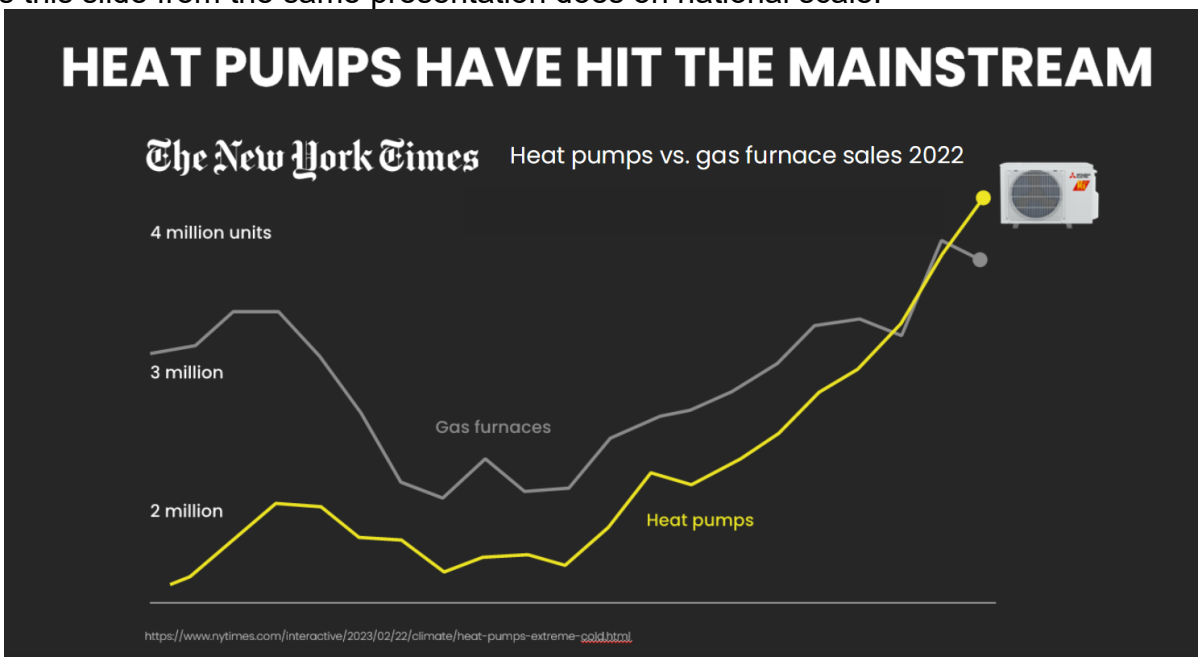
[12] https://www.cleanenergywire.org/factsheets/qa-germany-debates-phaseout-fossil-fuel-heating-systems - accessed 2024 07 22

[13] https://www.raponline.org/wp-content/uploads/2023/09/RAP_Heat_Pump_Toolkit.pdf - page 51 - accessed 2024 07 22

While the examples above don't fully document the international trend and commitment to electrification, the graph below from a presentation given by Mitsubishi representatives in a July 10th webinar [14], gives a visual overview of the international trend.



As this slide from the same presentation does on national scale.



[14] https://communityp.com/insights/heat-pumps-in-your-home-installation-dos-and-donts-to-improve-performance/ - Michele Connor Mitsubishi Electric - 22 – slide from the 7:31 minute mark of the recording – Connor described the US as "grossly behind the rest of the world" - accessed 2024 07 22

The electrification trend is strong, and it is the only sensible way forward in light of the climate crisis and the negative economic impacts of inaction. Please embrace it for the good of NY's homeowners.

Most any contractor will tell you that retrofitting a home from a fossil fuel heating system to an efficient electric heat pump system is usually considerably more expensive than installing the heat pump system as the home is built. Forcing home buyers to adjust, when their first water heater or furnace breaks down or when fossil fuel prices rise substantially, is inefficient and unfair to the homeowner.