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Greening New York City's Homes:

The Case for Requiring Energy Efficiency Upgrades

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INTRODUCTION & SUMMARY

If New York City hopes to achieve its goal of reducing greenhouse gas emissions by 80% below 2005 levels by 2050 it will have to dramatically improve the energy efficiency of its building sector, which accounts for nearly three-quarters of the City's total emissions.[1] In light of this challenge, officials have taken important steps in recent years to improve building energy efficiency, such as strengthening the energy code for new construction[2] and requiring large existing properties (25,000 square feet or bigger) to release annual energy use data.[3] Large buildings have also been obligated to make certain energy-saving upgrades to their building systems.[4] But because existing buildings under 25,000 square feet are exempt from these rules, a significant opportunity to reduce emissions is being squandered. Just a subset of buildings under 25,000 square feet — 1 to 4 family homes ("small residential buildings") — is responsible for 20% of the City's greenhouse gas emissions on its own.[5]

Fortunately, efforts to improve the energy efficiency of small residential properties elsewhere offer models for New York City to follow as it looks to boost performance in the sector. In particular, a number of jurisdictions in the United States and abroad have required residential property owners to implement energy efficiency upgrades prior to executing various transactions such as a sale or re-lease of the property. This approach holds considerable promise; if properly calibrated, energy efficiency upgrades should produce meaningful greenhouse gas reductions without unduly burdening owners. In fact, they may benefit owners by lowering utility bills, thereby improving affordability of housing.

This Policy Brief argues that New York City should itself adopt an energy uprade requirement for small residential buildings and provides guidance on how such a requirement could be designed. We begin, in Part I, by examining the case for a energy upgrade requirement and elucidating why we believe it is a necessary component of a comprehensive strategy for the small residential sector. Next, in Part II, we draw upon other jurisdictions' experiences with energy efficiency upgrade policies (also knows as

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[1] TECHNICAL WORKING GROUP REPORT ON ONE CITY BUILT TO LAST, TRANSFORMING NEW YORK CITY BUILDINGS FOR A LOW-CARBON FUTURE, New York City Mayor's Office of Sustainability 19 (2016) [hereinafter *Technical Working Group Report*].

[2] *See* DONNA DECOSTANZO, BEEFED-UP NYC ENERGY CODE WILL CUT CARBON, IMPROVE BUILDINGS, NATURAL RESOURCES DEFENSE COUNCIL (2016), https://www.nrdc.org/experts/donna-de-costanzo/beefed-nyc-energy-code-will-cut-carbon-improve-buildings; CHRISTOPHER HALFNIGHT, NEW ENERGY CODE MEANS BIG EFFICIENCY GAINS FOR CITY AND STATE, URBAN GREEN COUNCIL (2016), http://www.urbangreencouncil.org/content/news/new-energy-code-means-big-efficiency-gains-city-and-state. Note that the Energy Code also governs substantial renovations.

[3] New York City Local Law No. 84 (2009). Initially, Local Law 84 only covered buildings over 50,000 square feet. However, in October of 2016, the City Council voted to extend the law cover buildings between 25,000 and 50,000 square feet as well. New York City Local Law No. 133 (2016).

[4] New York City enacted these requirements as part of a comprehensive effort to improve the energy efficiency of its large existing buildings. The relevant legislation, referred to as the Greener Greater Buildings Plan ("GGBP"), covered buildings over 50,000 square feet and consisted of four regulations: (1) Local Law 84, which requires covered buildings to benchmark their energy and water consumption; (2) Local Law 85, which is New York City's local energy code; (3) Local Law 87, which requires covered large buildings to conduct an energy audit and perform retro-commissioning every 10 years; and (4) Local Law 88, which requires covered buildings to upgrade the lighting in non-residential space and to provide large commercial tenants with sub-meters by 2025. *See* Greener, Greater Buildings Plan, New York City Mayor's Office of Sustainability, http://www.nyc.gov/html/gbee/html/plan/plan.shtml.

[5] *See Technical Working Group Report*, *supra* note 1, at 25-26, Figs. 6 and 7.

"retrofits") to suggest elements that New York City should include in its own ordinance. Our analysis in this section is based on interviews with fourteen experts from jurisdictions that have energy upgrade requirements in place. Next, in Parts III and IV we consider legal pathways that the City could take to implement a residential energy upgrade obligation and assess the strength of potential legal challenges that may be lodged against it. Part V concludes.

Notably, the recommendations in this report are specifically geared toward 1 to 4 family homes because there are some distinctive features to the sub-sector, including similar building construction and design, which make separate analysis appropriate.[6] However, the City may want to develop similar obligations for all residential buildings under 25,000 square feet. Moreover, while we believe that a energy efficiency upgrade requirement would make a valuable contribution to the City's efforts to improve energy efficiency in its small buildings, we do not think that it is a sufficient policy in and of itself. Instead, we hope that it would be part of a broader suite of measures for the sector that would also include an energy disclosure requirement.

I. THE CASE FOR REQUIRING ENERGY EFFICIENCY UPGRADES IN SMALL RESIDENTIAL BUILDINGS

A wealth of research indicates that efficiency measures can significantly reduce residential energy consumption.[7] For instance, a 2012 Department of Energy ("DOE") supported study of homes in Atlanta, Georgia found that energy efficiency improvements produced an average of 32% savings in utility expenses during a heating season.[8] Another recent DOE supported study, which conducted a meta-analysis of studies of deep energy retrofits, found consistent energy savings ranging from 30% to 70%.[9] Some researchers have gone so far as to argue that energy efficiency improvements of existing homes represent the majority of all potential energy savings in the building sector in the U.S.[10]

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[6] *See* PRATT CENTER FOR COMMUNITY DEVELOPMENT, ENERGY FIT NYC, INTERIM REPORT 3 (2016), *available at* http://prattcenter.net/sites/default/files/energyfit_interim_report_oct_2016.pdf [hereinafter "*Pratt Center Report*"] (finding that 1 to 4 family homes built prior to 1930 have many similar design features and require similar types of retrofits to improve energy performance). There are two additional key differences between 1 to 4 family homes and larger residential buildings: 1) 1 to 4 family homes are far less likely to be run by a professional management agent; 2) the owners of 1 to 4 family homes have greater control over the structural components of the property than the sellers of units within larger buildings.

[7] *See, e.g.* BRENNAN LESS & IAIN WALKER, LAWRENCE BERKELEY NATIONAL LABORATORY, A META-ANALYSIS OF SINGLE-FAMILY DEEP ENERGY RETROFIT PERFORMANCE IN THE U.S. 10, tbl. 1 (2014); Malcolm Bell & Robert Lowe, *Energy Efficient Modernization of Housing: A UK Case Study*, 32 ENERGY AND BUILDINGS 267, 276 (2000) (finding houses that received energy efficiency retrofits in a demonstration project in York, England used 20-47% less energy than a group of control houses); R.J. Brecha et al., *Prioritizing Investment in Residential Energy Efficiency and Renewable Energy – A Case Study for the U.S. Midwest*, 39 ENERGY POLICY 2982, 2988, tbl. 4 (2011) (computer models of energy savings associated with various retrofits to homes in rural Ohio showed that households could cut natural gas usage 28% just by adding attic insulation and sealing air ducts).

[8] The measures employed were duct sealing, air infiltration reductions, attic sealing and roof deck insulation, crawlspace sealing, HVAC and water heating equipment replacement, and lighting and appliance upgrades. RODERICK JACKSON ET AL., AMERICAN COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY ("ACEEE") 2012 SUMMER STUDY ON ENERGY EFFICIENCY IN BUILDINGS, ADVANCING RESIDENTIAL ENERGY RETROFITS, 1-127, 1-127 (2012).

[9] There was substantial variation in the types of retrofits implemented in the studies analyzed. However, all studies included in the meta-analysis self-identified as having performed "deep energy retrofits" that targeted all or nearly all building assemblies, services and end uses. LESS & WALKER, *supra* note 8, at 9.

[10] *See e.g.*, LESS & WALKER, *supra* note 7, at 8; CHRIS NEME, MEG GOTTSTEIN & BLAIR HAMILTON, REGULATORY ASSISTANCE PROJECT, RESIDENTIAL EFFICIENCY RETROFITS: A ROADMAP FOR THE FUTURE, 12 (2011).

Not only can residential energy efficiency upgrades produce meaningful energy, and therefore greenhouse gas, savings, but they also appear to be a highly cost-effective means of doing so.[11] Some types of efficiency improvements, particularly weatherization measures, are even predicted to pay for themselves within just a few years. To illustrate, a recent study that modeled the predicted costs and benefits of implementing three types of home energy retrofits in different American cities with varying climates found that all measures had payback periods of less than six years in the cities with relatively cool climates.[12] Replacing standard thermostats with programmable thermostats was found to be particularly cost-effective; the payback period was less than two years in each city examined.[13] After that point, the technology was predicted to save homeowners approximately $100 per year in energy costs.[14] In cities with colder climates, air sealing and attic insulation were also predicted to have short payback periods, ranging from approximately two to four years.[15]

These cost savings could be significant for low-income households, which often spend large portions of their income on energy bills.[16] In New York State, the statistics are particularly stark: households at or below the federal poverty level in New York "have home energy bills that amount to 22 percent of their annual income or more."[17] Many of New York City's residents fall within this category; Con Edison serves approximately 530,000 low-income gas and electric customers in New York City, and National Grid serves another 35,000 low-income customers.[18] These customers are disproportionately located in the outer boroughs,[19] where the majority of small residential buildings are located as well. Indeed, of the approximately 1.3 million small residential buildings in New York City, only 45,206 – or three percent - are located in Manhattan.[20]

Given that energy efficiency upgrades produce cost-savings for homeowners, some may ask why it is necessary to mandate them – won't homeowners make cost-effective improvements on their own? In fact,

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[11] Among the various sectors where energy efficiency improvements could be made, the building sector is believed to offer the greatest potential for improvement at the lowest cost. *See* Jonathan L. Bradshaw, Elie Bou-Zeid, & Robert H. Harris, *Greenhouse Gas Mitigation Benefits and Cost-Effectiveness of Weatherization Treatments for Low-Income, American, Urban Housing Stocks*, 128 ENERGY AND BUILDINGS 911, 911 (2016).

[12] The six cities examined were Orlando, Los Angeles, Seattle, Philadelphia, Detroit and Milwaukee. *Id.* at 912. Payback periods only exceeded 6 years for two measures – installing attic insulation and envelope sealing – in the cities in hot climates, Orlando and Los Angeles. *Id.* at 919.

[13] *Id.* at 918, fig. 9. Notably, the calculation of payback periods incorporates a $37 Social Cost of Carbon (SCC) for each ton of greenhouse gas emissions reduced. *Id.* at 917.

[14] *Id.* at 916, fig. 6.

[15] *Id.* at 918, fig. 9.

[16] *See* ARIEL DREHOBL, LAUREN ROSS, ACEEE, LIFTING THE HIGH ENERGY BURDEN IN AMERICA'S LARGEST CITIES: HOW ENERGY EFFICIENCY CAN IMPROVE LOW INCOME AND UNDERSERVED COMMUNITIES 4, tbl. ES1 (2016) (finding that the median energy burden for low-income households in the United States is 7.2%, as compared to 2.3% for non-low-income households).

[17] Press Release, New York Public Service Commission, *PSC Looks to Strengthen, Improve Utility Assistance for Low-Income Families* (June 2, 2015).

[18] Comments of the City of New York, Proceeding on Motion of the Commission to Examine Programs to Address Energy Affordability for Low Income Utility Customers, Case 14-M-0565, Sr. No. 102, n.2 (March 5, 2015).

[19] For example, the borough with the highest percentage of its population below the federal poverty line is the Bronx, with a poverty rate of 30.7%. STATE OF NEW YORK CITY'S HOUSING AND NEIGHBORHOODS IN 2015, NYU FURMAN CENTER 71 (2016). Considering that the four outer boroughs have a combined population of approximately 6.5 million, compared to Manhattan's population of approximately 1.5 million it is clear that the overwhelming majority of low-income households are in the outer boroughs., https://www.newyorkfed.org/data-and-statistics/regional-data-center/profiles/newyorkcity.html,

[20] Specifically, there are 142,835 buildings that house between one and four families in the Bronx, 503,044 in Brooklyn, 501,949 in Queens, and 155,169 in Staten Island. These statistics are provided courtesy of the NYU Furman Center based upon their assessment of data found in the American Community Survey.

research indicates that households routinely neglect to implement energy efficiency upgrades that would save them money.[21] This problem – which has been coined "the energy paradox"[22] – stems in part from market failures, such as information deficits.[23] For instance, current homeowners may not know that cost-effective savings are available, and prospective buyers or tenants may not have the information needed to distinguish efficient properties from inefficient ones. Both scenarios lead to inefficient pricing.

Energy audit and disclosure policies can mitigate these inefficiencies[24] but they won't eliminate the energy efficiency gap entirely because property owners do not always behave rationally even when presented with full information about energy efficiency.[25] For example, due to the so-called "endowment effect" individuals may be reluctant to dispense with an appliance that has already been paid for even if they know it makes financial sense to replace it with something more efficient.[26] Even more simply, as behavioral economists have noted in explaining the energy paradox, "people procrastinate; attention wanders."[27] An energy efficiency requirement would provide a backstop against these types of behavioral anomalies and ensure that all homes meet a basic energy standard. If there were a complementary disclosure requirement in place, consumers would also be able to identify properties that surpass those basic requirements.[28] In short, an energy upgrade requirement is an important part of a comprehensive strategy for improving the efficiency of all existing buildings.

II. CRAFTING AN EFFECTIVE POLICY INSTRUMENT

A sizeable number of other domestic and international jurisdictions have adopted some form of energy efficiency upgrade requirement for small residential buildings. In the United States, San Francisco,

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[21] *See, e.g.*, SUSANNE DYRBØL & SØREN AGGERHOLM, IMPLEMENTATION OF THE EPBD IN DENMARK 2 (2008) (noting "there seems to be a high inertia in investments which are not related to visible building improvements despite a high return on investments"); HANNAH CHOI GRANADE ET AL., MCKINSEY & CO., UNLOCKING ENERGY EFFICIENCY IN THE U.S. ECONOMY 23 (2009).

[22] *See* TODD D. GERARDEN, RICHARD G. NEWELL & ROBERT N. STAVINS, HARVARD ENVIRONMENTAL ECONOMICS PROGRAM, ASSESSING THE ENERGY-EFFICIENCY GAP 1 (2015); KENNETH GILLINGHAM & KAREN PALMER, RESOURCES FOR THE FUTURE, BRIDGING THE ENERGY EFFICIENCY GAP: INSIGHTS FOR POLICY FROM ECONOMIC THEORY AND EMPIRICAL ANALYSIS 2 (2013).

[23] GERARDEN ET AL., *supra* note 20, at 20-22 (noting that there is compelling evidence that information asymmetries and split incentives both contribute to failures to invest in energy efficiency).

[24] *See* Richard G. Newell & Juha V. Siikamäki, *Nudging Energy Efficiency Behavior: The Role of Information Labels*, 1 J. OF THE ASS'N OF ENVTL. & RESOURCE ECON. 555, 593 (2014).

[25] A Canadian study from 2013 provides a clear example of this problem. The study examined 188,000 houses that received a home energy audit; households that elected to undertake a second energy audit to confirm that upgrades recommended in the initial audit had been implemented were eligible to receive grant payments of up to $3,348. Despite this incentive, only 19% of participating homes underwent a second audit. *See* Samuel Faye Gamtessa, *An Explanation of Residential Energy-Efficiency Retrofit Behavior in Canada*, 57 ENERGY AND BUILDINGS 155, 156 (2013).

[26] DYLAN SULLIVAN, CARRIE ARMEL, & ANNIKA TODD, WHEN "NOT LOSING" IS BETTER THAN "WINNING:" USING BEHAVIORAL SCIENCE TO DRIVE CUSTOMER INVESTMENT IN ENERGY EFFICIENCY, ACEEE 2012 SUMMER STUDY ON ENERGY EFFICIENCY IN BUILDINGS 13-284, 13-287 (2012).

[27] Hunt Allcott & Sendhil Mullainathan, *Behavior and Energy Policy*, 327 SCIENCE 1204, 1204 (2010). *See also* Tsvetan Tsvetanov & Kathleen Segerson, *Re-evaluating the Role of Energy Efficiency Standards: A Behavioral Economic Approach*, 66 J. ENVTL. ECON. AND MGMT. 347, 347 (2013) (finding that, due to behavioral failures, policies that incorporate a Pigovian tax *and* mandatory standard generate higher social welfare than policies utilizing Pigovian taxes alone).

[28] The New York Energy Efficiency Code, NYCRR tit. 19, pt. 1240, already requires all new construction to meet certain minimum energy efficiency standards. The energy efficiency upgrade requirement would thus ensure that new and existing buildings are treated similarly to new construction, with both being required to meet certain minimum standards.

California, Burlington, Vermont, Austin, Texas,[29] and the State of Wisconsin have all adopted such policies. Overseas, the European Union included an efficiency improvement requirement in its Energy Performance of Buildings Directive ("EPBD")[30] and several European Member States, as well as subnational European jurisdictions, have enacted their own regulations that go beyond the EPBD's mandate.[31]

We have conducted interviews with fourteen individuals who have assisted with, or studied, the implementation of these other jurisdictions'energy uprade requirments. We have also conducted interviews with numerous local experts in New York City building energy efficiency policy and real estate law. Based on these interviews, as well as a review of the relevant literature, we believe New York City's ordinance should contain the following features:

1. It should establish a prescriptive checklist of required upgrades;
2. It should require homeowners to make only modest capital outlays, and only mandate upgrades that are predicted to have short payback periods; and
3. It should be flexible and offer multiple paths to compliance.

In terms of timing, we believe the obligation to implement upgrades should be triggered by the sale of a property, or the arrival of a universally applicable phase-in date. We review the details of and rationales for these recommendations below. We begin by examining what should be required, and then turn to when the requirements should kick in.

Notably, our research indicates that other jurisdictions' energy upgrade ordinances have suffered from two primary flaws. First, they have paid inadequate attention to compliance and enforcement procedures. Second, they have failed to instill mechanisms for periodic review and updates of the particular measures required without the need for new legislative action. As a result, the ordinances quickly became obsolete. New York City can learn from these mistakes in devising its own mandate.

A. What Should Be Required?

1. Establish a prescriptive checklist of upgrades

Perhaps the most important decision policymakers will have to make in designing an energy upgrade mandate is whether the policy should be prescriptive, detailing exactly what measures are required, or set a performance standard that specifies a maximum energy usage per square foot but allows the owner decide how to achieve this standard.

The prescriptive approach appears most appropriate for small residential buildings. While a performance oriented approach could theoretically lower the average cost of compliance by providing individuals with flexibility to determine how to most efficiently meet the mandate,[32] we fear that many small building owners would struggle to identify a strategy for compliance, leading to weak

[29] Austin's residential efficiency ordinance is an outlier among the other jurisdictions listed in that it only applies to properties with more than five dwelling units. Austin City Code, tit. 6, §§ 6-7-1, 6-7-23. Perhaps not coincidentally, Austin is also the only American jurisdiction to exclusively provide a performance-based pathway to compliance as opposed to a prescriptive pathway, or a choice of the two approaches.
[30] Directive of the European Parliament on the Energy Performance of Buildings, 2010/31/EU, art. 4 & 7 (2010) [hereinafter *EPBD*].
[31] To be precise, European Union's energy efficiency policies apply to nearly all buildings, not just small buildings.
[32] *See* Cary Coglianese, Jennifer Nash & Todd Olmstead, *Performance-Based Regulation: Prospects and Limitations in Health, Safety, and Environmental Protection*, 55 ADMIN. L. REV. 4, 705, 707-08 (2003).

implementation.[33] A prescriptive checklist would be far simpler for homeowners.[34] It should also be straightforward for home inspectors, or even real estate brokers, to verify whether the required upgrades have been made. By contrast, monitoring compliance with a performance standard would require properties to undergo a professional home energy audit, which would drive up the cost of the program.[35] Moreover, early findings of a pilot study of retrofits in row houses in New York City indicate that prescribing a standard set of upgrades throughout an area creates economies of scale, making this approach all the more cost-effective.[36]

Critically, however, for a prescriptive approach to be effective over the long-term, the list of required upgrades must be regularly updated to keep pace with improvements in technology. Field experts in both San Francisco and Wisconsin lamented that their ordinances did not permit the relevant agencies to make periodic updates without new legislative action, which they argue dramatically limited the policies' effectiveness.[37] The City should consider convening a group of stakeholders, including homeowners' representatives, engineers, attorneys, and environmental non-profits, to determine what measures should be required and to periodically review the checklist and suggest amendments to it.

San Francisco's Residential Energy Conservation Ordinance suggests how a checklist approach might be structured. Buildings with one or two dwelling units must make upgrades such as adding ceiling insulation, weather-stripping of doors, and sealing of cracks in the building exterior.[38] Buildings with three or more units must make all those upgrades plus some additional ones such as cleaning of boiler units.[39] For both property types, building owners are required to complete an energy inspection form showing compliance with applicable energy conservation measures prior to transfer of title.[40]

With time, as New York's small building owners gain familiarity with energy efficiency regulation, the City may want to transition towards a performance approach. Various European jurisdictions have taken this approach already. As mentioned above, the European Union's EPBD requires Member States to set performance standards for all existing buildings, including small ones.[41] Under Article 7 of the same

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[33] *See Pratt Center Report*, *supra* note 7, at 3 (noting homeowners report being overwhelmed by the recommendations provided in home energy audit report, which often outline multiple options for improvement). Large and mid-sized buildings, which are generally run by professional management companies, are better candidates for a performance-oriented approach.

[34] In addition to keeping the list of required energy efficiency upgrades simple, we believe the City should also provide as much technical and administrative assistance as possible to homeowners as they undertake upgrades. For example, the City could consider expanding the existing Retrofit Accelerator and/or offering an energy concierge-type service that helps owners to coordinate interactions with banks, auditors, contractors and utilities would make the process easier for homeowners and might encourage some who otherwise would not to go beyond the minimum requirements to do so. *See* THE ENERGY EFFICIENCY EXTRA VALUE MENU: STREAMLINING ENERGY EFFICIENCY DELIVERY, NATURAL RESOURCES DEFENSE COUNCIL (PREPARED BY OPTIMAL ENERGY, INC.) (2015).

[35] This assumes that a performance standard would be based on an asset rating, rather than energy use intensity score. *See infra* note 47 with accompanying text on the distinction between an asset rating and energy use intensity score.

[36] *Pratt Center Report*, *supra* note 6, at 3, 27.

[37] Interview with Cori Lamont, Director of Corporate and Regulatory Affairs, Wisconsin Realtors Association (Sept. 23, 2016); interview with Barry Hooper, Senior Green Buildings Specialist, San Francisco Department of the Environment (Nov. 22, 2016). Notably, EPCA is an example of energy efficiency legislation that allows for updates and additions to its list of covered products without the need for legislative action. 42 U.S.C. § 6292(a)(20).

[38] San Francisco Building Inspection Commission Codes, ch. 12, § 1212(a).

[39] *Id.* at § 1212(b).

[40] *Id.* at § 1211(a).

[41] *EPBD* art. 4. Member States have discretion to decide how stringent the performance standard is, but the chosen standard must express the property's total allowable primary energy consumption. *See EPBD* art. 3 & Annex 1. The

directive, Member States must ensure that buildings are brought into conformance with this standard following any major renovation.[42] At the national level, France passed a law in 2015 that requires buildings that receive the two lowest energy benchmarking scores - F and G – to be retrofitted by 2025.[43] Similarly, in the United Kingdom, it will be illegal to re-lease buildings that score in the two lowest benchmarking bands after 2018.[44] Performance standards like this seem more reasonable in the European context because all buildings owners have been subject to energy performance reporting and benchmarking requirements for many years.[45] As such, European homeowners should be savvier about building efficiency today than New York homeowners, who have not yet been subject to any energy disclosure regulation.[46]

Moreover, in many European jurisdictions, Denmark and the U.K. included, energy performance scores are based on as assessment of how efficient a building's physical and structural components are (a so-called "asset rating" score). In contrast, New York City's current benchmarking program, which applies to large buildings, scores the amount of energy consumed onsite (a so-called "energy use intensity" score). This distinction matters because homeowners use their homes very differently. As a result, if we score properties based on actual energy usage, properties may receive dramatically different scores due to the habits of their occupants rather than the construction of the building. To illustrate, imagine the different energy profiles of a three-bedroom apartment occupied by a family with three small children who are home during the days as compared to a similar apartment that is occupied by three 20-something roommates who work all day. If New York City were to adopt a performance-oriented efficiency requirement without simultaneously adopting an asset rating approach to measuring performance of small buildings, there is a risk of unfairly disadvantaging the family with children while privileging the 20-somethings.[47]

2. Require only modest capital outlays and cost-effective upgrades

The costs of some energy efficiency upgrades can be substantial and overburden homeowners with limited means.[48] Recognizing this, several American jurisdictions have capped the amount of money that homeowners have to spend on upgrades. For example, San Francisco limits the amount owners must spend to 1% of purchase price or 1% of the assessed value of the building, whichever is greater.[49] Owners of buildings with only one or two units are provided an additional safeguard in the form of a

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total allowable energy consumption can be based on actual energy use or a calculated asset rating. *Id.* art. 1 & Annex 1.

[42] *EPBD* art. 7.

[43] Loi Relative à la Transition Enérgétique pour la Croissance Verte art. 5 (2015). *See also* BUILDING PERFORMANCE INSTITUTE EUROPE, RENOVATION IN PRACTICE: BEST PRACTICE EXAMPLES OF VOLUNTARY AND MANDATORY INITIATIVES ACROSS EUROPE 9 (2015) [hereinafter *Renovation in Practice*]. Denmark is reportedly considering adopting a similar requirement.

[44] *Renovation in Practice*, *supra* note 40, at 11.

[45] For example, Denmark has required owners to participate in benchmarking their buildings' energy performance since 1997. Ole Michael Jensen et al., *Market Response to the Public Display of Energy Performance Rating at Property Sales*, 93 ENERGY POLICY 229, 229 (2016).

[46] Notably, owners of units in large residential buildings may have greater familiarity with energy benchmarking because buildings over 50,000 have been required to submit annual benchmarking data since 2011. New York City Local Law 84 § 28-309.4 (2009).

[47] Energy use intensity scores are more appropriate for large buildings where these types of behavioral variations are more likely to average out.

[48] Gamtessa, *supra* note 23, at 156 (finding that the cost of retrofits have a statistically significant negative effect on the probability that a household would elect to undertake a recommended retrofit).

[49] San Francisco Building Inspection Commission Codes, Chpt. 12, §1209.

$1,300 cap on total required expenditure, irrespective of the purchase price.[50] If appropriately calibrated for New York City,[51] this type of sliding-scale approach could ensure the program's affordability while simultaneously pushing owners of more valuable buildings to invest more. Finally, just as the list of required upgrades needs to be periodically updated, any spending cap New York City adopts should be subject to an automatic inflation adjustment.

In addition to being modestly priced, the required upgrades should have a short expected payback period so that they do not meaningfully increase the cost of housing for an extended length of time. While it is beyond the scope of this Policy Brief to suggest particular upgrades that might pass this standard,[52] existing studies offer some insight into the types of measures that may be appropriate. For instance, basic weatherization measures such as weatherstripping unsealed windows and caulking gaps between the ceiling and floor, have been identified as having a payback period of approximately two years in a variety of climates.[53] With respect to New York City specifically, a report issued by the City's Buildings Technical Working Group identified air sealing, sealing basement ducts, and blowing wall insulation into existing cavities as all having payback periods of ten years or less for buildings under 25,000 square feet.[54]

3. Be flexible, offer multiple paths for compliance

Even within a given income level, homeowners will vary significantly in their ability to implement energy upgrades due to differences in owners' age, health, and other factors.[55] For instance, a young family buying a house from an elderly individual moving to an assisted living facility will likely be in a better position to make the upgrades than the seller. Similarly, a homeowner who is selling to cover sudden financial losses may prefer to accept a lower price for the property than to pay to upgrade it

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[50] *Id.* Burlington, Vermont has a similar cap in place – owners are not required to spend more than the lesser of 3% of the sale price as listed on the property transfer tax return, or $1,300 per rental unit. Burlington City Code, ch. 18, art. VII, 18-503(d). Burlington also allows the owner of a rental property to obtain a waiver from the efficiency requirement if she demonstrates that, after good faith efforts, she has been unable to obtain financing for the required energy improvements. *Id.* 18-503(f)(2).

[51] For example, given the extremely wide range in the value of single-family homes throughout the City, from low-income properties to properties that are valued in excess of several million dollars, the City may want to diverge from San Francisco's model and create different upgrade requirements and different spending caps depending on a building's value.

[52] Indeed, because payback periods for a particular energy efficiency measure in any particular geographic location are so sensitive to the energy prices, the climate, and the rates charged by contractors that prevail in that location, it would be very difficult to make any specific statements about what energy efficiency measures would have short payback periods in New York City without a study specifically designed to uncover that information. As far as we are aware, no such study exists. The City might consider commissioning such a study.

[53] *See* MONCEF KRARTI, ENERGY AUDIT OF BUILDING SYSTEMS, AN ENGINEERING APPROACH 17-5 (CRC Press, 2d. ed. 2011) (finding that a implementing a basic weatherization package to a Colorado home, whose total cost was predicted to be approximately $450, had a projected payback period of 2.2 years); C40 CITIES CASE STUDY, FREE ENERGY RETROFITS SAVING POORER HOMES $335 AND SLASHING 1,100 TONS CO2 PER YEAR (2011), http://www.c40.org/case_studies/free-energy-retrofits-saving-poorer-homes-335-and-slashing-1100-tons-co2-per-year (indicating that a package of low-cost interventions such as caulking windows, insulating, and weatherstripping, which cost approximately $1,000 per house, had payback periods of approximately two years for homes in Houston, Texas).

[54] *Technical Working Group Report*, *supra* note 1, at 52 & n.16.

[55] *See* Gamtessa, *supra* n. 23, at 156 (finding that "[h]ousehold characteristics such as income, household size, age composition, and average education levels appear to play important roles" in determining how likely a household is to conduct energy efficiency retrofits after receiving recommendations from a government-funded home energy audit).

himself. To account for these idiosyncrasies, any requirement that is triggered by a property sale should allow the parties to the sale to decide who will make the required upgrades.[56]

Several American jurisdictions have embedded this flexibility in their energy upgrade ordinances. For example, San Francisco's ordinance states that "[t]he seller, or the seller's authorized representative, may transfer responsibility for compliance with the minimum energy conservation measures . . . to the buyer of the building at the time of transfer of title."[57] To take advantage of this option, the parties must agree to place funds equal to one percent of the purchase price in an escrow account that is to be disbursed to pay for energy efficient upgrades.[58] Burlington, Vermont also allows buyers to take responsibility for bringing the building into compliance with energy efficiency requirements after sale.[59]

Notably, while permitting parties to allocate the cost of compliance among themselves helps ensure that the requirements are not unduly burdensome, it also presents certain enforcement challenges. In particular, if a sale can proceed upon the condition that the purchaser will bring the building into compliance within a certain time period, the City will have to double back after the allotted period of time and confirm the promised upgrades have been made. In many jurisdictions we have examined[60] follow-up enforcement is minimal or non-existent, which likely undermines implementation. New York City should be careful to avoid this pitfall in crafting its own enforcement regime.

B. When Should the Requirement be Triggered?

In addition to deciding what kinds of upgrades to require, policymakers will have to decide what events should trigger the obligation to act. Broadly speaking, the City could take one of two approaches: it could adopt a transaction-oriented approach, in which a property owner is required to demonstrate compliance when she undertakes certain transactions such as sale or refinance; or it could set a date by which all buildings must comply. As will be described, we believe a combination of the two is warranted. The combined approach would be more comprehensive than any other American or European energy efficiency upgrade policy of which we are aware.

1. Transactional trigger points

There are four types of transactions building owners regularly undertake that could potentially trigger an energy efficiency upgrade obligation: sale, lease, refinance and major renovation. We consider each of these below but conclude that only sale is an appropriate transactional trigger. Our preference for time-of-sale as a trigger point largely reflects concerns about the difficulty of policing other types of transactions.

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[56] Including this sort of flexibility should also reduce the need for the City to provide financing for retrofit projects because sellers who lack the resources to make the upgrades will not be obligated to do so, and purchasers who inherit the obligation should receive a reduction in the price of the property that is commensurate with the seller's foregone expense, thus freeing up resources to make the upgrades.

[57] San Francisco Housing Code, ch. 12 § 1211(c).

[58] *Id.* § 1211(c)(2)(ii).

[59] Burlington City Code, ch. 18, art. VII, 18-503(a). Anecdotally, the option to shift responsibility to the buyer seems not to be used particularly often because other City programs offer financial incentives to homeowners in Burlington to complete energy efficiency upgrades. Interview with Brian Reilly, Residential Energy Services Engineer, Burlington Electric Department (Nov. 15, 2016).

[60] Experts in Wisconsin (Cori Lamont, Sept. 23, 2016), Germany, (Sebastian Metzker Nov. 30, 2016), France (Santhiah Shanthirabalan Dec. 2, 2016), Italy (Lorenzo Pagliano Nov. 11, 2016), and one expert speaking more broadly about practices across the EU (Aleksandra Arcipowska, formerly of BPIE, Nov. 2, 2016) all indicated that the residential upgrade policies in their respective jurisdictions suffered from a lack of enforcement.

a) Time of sale

The vast majority of American jurisdictions that have implemented an energy upgrade requirement for small residential buildings have tied the obligation to the sale of a property.[61] San Francisco, Austin, Wisconsin, and Burlington all take this approach. The great advantage of using time-of-sale as a trigger point is that homeowners already have to engage with various government entities prior to completing a sale, and these entities could play a gatekeeping role. For instance, the Office of the City Register could be prohibited from recording deeds for property sales that are not accompanied by a certificate of compliance. In coop transactions, where deeds do not change hands, the coop could be prohibited from reassigning stock certificates without first receiving a certificate of compliance.[62] In this case, the attorneys who facilitate the transaction could play a gatekeeping role by adding the certificate to the checklist of documents that must be provided prior to sale. Attorneys might also play an unofficial but meaningful role in enforcement of a time-of-sale requirement in one other way: in the event that the buyer assumes responsibility for performing upgrades after the sale, an attorney holding those funds in escrow would have an incentive to ensure that the requirements were complied with so that she could release the funds from her account.[63]

b) Time of lease

At first glance, time of lease is an attractive trigger point for a New York City ordinance; there is such a robust rental market in the City that a time-of-lease trigger could potentially get a large number of buildings upgraded quite quickly. This prospect clearly appealed to the United Kingdom, which, as noted, will forbid property owners that receive benchmarking grades of F or G (the two lowest scores) from re-letting their properties after 2018.[64] Yet, enforcement of a time-of-lease trigger may prove exceedingly difficult because unlike property sales, which involve lawyers and contact with government entities, leasing is largely a private transaction. As such, it may be difficult for regulators to know when a new lease goes into effect such that they can monitor compliance. Notably, British officials do not seem to have devised a mechanism for overcoming these enforcement challenges so we cannot look there for guidance.[65] Given these enforcement challenges, we do not believe that time-of-lease is a viable trigger point for the upgrade requirement in question.

c) Time of refinance

Time of refinance also initially appears to be an attractive trigger point because, as with property sales, there are numerous touch points with government entities, which could facilitate enforcement. However, attaching an obligation to refinancings could delay the process and thereby hinder owners' efforts to secure a given interest rate.[66] In some instances, it may even disincentivize owners from

[61] San Francisco, Austin, Burlington, and the state of Wisconsin have all used this approach.
[62] Notably, where only one unit in a coop building is being sold owners will have limited control over some buildings systems. As such there may need to be a modified checklist for sales of units within coops.
[63] To hold client funds in escrow indefinitely would risk running afoul of ethics rules. *See* N.Y. RULES OF PROF'L CONDUCT R. 1.15.
[64] *See* Energy Act 2011 (2011 Chpt. 16) pt. 1, ch. 2, § 43(1).
[65] Interview with Daniel Staniaszek, Senior Expert, Building Performance Institute Europe (Nov. 7, 2016).
[66] Research indicates that 20% of households for whom refinancing would be financially beneficial nonetheless decline to do so. Benjamin Keys, Devin Pope & Jaren Pope, *Failure to Refinance* 3 (Univ. of Chicago Law School Kriesman Working Paper on Housing Law and Policy No. 11, 2014). Given this tendancy towards inaction, policymakers should be careful to avoid erecting barriers to refinance.

refinancing all together. Either outcome would be undesirable as it would cause a wealth transfer from homeowners to the banks,[67] thus aggravating the affordable housing crisis.[68]

d) Renovation

The great advantage of tying an energy upgrade obligation to renovations is that it should be more cost-effective to improve a property that is already undergoing substantial work. Building owners who initiate major renovations are also likely to have the financial resources and wherewithal to perform the required upgrades. It is perhaps for this reason that the European Union included an obligation in the EPBD for building owners to bring their properties in line with a minimum performance standard when they undergo "major renovation."[69] The Directive defines "major renovation," as a renovation in which the total cost of renovation is higher than 25% of the value of the building (excluding the land) or 25% of the surface area of the building.[70]

Yet, again, it can be very difficult to police which projects are large enough to constitute major renovations.[71] Property valuation is an inexact science – particularly if a value is to be assigned for the structure alone without the land[72] – and New York City homeowners allegedly already regularly deflate the cost of renovations in order to reduce filing fees with the Department of Buildings (DOB).[73] Moreover, while it may be somewhat more difficult to game a requirement that is tied to the amount of floor area renovated, it is certainly not impossible to do so.[74] In light of these enforcement challenges, it is unsurprising that field experts believe compliance with the EPBD's renovation obligation has been poor.[75] A 2015 study of compliance with the EPBD funded by the European Commission corroborated this belief: while two-thirds of Member States and regions surveyed provided compliance data for new buildings, only one-third provided data for renovated buildings.[76] The relatively low response rate for renovated buildings suggests that many Member States have not even attempted to track compliance with the renovation requirements.

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[67] The insight was drawn from conversations with Professor David Reiss of Brooklyn Law School in September of 2016. While the 2011 Energy Law provides that domestic energy efficiency regulations may provide for a civil penalty imposed by a local authority of up to £5,000, Energy Act 2011 at § 45(3), and even states that domestic regulations may provide for mechanisms for enforcing the requirement, *id.* at § 45(2), it does not itself specify how such a requirement should be, or could be, enforced.

[68] *See* Brian J. Sullivan & Jonathan Burke, *Single-Room Occupancy Housing in New York City: The Origins and Dimensions of A Crisis*, 17 CUNY L. REV. 113, 133 (2013) ("Housing is considered affordable if it costs less than 30% of household income. [In NYC], one-third of renter households pay 50% or more of their income for rent.").

[69] *EPBD* art. 7.

[70] *Id.* art. 2 (10).

[71] For instance, owners may break one into separate filings to skirt the threshold for "major" renovations.

[72] Since homes are not usually sold separately from the land there will not be good market comps for this value.

[73] The DOB charges a fee equal to a percentage of the construction costs when reviewing project proposals. According to conversations with several New York City architects, these costs are routinely undervalued to reduce the fee imposed.

[74] For example, not all types of renovation require a permit so a building owner could submit an application to DOB that includes only part of the intended renovations.

[75] Interviews with Aleksandra Arcipowska, formerly of BPIE (Nov. 2, 2016), Peter Bach, Chief Energy Efficiency Advisor at the Danish Ministry of Energy (Sept. 22, 2016), and Lorenzo Pagliano, Director, End-Use Energy Research Group (Nov. 11, 2016). One expert noted that the only instance in which compliance appears to be better is where renovations are funded with public money.

[76] EUROPEAN COMMISSION, DIRECTOR-GENERAL FOR ENERGY, ENERGY PERFORMANCE OF BUILDINGS DIRECTIVE COMPLIANCE STUDY 24 (2015).

2. Timed phase-in

On its own, a time-of-sale requirement will not ensure that improvements are made throughout the small residential building stock in a timely manner because many buildings will not be sold for decades. To illustrate, in Manhattan, where there are approximately 850,000 apartments, only about 5,200, or 0.6%, were for sale in the first quarter of 2015.[77] Even if all listed properties were sold, this would only represent a roughly 2.5% turnover on an annual basis. If these statistics are representative of sales of 1 to 4 family homes as well, we may only see approximately 25% of properties upgraded within ten years if we tie to the obligation to sales alone. To accelerate the transition process, the regulation should therefore include a date by which *all* buildings must be upgraded.

C. Incentivizing and Facilitating Compliance

There are several tools the City could use to help reduce the cost of compliance with the ordinance and/or encourage early compliance. For instance, the City could offer a reduction of the Real Estate Transfer Tax equal to the amount a homeowner spends complying with the requirements.[78] It could also offer a one-time reduction of annual property taxes to those who comply early (although this would require Albany's approval).[79] As another lever to encourage early compliance, the City could offer expedited permitting to those who voluntarily include the required energy efficiency upgrades in their renovation plans.

Notably, there are already several financing and incentive programs available to building owners in New York City that could help defray the cost of the required upgrades. For example, the New York State Energy and Research Development Authority's ("NYSERDA") Home Performance and Assisted Home Performance programs offer free or reduced-cost home energy assessments, low-interest loans, and, depending on income eligibility, will cover up to 50% of the cost of eligible energy efficiency improvements for owners or renters of single-family homes or multifamily homes with up to four units.[80] Similarly, NYSERDA's EmPower New York program, which applies to residents who own or rent a single-family home or who live in a building with 100 or fewer units, offers a free home energy assessment and fully covers the cost of improvements for households with incomes below $51,790 per year.[81]

III. LEGAL PATHWAYS TO IMPLEMENTATION

New York City has ample authority to implement an energy upgrade requirement. The doctrine of municipal "home rule" enshrined in the New York State Constitution gives the City substantial leeway to regulate issues affecting its "property, affairs, or government"[82] as it sees fit.[83] Reducing building energy

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[77] Joe Anuta, *So Many Manhattan Apartments, So Few for Sale*, CRAINS NEW YORK BUSINESS (May 10, 2015), *available at* http://www.crainsnewyork.com/article/20150510/REAL_ESTATE/150509843/so-many-manhattan-apartments-so-few-for-sale.

[78] N.Y.C. Admin. Code, tit. 11, ch. 21. Because the New York State law enabling the City to levy a real estate transfer tax explicitly gives the City the power to amend local laws it adopts imposing such a tax, N.Y. TAX LAW § 1201, we do not believe that any act of the New York State legislature would be necessary in order for the City to amend its transfer tax.

[79] Real estate taxes in New York are levied at the county level. *See* N.Y. REAL PROP. TAX LAW § 900.

[80] https://www.nyserda.ny.gov/All-Programs/Programs/Home-Energy-Efficiency-Upgrades.

[81] *Id.*

[82] N.Y. CONST. art. IX; N.Y. MUN. HOME RULE § 2(b)(2).

[83] Some commentators have argued that the New York State Court of Appeals expanded the scope of state authority to regulate local affairs in its 2013 decision in *Greater N.Y. Taxi Ass'n v. State*, 21 N.Y.3d 289 (2013). *See, e.g.*, Roberta A. Kaplan & Jacob H. Hupart, *Can New York City Govern Itself? The Incongruity of the Court of*

use in the City – along with the greenhouse gas emissions attributable to such energy use – clearly relates to the preservation of the City's property. Indeed, Mayor DeBlasio has argued that New York City faces existential threats from climate change due to rising sea levels, heat waves, and increasing frequency of intense storms.[84]

There are two distinctive legal pathways the City could use to implement the proposed requirement: first, the City Council could enact a local law instructing a City agency to administer such a program; second, a City agency could issue a new administrative rule establishing the program. Of the two approaches, new legislation is preferable because it would allow the City to avoid any potential separation of powers problem. Codifying the requirement would also make the rule more durable, since local laws are more difficult to repeal than administrative rules.

The City recently encountered a high-profile separation of powers problem of this sort when the New York City Board of Health ("BOH") adopted a rule restricting the size of containers used by food service establishments to serve sugary beverages. Beverage industry trade groups attacked the rule, popularly known as the "soda-ban," arguing that BOH had exceeded the scope of its delegated authority in issuing it. The New York Court of Appeals agreed. Specifically, the Court held that, in adopting the soda ban rule, BOH had crossed the line from administrative rule-making into legislative policy making, violating the principle of separation of powers set out in the New York State Constitution.[85] Had the rule come about as a result of legislative action on the part of the New York City Council, this separation of powers problem would not have existed."[86] Thus, the safest route for an energy efficiency upgrade regulation would be for the City Council to enact enabling legislation.

This leaves open the question of which agency the Council should charge with implementing the requirement. The agency that appears best equipped to administer the program is the Department of Buildings ("DOB"). As set out in the New York City Charter, the DOB is responsible for enforcing the building code as it governs the construction and alteration of buildings in the City, as well as the issuance of permits relating to such construction.[87] Moreover, the DOB already administers the energy efficiency requirements that apply to buildings over 50,000 square feet under the *Greater, Greener Buildings Program*.[88] The proposed energy efficiency upgrade requirement thus falls squarely within the realm of the DOB's authority and its expertise.

Appeals' Recent Cases Regarding Regulation of New York City by New York City, 78 ALB. L. REV. 105, 108-109 (2015). However, while *Greater N.Y. Taxi* did take an expansive view of states' jurisdiction to regulate local matters, and therefore reduced the scope of the City's exclusive jurisdiction over such matters, the decision did not reduce the domain in which the City is permitted to regulate. Instead, the case seems to have enlarged the number of subject matters over which the City and State have concurrent jurisdiction. Indeed, Judge Pigott opens his discussion of home rule in *Greater N.Y. Taxi* by citing to an earlier Court of Appeals opinion in which Justice Cardozo noted that "[a] zone… exists where State and city concerns overlap and intermingle." *See Greater N.Y. Taxi*, 21 N.Y.3d at 301 (citing *Adler v. Deegan*, 251 N.Y. 467, 489 (N.Y. 1929) (Cardozo, C. J., concurring)).

[84] *See, e.g.*, ONE CITY BUILT TO LAST, TRANSFORMING NEW YORK CITY'S BUILDINGS FOR A LOW-CARBON FUTURE, NEW YORK CITY MAYOR'S OFFICE OF LONG-TERM PLANNING AND SUSTAINABILITY 3 (2014); *Technical Working Group Report*, *supra* note 1, Letter from the Mayor.

[85] *NY. Statewide Coal. of Hispanic Chambers of Commerce v. N.Y.C. Dep't of Health & Mental Hygiene*, 23 N.Y.3d 681, 702 (2014).

[86] Kaplan et al., *supra* note 83, at 111 (quoting *Levine v. Whalen*, 39 N.Y.2d 510, 515 (1976) ("There is no constitutional prohibition against the delegation of power . . . to an agency or commission to administer the law as enacted by the Legislature.")).

[87] New York City Charter ch. 26, § 643 (amended 2004).

[88] Several of these rules will soon also apply to buildings with between 25,000 and 50,000 square feet of floor area.

IV. ANTICIPATING POTENTIAL LEGAL CHALLENGES

If enacted through the proper pathways, the proposed requirement should stand on strong legal footing. Indeed, to our knowledge, none of the other American jurisdictions' residential energy upgrade ordinances have been challenged in court. Yet, with any new regulation, there is a possibility of litigation. It is therefore worth examining what type of claims challengers might raise and how strong their case would be.

We foresee two potential lines of attack that could be lodged against the regulation: (1) that it represents an unconstitutional taking of private property, and (2) that it is preempted by federal or state law. We review each of these potential arguments below but ultimately find them both unpersuasive.

A. Takings

The "takings clause" of the Fifth Amendment to the United States Constitution prohibits the taking of private property for public use without just compensation.[89] The New York State Constitution reiterates this protection against takings[90] and State case law on the subject largely tracks the relevant Supreme Court precedents.[91]

Takings jurisprudence traditionally addresses cases where the government has physically occupied or encroached upon private real property for public use.[92] The Supreme Court has made clear that where the government authorizes a permanent physical invasion of private property, compensation will be required.[93] The ordinance at issue here is unlikely to violate this precept. To our knowledge, in all prior cases in which the Court has found that a regulation effected a permanent physical invasion, a third party – be it a governmental or a private entity – has benefited from the intrusion.[94] In this case, by contrast, neither the City nor any other entity would be invading individual homes. Instead, the regulation merely requires homeowners to maintain the property to a particular standard. In this sense, the proposed regulation is perhaps most analogous to requirements to install smoke detectors, which have proven uncontroversial.[95]

However, even if a regulation does not authorize a physical invasion of private property, it can nonetheless be deemed to effect a taking if it "goes too far."[96] Here, too, a court would be unlikely to find

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[89] The Fifth Amendment of the U.S. Constitution applies to the states as well, through the operation of the Fourteenth Amendment. *See Chicago, B. & Q.R. Co. v. City of Chicago,* 166 U.S. 226 (1897).
[90] N.Y. CONST. art. 1, §7.
[91] *See Uhlfelder v. Weinshall*, 810 N.Y.S.2d 275, 289 n.12 (N.Y. Sup. Ct. 2005), aff'd, 845 N.Y.S.2d 41 (N.Y. App. Div. 2007); David Schoenhaar, *New York State Constitutional Decisions: 2006 Compilation Takings Clause*, 22 TOURO L. REV. 339 (2006).
[92] *See, e.g., Arkansas Game and Fish Comm'n v. U.S.*,133 S. Ct. 511 (2012); *Smith v. Town of Mendon*, 789 N.Y.S.2d 696, 699 (2004).
[93] *Loretto v. Teleprompter Manhattan CATV Corp.*, 458 U.S. 419 (1982) (holding that a cable company could not install a cable across a privately owned rental building without paying compensation to the landlord because the cables constituted a permanent physical occupation of her property).
[94] *See e.g., United States v. Cress*, 243 U.S. 316 (1917) (holding that the U.S. government was obligated to pay compensation to a landowner whose property was flooded by the creation of a dam); *Penn. Cent. Transp. Co. v. New York City*, 438 U.S. 104, 124 (1978) ("A taking may more readily be found when the interference with property can be characterized as a physical invasion by government.")
[95] *See* CHRISTOPHER SERKIN, THE LAW OF PROPERTY 257 (Foundation Press 2013) ("[I]nstead of requiring the property owners to permit cable equipment on their property, the government could perhaps have required property owners to install such equipment themselves. If this seems far-fetched, think about smoke detectors or carbon monoxide detectors.").
[96] *Pennsylvania Coal v. Mahon*, 260 U.S. 393, 415 (1922).

that the proposed ordinance violated the relevant standard. In determining whether a government regulation "goes too far," the courts apply a *per se* rule that regulations that deprive landowners of "all economically viable use" of their property effect a taking.[97] If the regulation does not do so – and there is no reasonable argument that the contemplated ordinance does – courts proceed to apply a multi-factored balancing test first articulated in *Penn Central v. New York City*,[98] which considers the following: (1) the regulation's economic effect on the landowner; (2) the extent to which the regulation interferes with reasonable investment-backed expectations, and; (3) the character of the government action.[99]

While the *Penn Central* test has been criticized as being imprecise and therefore unpredictable,[100] it is important to bear in mind that the Supreme Court has only found regulations to effect a taking in "exceptional cases."[101] Typically, the injury to the property owner must not only be substantial,[102] but there must also be evidence that the individual is being made to bear "a burden that should be borne by the public as a whole."[103] In the present case, not only would the economic burden of the ordinance be minor, but it will be distributed across the entire class of residential property owners in New York City. A takings claim therefore seems highly unlikely to succeed.

B. Preemption

1. Federal Preemption

The Supremacy Clause of the U.S. Constitution grants Congress the power to preempt state and local laws.[104] Congress often exercises this authority by including a provision in a statutory scheme that expressly prohibits states from regulating in a given area.[105] But even in the absence of an express dictate of this sort, courts will find Congress to have preempted state law by implication in two scenarios. First, preemption will be implied where a state or local law directly conflicts with a federal law.[106] This is known as "conflict preemption." Second, state and local laws will be preempted if Congress has so thoroughly occupied a legislative field as to "make reasonable the inference that Congress left no room for the States to supplement it."[107] This is known as "field preemption."

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[97] *Town of Mendon*, 789 N.Y.S.2d at 699. *See also City of Monterey v. Del Monte Dunes at Monterey, Ltd.*, 526 U.S. 687, 720, (1999); *Palazzolo v. Rhode Island*, 533 U.S. 606, 617 (2001); *Lucas v. South Carolina Coastal Council*, 505 U.S. 1003, 1019 (1992) ("[W]hen the owner of real property has been called upon to sacrifice *all* economically beneficial uses in the name of the common good, that is, to leave his property economically idle, he has suffered a taking.").

[98] *Penn Cent.*, 438 U.S. at 124.

[99] *Palazzolo*, 533 U.S. at 617.

[100] *See, e.g.*, Lee Anne Fennel, *Taking Eminent Domain Apart*, 2004 MICH. ST. L. REV. 957, 959, 981 (2004).

[101] Joseph Singer, *Justifying Regulatory Takings*, 41 OHIO N.U. L. REV. 601, 606 (2015).

[102] Indeed, as the Supreme Court recognized early on its takings jurisprudence, "Government hardly could go on if to some extent values incident to property could not be diminished without paying for every such change in the general law." *Pennsylvania Coal*, 260 U.S. at 413. *See also Penn Cent.*, 438 U.S. at 131 (noting that multiple decisions had already sustained other land-use regulations that were "reasonably related to the promotion of the general welfare" and had "uniformly reject[ed] the proposition that diminution in property value, standing alone, can establish a 'taking'").

[103] *Yee et al. v. City of Escondido*, 503 U.S. 519 (1992).

[104] U.S. CONST. art. VI, cl. 2. *See also Arizona v. United States*, 132 S. Ct. 2492, 2500 (2012); *Hillsborough County v. Automated Med. Lab., Inc.*, 471 U.S. 707, 714 (1985) ("[F]or the purposes of the Supremacy Clause, the constitutionality of local ordinances is analyzed in the same way as that of statewide laws.") (internal citations and quotations omitted).

[105] *Arizona*, 132 S. Ct. at 2500 ("There is no doubt that Congress may withdraw specified powers from the States by enacting a statute containing an express preemption provision.").

[106] *See Pacific Gas & Elec. Co. v. State Energy Res. Conservation and Dev. Comm'n*, 461 U.S. 190, 204 (1983).

[107] *Rice v. Santa Fe Elevator Corp.*, 331 U.S. 218, 230 (1947).

Courts are unlikely to find that federal law preempts the proposed ordinances under either variant of the doctrine. The federal government does not set energy performance standards for existing buildings, or require energy efficiency upgrades of buildings, unless the building is occupied by a federal agency,[108] which should leave the states with broad latitude to enact this kind of local regulation. However, there is one area where the City will have to tread lightly: appliance standards. The Energy Policy and Conservation Act of 1975 ("EPCA"),[109] directs the DOE to set efficiency standards for a variety of home appliances, such as refrigerators, freezers, and boilers. EPCA also contains an express preemption provision that broadly prohibits states from enacting regulations "concerning the energy efficiency, energy use, or water use of [a product covered by EPCA]."[110] Although EPCA does allow for preemption waivers under some limited circumstances, it is very unlikely that the proposed ordinance could qualify for such a waiver.[111] Therefore, to avoid running afoul of EPCA, New York City should take care not to include anything in the ordinance that would require homeowners to install appliances that are more efficient than the minimum federal standards.[112]

2. State Preemption

Just as Congress can preempt acts of state and local government, the New York State legislature can preempt local legislation that is inconsistent with state law. And, just as with federal preemption doctrine, even in the absence of express preemption language state law can preempt a local law if there is a conflict between the two[113] or there is evidence that the state intended to occupy the field.[114] Below we review potential arguments that State law preempts a New York City energy upgrade ordinance. Like the Supreme Court's Takings jurisprudence, New York State's implied preemption jurisprudence has been criticized as being somewhat unpredictable.[115] However, the particular facts at issue in this case militate against a preemption finding. This is not, in our view, a close case.

a. New York Real Property Law

Litigants attacking an energy efficiency upgrade ordinance may attempt to argue that it is conflict preempted by a provision of the New York State Real Property law that confers a general right to transfer

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[108] National Energy Conservation Policy Act, 42 U.S.C. § 8253(f)(3)(B).
[109] 42 U.S.C. § 6295 *et seq.*
[110] *Id.* § 6297(c).
[111] The first challenge would be that, while EPCA allows states to request a preemption waiver, *id.* § 6297(d), there is no provision for cities to do so. Even if New York State could be convinced to seek a waiver on the City's behalf, for the waiver to be granted the State would have to persuade DOE that State regulation were needed to meet "unusual and compelling" state energy interests that are "substantially different" than the prevailing conditions in the United States. 42 U.S.C. §§ 6297(d)(1)(B), (C).
[112] Notably, in 2012 a federal court struck down a provision of an Albuquerque green building ordinance that established energy efficiency standards for new buildings on preemption grounds. The ordinance permitted regulated entities to demonstrate compliance by meeting either a performance standard or a prescriptive standard. If a party chose the prescriptive pathway, she would have to install certain appliances that surpassed the minimum federal efficiency standards. A consortium of appliance manufacturers argued that the prescriptive requirements were preempted by EPCA because they essentially supplanted the federal efficiency standards and the court agreed. *See Air Conditioning, Heating and Refrigeration Inst. v. City of Albuquerque*, 835 F. Supp. 2d 1133 (D.N.M. 2010).
[113] *Jacyn Mfg. Corp. v. Suffolk County*, 518 N.E.2d 903, 905 (1987).
[114] *Matter of Chwick v Mulvey*, 915 N.Y.S.2d 578 (N.Y. App. Div. 2010).
[115] REPORT AND RECOMMENDATIONS CONCERNING CONSTITUTIONAL HOME RULE, NEW YORK STATE BAR ASSOCIATION, COMMITTEE ON THE NEW YORK STATE CONSTITUTION 19-22 (2016).

real property.[116]Yet, this argument is unlikely to prevail because the ordinance, as contemplated, would not actually prevent the transfer of property. Instead, it would merely condition the right to transfer on the completion of certain upgrades. Moreover, sellers would be allowed to assign purchasers responsibility for making the upgrades after the sale is completed, which further undercuts any potential claim that the ordinance impedes property sales. Finally, New York City already imposes various limitations on the right to transfer property without giving rise to conflict preemption. To cite one example, the City requires sellers to pay a Real Property Transfer Tax equal to as much as 1.425% of the sale price.[117] By contrast, we propose homeowners be required to spend no more than 1% of the sale price on energy upgrades. Such a requirement would not impose any greater encumbrance on the right to transfer property than does the City's Real Property Transfer Tax.

b. New York Energy Conservation and Construction Code

Opponents of a energy upgrade ordinance might also argue that it is preempted by the New York State Energy Conservation Construction Code ("ECCC"), which applies to new construction as well as to certain alterations of existing buildings.[118] Here, too, the argument is unpersuasive. There is no explicit preemption language in the ECCC, so the ordinance could only be preempted if it were in direct conflict with the ECCC or if there were evidence that the State intended to occupy the field. The ECCC does not address energy efficiency improvements except to the extent that renovated elements must conform with current efficiency standards, so there is no basis for arguing that the two laws are in tension with each other and thus no basis for finding conflict preemption.[119] The field preemption argument is equally weak. Absent statements evincing an intent to preclude local regulation, New York Courts have typically only found field preemption where the State has an interest in uniform application of a policy throughout the State that would be undermined by application of the local law.[120] In the present case, the local law would only *further* the Code's policy goal, which is to ensure that "energy conservation techniques [are] used in the design and construction of . . . buildings throughout the State."[121] Moreover, the State has already permitted New York City to enact its own energy efficiency code which sets forth more stringent standards than the State minimums.

For all of the above reasons, the proposed ordinance is not likely to be preempted by any provision of federal or State law.

V. CONCLUSION

To meet stringent goals for reductions in greenhouse gas emissions and prevent the worst effects of climate change, cities around the world will need to significantly improve the energy efficiency of their existing small residential buildings. New York City is no exception to this rule. Both the diversity and the

[116] The relevant provision states: "A person other than a minor, a mentally retarded person, or person of unsound mind, seized of or entitled to an estate or interest in real property, may transfer such estate or interest." N.Y. REAL PROP. LAW, art. II, §11.
[117] N.Y.C. Admin. Code, tit. 11, ch. 21.
[118] 19 NYCRR pt. 1240.
[119] *See Chwick*, 915 N.Y.S.2d at 584 (quoting *Matter of Lansdown Entm't Corp. v New York City Dep't of Consumer Affairs*, 543 N.E.2d 725) ("The crux of conflict preemption is whether there is a head-on collision between the . . . ordinance as it is applied and a state statute.").
[120] *See e.g., Consol. Edison Co. of N.Y. v. Town of Red Hook*, 60 N.Y.2d 99 (1983) (finding that a local law requiring electric generators to receive local authorization to site a generation facility within the municipal limits frustrated application of a state law that sought to create a "unified certificating procedure" for generation assets throughout the State; *Jacyn*, 518 N.E.2d at 905-906 ("[Local laws will be field preempted where] such laws were they permitted to operate in a field preempted by State law, would tend to inhibit the operation of the State's general law and thwart the operation of the State's overriding policy concerns.").
[121] N.Y. ENERGY LAW, art. 11, § 11-101.

sheer quantity of New York City's housing stock present policymakers with some unique challenges in developing an effective energy efficiency upgrade requirement for existing small residential buildings. However, we believe that if the City adheres to the principles outlined in this Policy Brief it can develop an energy upgrade requirement that would not only produce environmental benefits, but also economic benefits to New York City's residents.

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