

Decreasing Building-Related Emissions in New York City: Attempts to Circumvent the Split Incentive Problem to Encourage Energy Efficiency Retrofits

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In an effort to mitigate the effects of climate change, New York City Mayor Bill de Blasio initiated the “80x50” program, committing the City to the goal of reducing its greenhouse gas (“GHG”) emissions by eighty percent, from a 2005 baseline, by the year 2050.¹ The municipal program, catalyzed in substantial part by the devastation Hurricane Sandy caused in 2012, tracks the United Nations’ emission reduction goals for developed countries, intended to avoid the most severe and catastrophic effects of climate change.²

A cornerstone of the program is reducing emissions from residential, commercial, and municipally-owned buildings in the City.³ As of 2013, New York City produced 48.02 million metric tons of carbon dioxide, and its one million buildings generated over three-quarters of that amount.⁴ Retrofitting these buildings to increase their energy efficiency is, therefore, required in order to achieve 80x50’s reduction goals.

While the City can exercise its considerable regulatory authority over land use and building design to reduce building-related

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1. *Mayor de Blasio Commits to 80 Percent Reduction of Green House Gas Emissions*, N.Y.C. (Sept. 21, 2014), <http://www1.nyc.gov/office-of-the-mayor/news/451-14/mayor-de-blasio-commits-80-percent-reduction-greenhouse-gas-emissions-2050-starting-with#/0> [<https://perma.cc/5SL2-XUWA>].

2. MAYOR’S OFFICE OF PLANNING & SUSTAINABILITY, *ONE CITY BUILT TO LAST 7* (2014), <http://www.nyc.gov/html/builttolast/assets/downloads/pdf/OneCity.pdf> [<https://perma.cc/2VU3-JUNF>].

3. The 80x50 program has set an interim goal of reducing building related emissions by thirty percent from 2005 levels over the next ten years. *Id.* at 10.

4. *Id.* at 9.

emissions,⁵ significant economic barriers have historically discouraged private building owners from undertaking energy efficiency retrofits. Foremost among them is the split incentive problem, which is a specific type of market failure that occurs when benefits of a transaction pass on to someone other than the party paying the cost.⁶ In the context of retrofitting privately owned residential or commercial buildings, the split incentive problem arises when leases place utility and routine operating expenses solely upon tenants and the costs of major capital upgrades solely upon building owners.⁷ Under these circumstances, a building owner is disincentivized from undertaking costly energy efficiency retrofits because the owner will bear the full brunt of the upgrades' costs while the tenants will capture the lion's share of the benefits; i.e., the utility savings that result from the building's increased energy efficiency.

In particular, the problem poses significant challenges to facilitating retrofits of privately owned multi-family buildings ("MFBs"). First, most MFBs are tenant-metered—each tenant directly pays for his or her own energy usage—so neither rising energy costs nor potential energy savings incentivize owners to perform energy efficiency upgrades.⁸ Second, the owners of private MFBs generally are individuals or local partnerships with limited liquid assets and cash flows. As a result, MFB owners tend to make major capital investments voluntarily only when projects guarantee immediate returns on investment.⁹ Owners are, therefore, unlikely to perform the types of extensive retrofits that decrease GHGs the most, given the lack of immediate financial returns and the substantial costs involved in undertaking such projects. Third, MFB tenants tend to be unsophisticated parties, and historically, their demand for energy efficient apartments has been low; consequently, MFB owners generally cannot expect to

5. Sarah J. Adams-Schoen, *Sink or Swim: In Search of a Model for Coastal City Climate Resilience*, 40 COLUM. J. ENVTL. L. 433, 442 (2015).

6. DON HYNEK ET AL., "FOLLOW THE MONEY": OVERCOMING THE SPLIT INCENTIVE FOR EFFECTIVE ENERGY EFFICIENCY PROGRAM DESIGN IN MULTI-FAMILY BUILDINGS, 6-136 (2012), <http://aceee.org/files/proceedings/2012/data/papers/0193-000192.pdf> [<https://perma.cc/M6UZ-46GE>].

7. Roy Torbert, *Busting Landlord-tenant Barriers for Greater Energy Efficiency*, GREENBIZ (June 22, 2012, 6:00 AM), <https://www.greenbiz.com/blog/2012/06/22/busting-landlord-tenant-barriers-greater-energy-efficiency> [<https://perma.cc/RU9N-3UGE>].

8. OFFICE OF TECH. ASSESSMENT, ENERGY EFFICIENCY OF BUILDINGS IN CITIES 119 (1982), <http://ota.fas.org/reports/8206.pdf> [<https://perma.cc/8FS2-L8AQ>].

9. *Id.* at 117.

capitalize upon energy savings by raising rents for current and future tenants, eliminating the primary incentive for owners to retrofit their buildings.¹⁰

New York City's energy policies must address these difficulties to facilitate retrofits in MFBs. While the City might be able to sidestep the split incentive problem in some circumstances by mandating efficiency upgrades by law, it cannot expect to stay on track to hit 80x50's reduction targets solely by using regulations as blunt instruments to decrease GHG emissions. After all, private MFB owners might delay in undertaking upgrades up until the regulatory deadlines,¹¹ or owners might be financially unable to comply with the laws. For instance, in 2011, the Bloomberg administration scheduled oil No. 6, an especially dirty heating oil, to be banned from use in residential buildings by July 1, 2015; the same law scheduled oil No.4, a similarly dirty, albeit less noxious fuel, to be banned by 2030.¹² Three years into the four year plan, however, less than half of the 10,000 buildings burning No. 6 and No. 4 heating oils had switched to cleaner fuels, notwithstanding looming penalties imposed by the law for noncompliance.¹³

Generally, building owners delayed making the switch for two reasons. First, the total costs of transitioning from the dirty heating oils to cleaner fuels were prohibitively high. The cost of converting a boiler to burn clean oils ranged from \$5,000 to \$17,000, and the costs of obtaining permits and conducting site inspections to perform the retrofits were considerable.¹⁴ For many landlords, switching to natural gas as an alternative fuel was also not a feasible option since expenses for permitting and construction to extend gas lines could reach into the hundreds of thousands of dollars.¹⁵ Second, the energy savings from converting to cleaner fuels would be captured by building tenants, whose utility expenses would decrease, leaving building owners to foot the costs for the

10. *Id.* at 120.

11. If all MFB owners wait until a regulatory deadline to perform energy efficiency retrofits, marginal decreases in GHG emissions that would have resulted from owners' staggered compliance with the law will be lost. It is not clear whether 80x50's interim GHG reduction targets assume marginal decreases in building emissions.

12. Kia Gregory, *Cost Among Hurdles Slowing New York City's Plan to Phase Out Dirty Heating Oil*, N.Y. TIMES (Apr. 6, 2014), <http://www.nytimes.com/2014/04/07/nyregion/cost-among-hurdles-slowing-new-yorks-plan-to-phase-out-dirty-heating-oil.html> [https://perma.cc/9Z3G-XKLM].

13. *Id.*

14. *Id.*

15. *Id.*

conversions without realizing the immediate financial benefits of doing so.¹⁶ In this way, the split incentive problem compounded the costs of retrofitting to discourage MFB owners from converting to clean fuels. Even though the retrofits might have raised MFB property values, most owners were not sufficiently incentivized by these potential capital gains, which tend to be highly speculative and too far removed from the present, to offset the immediate costs involved in siphoning substantial funds from cash flows to pay for capital improvements.

In an effort to overcome the split incentive problem, the City devised financing options to assist landlords who lacked capital reserves or credit-worthiness to comply with the law.¹⁷ The New York City Energy Efficiency Corporation, which was founded in 2011 as an independent financial services nonprofit, has directly financed over \$28 million of energy efficiency and cost-savings projects through direct lending and specialized financing products, such as Green Mortgages and Energy Service Agreements.¹⁸ The state and private utility companies have also implemented direct financing programs to encourage building owners to undertake energy efficiency upgrades. Through the New York State Energy Research and Development Authority (“NYSERDA”) and public utilities, over \$250 million in incentives have been made available in New York City “to catalyze widespread energy retrofits.”¹⁹ To supplement the financing programs, the de Blasio administration also launched the NYC Retrofit Accelerator to relieve private owners of small and large buildings²⁰ of the administrative and design costs of retrofitting.²¹ Specifically, the NYC Retrofit Accelerator provides free technical assistance and advisory services for building owners to “select[] cost-saving retrofit projects for

16. *Id.*

17. MAYOR’S OFFICE OF PLANNING & SUSTAINABILITY, *supra* note 2, at 69–70.

18. *Id.* at 69.

19. *Id.* at 75.

20. Small buildings are defined as buildings with less than 25,000 square feet of floor space. *Cf.* MAYOR’S OFFICE OF PLANNING & SUSTAINABILITY, *supra* note 2, at 66. Large buildings are defined as having over 50,000 square feet of floor area. *Frequently Asked Questions*, N.Y.C., <https://retrofitaccelerator.cityofnewyork.us/faqs> [<https://perma.cc/5JB9-ZPUM>] (last visited Apr. 22, 2016).

21. MAYOR’S OFFICE OF PLANNING & SUSTAINABILITY, *supra* note 2, at 62.

their buildings, [to] complet[e] the necessary permitting, and [to] complet[e] measurement and verification of the . . . measures.”²²

By alleviating the costs of selecting appropriate retrofits and by giving building owners access to financing programs, the City incentivized residential and commercial building owners to transition to cleaner fuels by aligning their interests with the energy efficiency goals of the 80x50 program. Complementing the programs designed to decrease retrofitting costs, the financing options effectively functioned as workarounds of the split incentive problem by providing MFB owners with municipal, state, or federal subsidies as substitute benefits to the utility savings that would be captured by building tenants. Significantly, the financing options also decreased the stress placed upon MFB cash flows to finance retrofits, mitigating the risks for MFB owners of undertaking such projects.

Importantly, the programs bore fruit: by 2015 over 99.8% of the buildings subject to the ban on No.6 heating oil were in compliance with the law, and many buildings burning heating oil No. 4 had also converted to cleaner oils or to different fuel sources.²³ Building owners’ conversions from dirty heating oils to cleaner fuels coincided with a citywide twenty-three percent decrease of fine particulate matter emissions and a sixty-nine percent reduction in sulfur dioxide levels.²⁴ As a result, NYC’s air is the cleanest it has been in the past fifty years.²⁵

MFBs, however, only represent one side of the private-building coin. The split incentive problem poses unique challenges in facilitating energy efficiency retrofits of commercial buildings. In particular, the problem arises from the triple-net lease, which is the typical agreement into which tenants enter when leasing commercial spaces. “Under the typical triple-net lease structure, the landlord is responsible for all capital improvement and the tenant is responsible for paying base rent, as well as all of its proportionate share of taxes, insurance and operating expenses,

22. *Mayor de Blasio Launches Retrofit Accelerator*, N.Y.C. (Sept. 28, 2015), <http://www1.nyc.gov/office-of-the-mayor/news/651-15/mayor-de-blasio-launches-retrofit-accelerator-providing-key-support-buildings-go-green-as> [https://perma.cc/R3MA-B8SV].

23. *Id.*

24. *Id.*

25. MAYOR’S OFFICE OF PLANNING & SUSTAINABILITY, *supra* note 2, at 30.

including utilities.”²⁶ Because the triple-net lease typically prevents the “passthrough of debt service [to tenants] to cover the capital expense[s] of energy retrofit investment[s],”²⁷ the agreement causes the split incentive problem to inhere in the landlord-tenant relationship unless the parties specifically negotiate a cost sharing deal for energy efficiency improvements and include the arrangements in the lease prior to signing.²⁸

Tenant fit outs represent one approach in the commercial leasing context for avoiding the split incentive problem and for accomplishing building retrofits on a piecemeal, space-by-space basis. “Fit outs” are “space types that have been designed to be radically efficient.”²⁹ Under the tenant fit out approach, a tenant who is in the process of formalizing a commercial lease can negotiate with the landlord or building owner to receive an improvement allowance to make renovations that increase the energy efficiency of the space prior to occupancy.³⁰ While “tenants have [historically had] little or no input into the technologies used in [a] building” and while “the cost of their share of energy consumption may not be a significant enough portion of the overall costs to warrant [building wide] energy-saving efforts,”³¹ a fit out arrangement can provide a tenant with some control over the energy efficiency and utility costs of its leased space.

Furthermore, tenants and landlords can have direct and overlapping financial incentives to incorporate tenant fit outs into commercial leases. On the one hand, if a building is submetered,³² efficiency gains from a fit out can decrease a tenant’s direct utility expenses. On the other hand, if energy usage is calculated either building wide or on a floor-by-floor basis and the space had contributed substantially to the total amount of energy consumed, a fit out of the space that produces significant efficiency gains can

26. Douglas F. Schleicher & Julie Beddingfield, *The Split Incentive Problem: Not Yet Resolved in Model Green Leases*, ENVTL. L., May 2010, at EL6, http://www.klehr.com/C7756B/assets/files/News/SCN_20100504142946_001.pdf [<https://perma.cc/GT2H-W8CG>].

27. OFFICE OF TECH. ASSESSMENT, *supra* note 8, at 122.

28. BLDG. OWNERS & MANAGERS ASS’N, WORKING TOGETHER FOR SUSTAINABILITY: THE RMI BOMA GUIDE FOR LANDLORDS AND TENANTS 11 (2012), <http://www.boma.org/sustainability/info-resources/Documents/WorkingTogetherforSustainability.pdf> [<https://perma.cc/R8GQ-DNPZ>].

29. *Id.* at 7.

30. *Id.*

31. Schleicher & Beddingfield, *supra* note 26.

32. A submeter allows an owner to disaggregate building utility bills by tenant or by floor. BLDG. OWNERS & MANAGERS ASS’N, *supra* note 28, at 1.

still decrease the tenant's utility expenses by lowering the pro rata rate charged to all tenants of the building or floor.

Under both sets of circumstances, forward-thinking owners will be able to realize financial benefits from the tenant fit out. Since prospective commercial tenants, unlike renters in the MFB context, tend to be sophisticated parties who take utility expenses into account in selecting spaces to lease,³³ an owner can market utility savings to increase demand for an outfitted space. If a tenant fit out has lowered the pro rata rate charged to each tenant, an owner can also market these savings to increase demand for impacted spaces of the building or floor. From the owner's perspective, because tenant-fit out arrangements split the costs of undertaking energy efficiency improvements and because the resultant utility savings can induce higher rents down the line, the owner has direct incentives not only to cooperate with tenants seeking to incorporate improvement allowances into their leases but also to encourage prospective lessees to undertake tenant fit outs in energy inefficient spaces.

While tenant fit outs can successfully resolve the split incentive problem in the commercial leasing context to accomplish small scale energy efficiency upgrades, deep energy retrofits of entire commercial buildings are likely required in order to meet the GHG reduction goals of the 80x50 program.³⁴ "A deep energy retrofit is a whole-building analysis and construction process that achieves much larger energy cost savings—sometimes over 50 percent reduction—than those of conventional, shallow retrofits."³⁵ Deep energy retrofits typically involve replacing heating and cooling systems with ones that are correctly sized and energy efficient, installing high efficiency lighting and appliances throughout buildings, and increasing the insulation of exterior walls, roofs and windows.³⁶

The split incentive problem is a greater impediment to deep energy retrofits than to tenant fit outs and cannot be circumvented as easily in the former context as it is in the latter. First, commercial tenants are unlikely to be able to negotiate cost-sharing

33. OFFICE OF TECH. ASSESSMENT, *supra* note 8, at 121.

34. In 2013, commercial buildings accounted for over twenty percent of all building-related GHG emissions in New York City. MAYOR'S OFFICE OF PLANNING & SUSTAINABILITY, *supra* note 2, at 8.

35. BLDG. OWNERS & MANAGERS ASS'N, *supra* note 28, at 9.

36. MAYOR'S OFFICE OF PLANNING & SUSTAINABILITY, *supra* note 2, at 34.

agreements with building owners to finance deep energy retrofits.³⁷ Exacerbating the inevitable collective action and coordination problems, some tenants might be resistant or directly opposed to these projects because deep energy retrofits can be very expensive and require extensive construction that might disrupt tenants' uses of their leased premises. Furthermore, even assuming that tenants are capable of organizing, many commercial building owners might not be willing to undertake deep energy retrofits until a major building system wears out or needs to be replaced,³⁸ since triple-net leases direct energy savings only to tenants, an owner's replacing a heating or cooling system while it is still operational is likely to involve a high opportunity cost that might result in an economic loss.

To address the split incentive problem and to facilitate deep energy retrofits, New York City has promoted incentives programs that are targeted specifically to commercial building owners. A prime example is the Flextech program, which is administered by NYSERDA³⁹ and "offers cost-shared technical services for commercial buildings to work with a team of engineers and technology experts to create customized energy studies . . . [and] combined heat and power feasibility studies."⁴⁰ Under Flextech, NYSERDA will fund fifty percent of a study's cost, up to \$250,000.⁴¹ Small, medium, and large commercial building owners can take advantage of the program to identify potential energy savings and process improvements,⁴² which is information that can be used by

37. A commercial tenant has leverage to bind an owner to a tenant-fit out arrangement because the tenant is willing to shoulder some of the costs of the efficiency upgrades and has the ability to pass on the lease altogether if the owner is unwilling to cooperate. In negotiating deep energy retrofits, tenants lack these advantages because they are already locked into their leases, and even assuming that the tenants are capable of organizing, they will likely encounter holdouts and free-riders who might thwart attempts to reach cost-sharing agreements with building owners.

38. See BLDG. OWNERS & MANAGERS ASS'N, *supra* note 28, at 9.

39. As of April 2016, the program has \$30 million in funding. N.Y. STATE ENERGY RESEARCH & DEV. AUTH., FLEXIBLE TECHNICAL ASSISTANCE PROGRAM: PROGRAM OPPORTUNITY NOTICE 1746, at 1 (2016), <http://www.nysERDA.ny.gov/-/media/Files/FO/Current%20Funding%20Opportunities/PON%201746/1746alldocs.pdf> [<https://perma.cc/WZJ4-UBDX>].

40. *Resources: Incentives*, N.Y.C., https://retrofitaccelerator.cityofnewyork.us/resources#quicktabs_none_2 [<https://perma.cc/GX6E-QJE4>] (last visited Apr. 22, 2016).

41. N.Y. STATE ENERGY RESEARCH & DEV. AUTH., *supra* note 39, at 2.

42. *Flexible Technical Assistance (Flextech) Program*, NYSERDA, <http://www.nysERDA.ny.gov/All-Programs/Programs/FlexTech-Program> [<https://perma.cc/E3C2-B5BX>] (last visited Apr. 22, 2016).

an owner to decide whether or not potential energy savings outweigh project costs to justify undertaking a deep energy retrofit.

While the Flextech Program is useful for decreasing information costs and helping commercial building owners to decide upon a course of action for increasing energy efficiency, a critical limitation of the program is that it does not provide funding for the engineering or design of site-specific deep energy retrofits.⁴³ Owners of small and large commercial buildings can take advantage of New York City's Retrofit Accelerator to avoid these costs. However, owners of medium sized commercial buildings with floor space areas between 25,000 and 50,000 square feet are left, by and large, to bear the full brunt of engineering and design expenses since the benefits offered by related incentives programs are scant. For example, the Commercial Implementation Assistance Program ("CIAP"), which is administered by NYSERDA, is accessible to medium commercial building owners and can be used to finance deep energy retrofit designs; however, CIAP contributions are capped at \$150,000, and the program only has \$11 million in funding, which is dispersed on a first come first serve basis.⁴⁴ Considering that there are over 5,500 non-residential midsize buildings in New York City,⁴⁵ the failure of government programs to provide these buildings' owners with robust incentives for designing deep energy retrofits is significant. If owners are required to shoulder design and engineering costs, they might not undertake such projects in the absence of laws compelling them to do so, and even with laws in place, owners' compliance might be inconsistent.

The 80x50 program is undoubtedly noteworthy not only because of the ambitiousness of its goals but also because New York City has the power to set a trend for other major coastal cities in the United States to follow in reducing GHG emissions.⁴⁶ While the City has pursued various avenues for addressing the split incentive problem to facilitate retrofits in private and commercial buildings, it is unclear whether present government subsidies are sufficient to incentivize commercial or residential building owners to undertake deep energy retrofits voluntarily. Given that the City is limited in

43. N.Y. STATE ENERGY RESEARCH & DEV. AUTH., *supra* note 39, at 5.

44. *Commercial Implementation Assistance Program*, NYSERDA, <http://www.nyserda.ny.gov/All-Programs/Programs/Commercial-Implementation-Assistance-Program.aspx> [<https://perma.cc/FW86-EEAJ>] (last visited Apr. 22, 2016).

45. See MAYOR'S OFFICE OF PLANNING & SUSTAINABILITY, *supra* note 2, at 69.

46. Adams-Schoen, *supra* note 5, at 438–39.

its ability to influence state and federal legislatures to increase funding for efficiency programs, a hybridized approach involving municipal regulation, incentives programs, and financing options is likely required to achieve 80x50's GHG reduction targets.