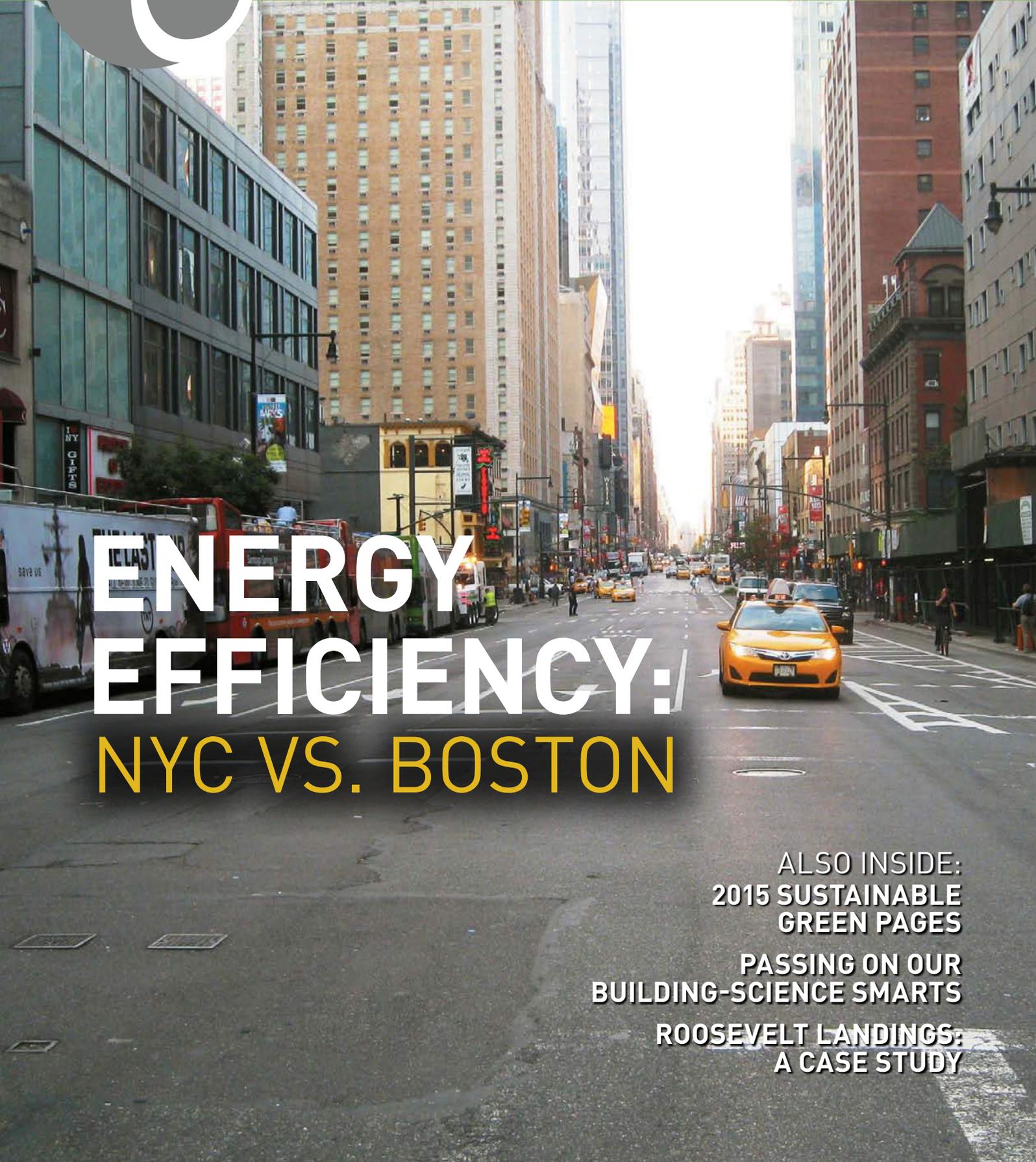




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BUILDINGENERGY

The Magazine of the Northeast Sustainable Energy Association



ENERGY EFFICIENCY: NYC VS. BOSTON

ALSO INSIDE:
2015 SUSTAINABLE
GREEN PAGES

PASSING ON OUR
BUILDING-SCIENCE SMARTS

ROOSEVELT LANDINGS:
A CASE STUDY



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This premier resource for sustainability professionals in the Northeast and beyond is just a few pages away. To have your business listed in next year's Green Pages and become a NESEA business member today, visit nesea.org/join.

ABOUT NESEA AND BUILDINGENERGY MAGAZINE

The Northeast Sustainable Energy Association (NESEA) is the region's leading organization of professionals working in sustainable energy, whole systems thinking, and clean technology. We advance the adoption of sustainable energy practices in the built environment through this magazine (distributed to NESEA members), our annual BuildingEnergy conferences and trade shows, professional workshops, BuildingEnergy Bottom Lines, and more. A NESEA membership is \$55/year, which includes BuildingEnergy magazine.



NEW YORK COMPETES WITH BOSTON IN ENERGY EFFICIENCY

Editor's Note: The article below is a dialogue between F.L. Andrew Padian and Charles Komanoff.

WHY NEW YORK CITY IS #2: A BUILDINGS GEEK LEARNS THE IMPORTANCE OF TRANSPORTATION IN A YANKEES VS. RED SOX WORLD

BY F.L. ANDREW PADIAN

The American Council for an Energy-Efficient Economy (ACEEE) recently released its new “City Energy Efficiency Scorecard.” Casting away logic (and for the second consecutive time), the report ranked Boston #1 and New York #2.

Here’s the rub. In the table shown on the next page are ACEEE’s scores for the two cities. (Boston won by a comparative Bill Buckner error.) As you can see, Boston’s victory margin was in 1) local utility programs and 2) transportation policy.

In essence, New York City lost the trophy because New York state doesn’t make utilities invest in energy efficiency in New York City as much as Massachusetts does in Boston. Also, New York state is blocking programs to reduce car traffic in and around New York City.

Yes, that’s New York’s state policies. The decisions that most critically shape transportation in New York City – concerning funding for mass transit and charging drivers a “social price” for car use – are made in the state capital.

That would be Albany. The location and culture of Albany are in a marked contrast to those of New York City. Whereas any state decisions affecting Boston are made in the capital of Massachusetts. That would be Boston. In the same way that anywhere a few miles outside of the Boston metro area is considered “western Mass,” the counties north of the Bronx are considered by many to be “upstate.”

It is easier for Massachusetts, a state of fewer than seven million, to invest in its capital and the metro region, than it is for New York to do the same.

70 percent of the state’s population lives within the Boston metropolitan area. In New York state, add Westchester and Long Island to New York City, and the population is 11.9 million of 19.1 million statewide, a respectable 62 percent.

But New York City is not the capital – and as they say, all politics are local. New York state continually rebuffs policy proposals that could help New York City residents.

If New York City is #2, it’s because we have archaic policies that allow people to drive into Manhattan without paying a charge for contributing to congestion. It is a sad and cowardly refusal of upstate legislators, whose only pedestrian traffic involves walking to their cars, to understand the depth of health, monetary and carbon benefits New York City and its metro area would get from changing the way we treat vehicles entering the heart of the city.

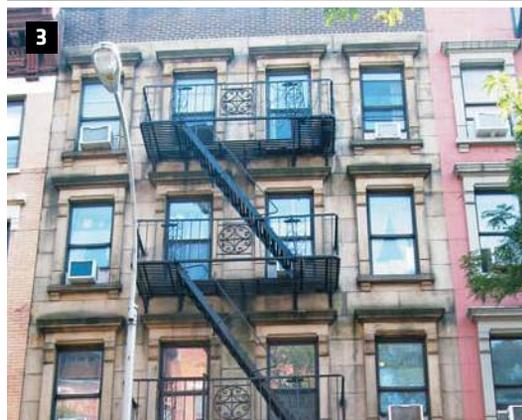
The built environment, rather than transportation, is our first concern at NESEA. But our heads were spun around by Projjal Dutta of the Metropolitan Transportation Authority in New York at a recent NESEA annual meeting. He reminded us that a super-efficient office building in a big city is significantly more efficient than its counterpart in the suburbs because its employees often take mass transit, walk or bike to work. In the suburbs, it’s all about “carchitecture.”

Some of those “efficient” suburban buildings, Dutta pointed out, use five to ten times more energy in transporting workers to their premises than they use in power and heat. This makes the wonderful

ACEEE's 2015 Energy Efficiency Scores for Boston and New York City

City	Boston		New York	
Category	Rank	Score	Rank	Score
Total	#1	82	#2	78
Transportation	#3	19.5/28	#8	17.5/28
Energy, Water, Utilities, and Public Benefit Programs	#1	17.5/28	#7	13.5/28
Buildings	#1	27/29	#2	26/29
Community Initiatives	#2	9/10	#1	9.5/10
Local Government	#12	9/15	#1	11.5/15

Source: *The 2015 City Energy Efficiency Scorecard*
 Published by American Council for an Energy-Efficient Economy
aceee.org/research-report/u1502



1. THE FIRST LEED GOLD MULTIFAMILY BUILDING IN THE UNITED STATES IS LOCATED IN NEW YORK CITY. 2. THIS LOW-TRAFFIC MOMENT IN NEW YORK CITY ON JULY 11, 2015 SHOWS HOW THE CITY MIGHT LOOK WITH LESS TRAFFIC CONGESTION 3. NEW YORK CITY APARTMENTS WITH EXTERIOR STAIRCASES ARE A COMMON SIGHT. THESE WERE PHOTOGRAPHED ON JULY 13, 2015.

building design insignificant in comparison to the energy and carbon created by the cars. Added to that is the space wasted for these typically low-rise buildings. Ugh.

The fact that cars use more fuel energy than efficient buildings do is known to many; the stark reality was discussed after Dutta's presentation. Some expressed both concern and resignation that our work in buildings was putting our "energy" in the wrong sector.

We talk about transit-oriented development and we are all "enviros," but most of our conference attendees drive their cars or fly to our Boston BuildingEnergy

conference while most take mass transit to our New York City BuildingEnergy conference. Does this sound like a competition? Well, ask anyone - it is.

To understand the depth of this problem and compare New York City to Boston in transportation, I asked one of my first mentors, the true energy genius Charles Komanoff, to ponder the transportation contributions of energy efficiency and carbon in New York City and Boston.

For the record, New York City is the city with 29 World Series trophies. (That includes the Mets, who have two; I forgot whom they beat the last time they won.) I'm just sayin'.



THIS LEED AFFORDABLE HOUSING DEVELOPED BY LES BLUESTONE IN NEW YORK CITY, STANDS OUT BECAUSE OF ITS WIND ENERGY INSTALLATION. THE PHOTO WAS TAKEN IN 2009.

AN OBSTACLE COURSE BLOCKS PROGRESS FOR NEW YORK CITY DRIVERS AND TRANSIT RIDERS

BY CHARLES KOMANOFF

Andy is too kind. But on the matter at hand – whether Boston deserves top billing over New York City in ACEEE’s energy efficiency report – I think he’s absolutely right: we New Yorkers wuz robbed. ACEEE’s scoring didn’t take into account the fact that New Yorkers drive much less than Beantown residents.

Indeed, residents of Boston drive around two-thirds more miles per person than residents of New York City. Even downgrading New York City for its preponderance of stop-and-go traffic, which adds to its emissions per mile, Boston’s per capita CO² emissions from motor vehicles are 50 percent higher than New York City’s: an estimated 16.5 pounds of carbon dioxide per Beantown resident per day vs. 10.8 per New Yorker. (These figures apportion all miles driven in each city among city residents only, which probably overstates per-capita miles, but it does not bias the city comparison.)

Many factors account for this difference between the two cities. The top ones are these:

- Driving costs more in New York City. A higher share of bridges and tunnels are tolled (and at much higher rates). Free parking is less prevalent.
- New Yorkers use public transportation two to three times as much as Bostonians.

- Traffic congestion is more intense and widespread in New York City. While that raises per-mile emissions, it erodes the utility of driving and thus reduces New York City’s miles driven per capita.
- New York City has twice Boston’s population density. With all else equal, density reduces driving since more destinations are in proximity and thus are more reachable by walking, bicycling and transit use.

At least two and arguably all four of the above factors are policy-driven. Round-trip tolls on eight different New York City tunnels and bridges easily exceed \$10. That high level is for the explicit purpose of financing mass transit.

Moreover, those tolls are only one of a number of fees and taxes on petroleum products, payrolls, real-estate transactions, and general sales that finance operations, upgrades and expansion of the regional transit network.

And recently, in a nascent but striking turnaround from the prior century, city government policies are taking street space from drivers and allocating it to bus riders, walkers and bicycle riders – in effect, ratifying traffic gridlock rather than seeking to accommodate it. Moreover, the last-listed factor militating against driving, New York’s density, is itself enabled by the ubiquity of mass transit.

Now let's put driving in context. By coincidence, New Yorkers' daily CO₂ footprints from electricity and driving are virtually identical: 10.5 and 10.8 pounds per person per day, respectively. (The national average for electricity, by the way, is around 38 pounds.)

In New York City's low electric carbon footprint, we see the impact of both small residences and a per-kWh CO₂ emission rate that's barely half the national average due to domination by natural gas (63 percent) supplemented by nuclear power (27 percent).

I haven't been able to calculate Boston's per-capita electricity carbon footprint, but it would be surprising if it was even close to New York City's.

Returning to driving: the upshot is that New York City's five-to-six pounds-per-day advantage over Boston is both a big deal numerically and largely an outcome of public policy.

This makes it somewhat bizarre that the ACEEE scorers ranked Boston ahead of New York in transportation policies – by 19.5 points vs. 17.5 points. Simply reversing those scores would have offset Boston's net advantage of two points in the other criteria, leading to a tie in the overall score.

I'm well aware that the ratings are at least as much about policies as outcomes. That's why I took pains to elucidate that New York City's lead over Boston in driving-related carbon emissions is largely policy-driven.

Moreover – and here I build on an argument Andy advanced above – our automotive carbon footprint would be lower still, but the state legislature refuses to let us reform our road and bridge tolls and rationalize both driving and transit.

Albany's rejection in 2008 of then-mayor Michael Bloomberg's congestion pricing initiative is well known.

Less widely-recognized is the newer toll plan advanced by advocates including myself that would have fixed the inequities in the Bloomberg proposal and created a robust new revenue stream to finance the next tranche of subway improvements. I say "would have" because our plan has run into the same legislative brick wall.

Our plan, called Move NY, would charge drivers to enter and leave Manhattan south of 60th Street while cutting by nearly half the toll rates on outer-borough bridges like the Triborough Bridge and the Verrazano-Narrows Bridge. The net revenue, capitalized, would plug the \$15-billion hole in the Metropolitan Transportation Authority's next capital plan, letting the transit agency modernize its creaking subways that are straining to carry record numbers of riders.

Our proposal represents the boldest conception for meeting the city's transportation and traffic needs since the revolutionary (and destructive) highway-building in the early Robert Moses era 80 years ago. Its promise to lower tolls on all seven Moses bridges would end decades of forcing outer-borough bridge users and long-haul truckers to fund transit so that a million car trips a day into and out of the gridlocked

Manhattan core can remain un-tolled. The monetary gains in air quality, street safety, and, above all, time savings for drivers and transit users alike would outweigh the new tolls by two to three billion dollars a year, by my estimates.

Interestingly, the reduced carbon footprint accounts for only one to two percent of this net benefit. This is a measure of the fact that the vehicle trips which the Move NY plan would toll are only a tiny fraction of citywide vehicular travel. The tolls are meant not to eliminate these auto trips but to charge a social price for them: don't ban the cars, bill them. The plan's real carbon benefit would come from enabling our inherently green city to function and grow and thus absorb a million or more new people and jobs that would otherwise flow to some car-dependent suburban ring.

While our plan's poor prospects make for a bitter pill, the blame shouldn't be pinned on the city, where support has been robust. But notwithstanding this setback, New York City's clear and largely policy-driven supremacy in vehicular carbon emissions is hard to reconcile with Boston's getting the nod on transportation policies. "Deflate-gate" it's not, but you gotta wonder if ACEEE's judges, like the refs in last winter's American Football Conference championship, were mesmerized by Brady and Belichick and took their eyes off the ball. 🏈

ABOUT THE AUTHORS

Charles Komanoff is an activist, economist and policy analyst. He directs the Carbon Tax Center and develops traffic-pricing modeling tools for the Nurture Nature Foundation. His work includes books (*Power Plant Cost Escalation*, *Killed by Automobile*, *The Bicycle Blueprint*), computer models, scholarly articles, and journalism. An honors graduate of Harvard in math and economics, Charles lives with his wife and two sons in lower Manhattan.

F.L. Andrew Padian is a private consultant with 35 years of experience in the building science of multifamily buildings. He has performed energy analyses and successful solutions on thousands of buildings across the country. He is a frequent contributor to sustainable publications and speaks nationwide. A NESEA board member, he is an active volunteer in New York City's Urban Assembly School for Green Careers, Clinton Community Garden, and GreenHomeNYC.

New York City's clear and largely policy-driven supremacy in vehicular carbon emissions is hard to reconcile with Boston's getting the nod on transportation policies.

Attend **BUILDINGENERGY NYC 15** to learn more from these authors on retrofits.

October 15, 2015

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