Technical Appendix

Project name: Using social norms to decrease energy use in public housing
Date finalized: 4/11/2025

Appendix A – Randomization and analytic samples

	Units Randomized	Analytic Sample	
		One-week outcome	Eight-week outcome
No letter control	2,363	1,491	1,511
Series of letters	2,360	1,490	1,518
Total	4,723	2,981	3,029

Notes: The analytic sample for the one-week outcome period includes units that had valid energy readings prior to sending the first letter and during the one-week outcome period. The analytic sample for the eight-week outcome period includes the apartment units that had valid energy readings prior to sending at least two of the four letters and during the eight-week outcome period.

Appendix B - Difference in baseline energy use by treatment group

	(1)	(2)	(3)
	Baseline Daily Energy Use (kWh)	Baseline Daily Energy Use (kWh)	Baseline Daily Energy Use (kWh)
Assignment to Flyers	-1.02*	-1.09*	-0.68
	(0.50)	(0.48)	(0.48)
Observations	2,981	3,029	4,732
R-squared	0.164	0.176	0.178
Sample	One-week	Eight-week	Full Sample
Control Mean	23.70	23.76	23.18
Control SD	15.20	14.91	14.95

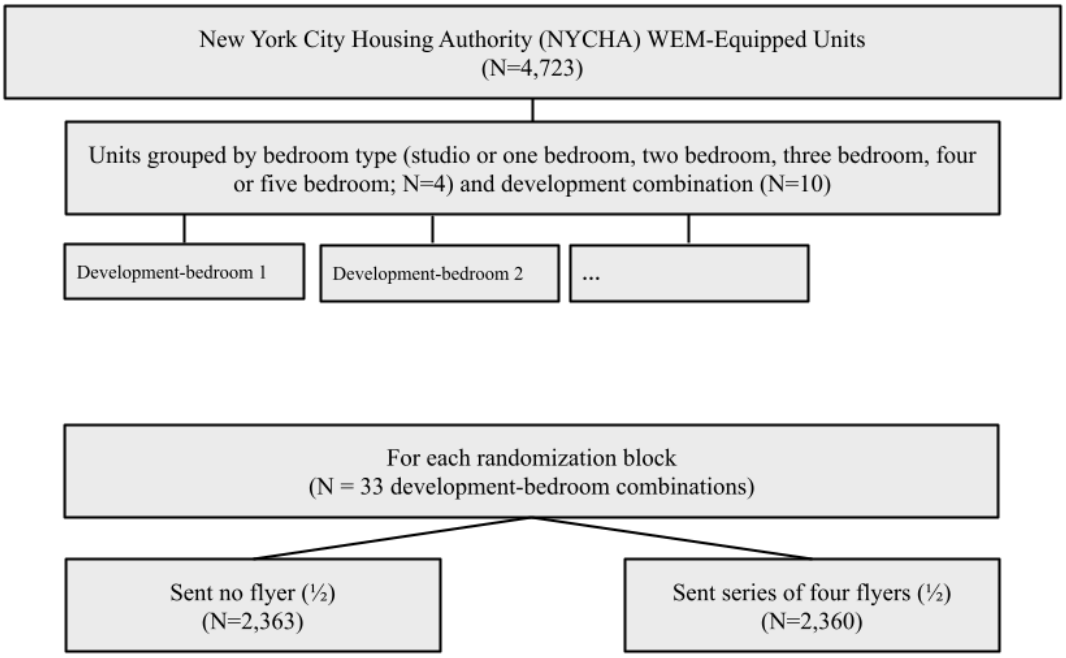
*** p < 0.001, ** p < 0.01, * p < 0.05, + p < 0.10. Heteroskedasticity-consistent standard errors (HC2) in parentheses. Excludes observations that did not receive individualized feedback for first flyer in column 1 or at least two flyers in column 2. Includes block fixed effects and flags for imputed data.

Appendix C - Effect on energy use

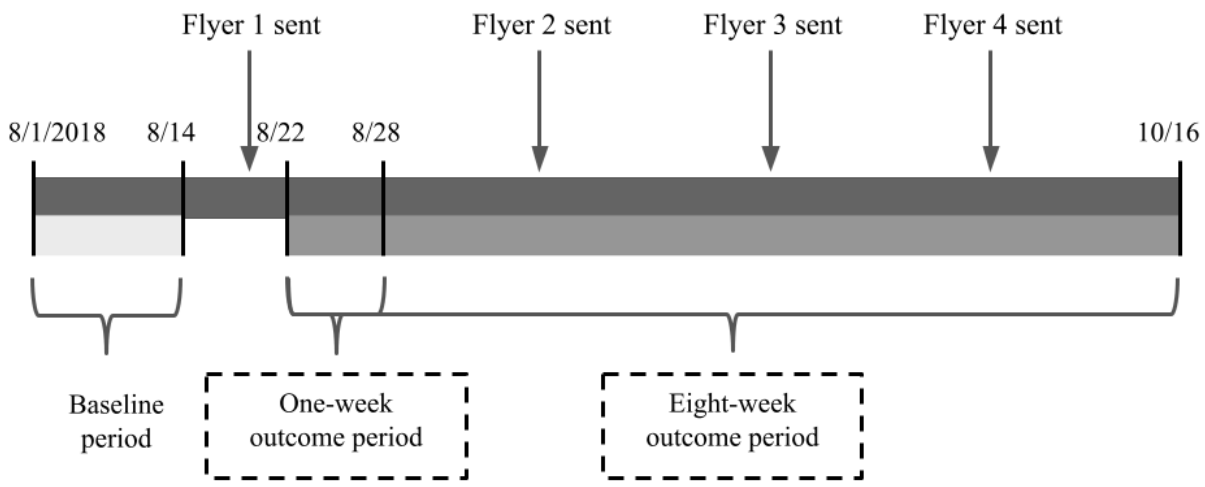
	(1)	(2)
	One-Week Daily Energy Use (kWh)	Eight-Week Daily Energy Use (kWh)
Assignment to Flyer	-0.04	0.12
	(0.17)	(0.14)
Baseline average daily energy use	0.82***	0.63***
	(0.01)	(0.01)
Observations	2,981	3,029
R-squared	0.885	0.842
Control Mean	19.60	16.18
Control SD	13.48	10.37

Notes: *** p < 0.001, ** p < 0.01, * p < 0.05, + p < 0.10.. Heteroskedasticity-consistent standard errors (HC2) in parentheses. Each regression includes block fixed effects, baseline mean daily energy use, and indicators for imputed baseline energy use by day. Excludes observations that did not receive individualized feedback for first flyer in column 1 or at least two flyers in column 2.

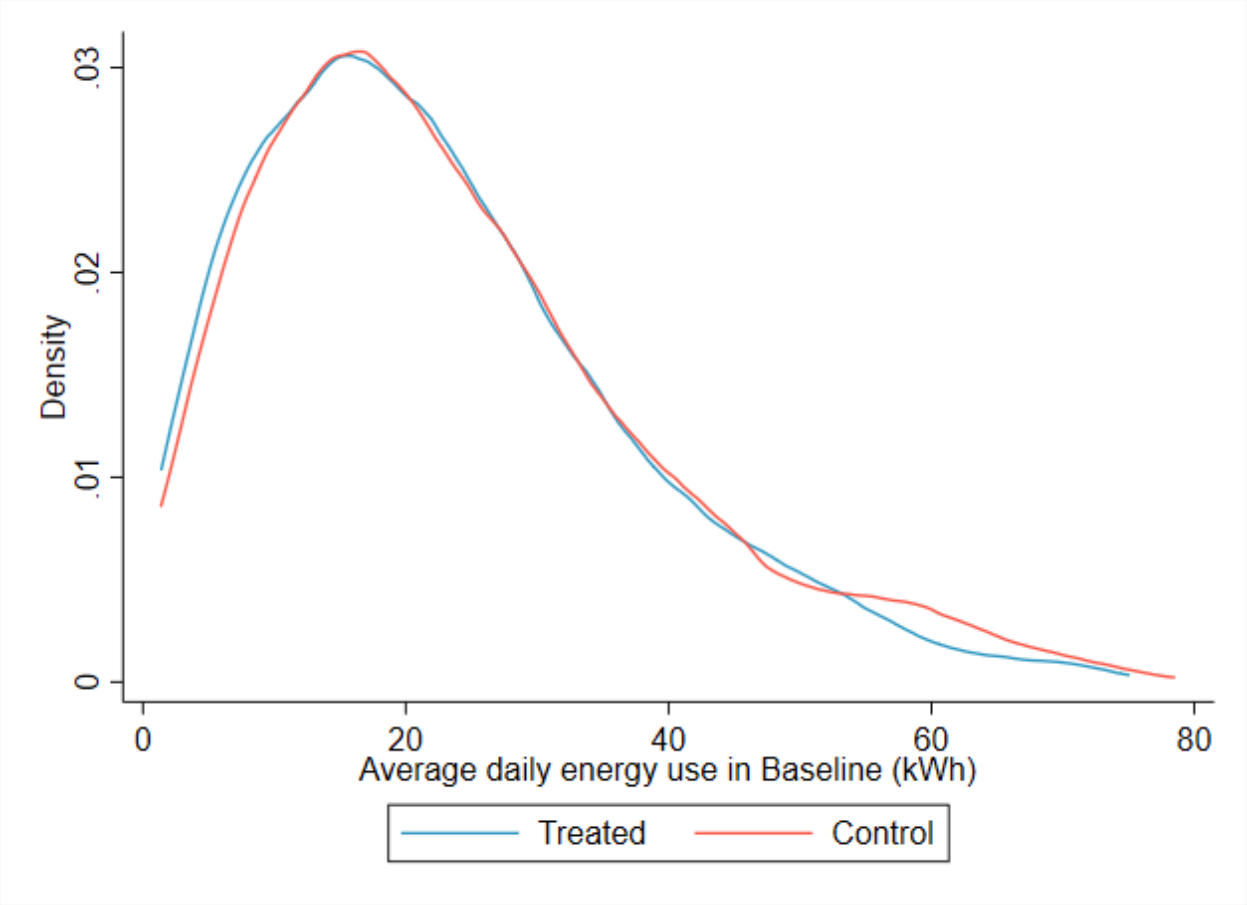
Appendix D - Random assignment



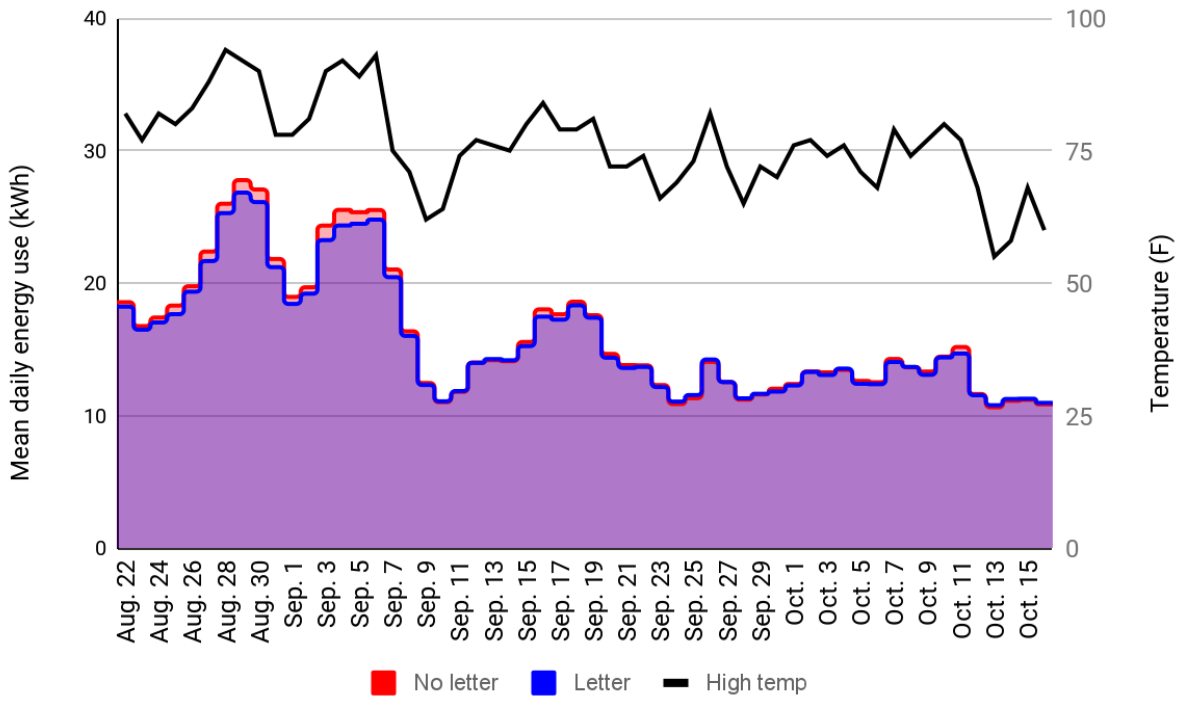
Appendix E - Evaluation implementation timelines



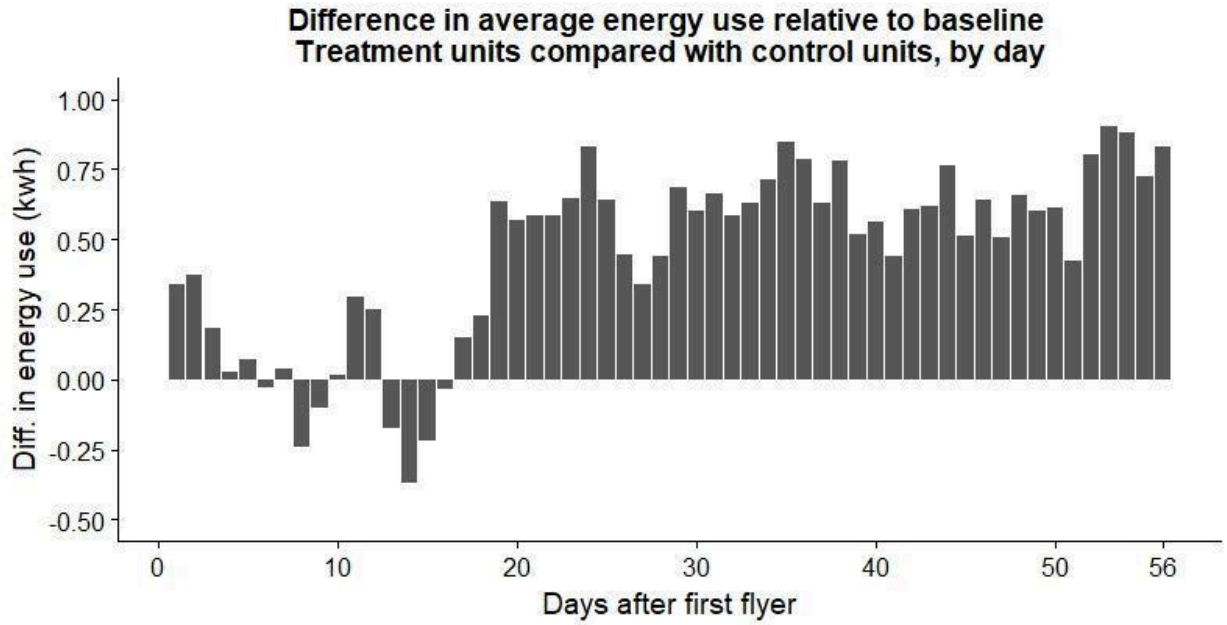
Appendix F - Distribution of baseline energy use



Appendix G - Mean energy use and outside temperature over eight-week outcome period



Appendix H -Differences in average energy use relative to baseline units by day



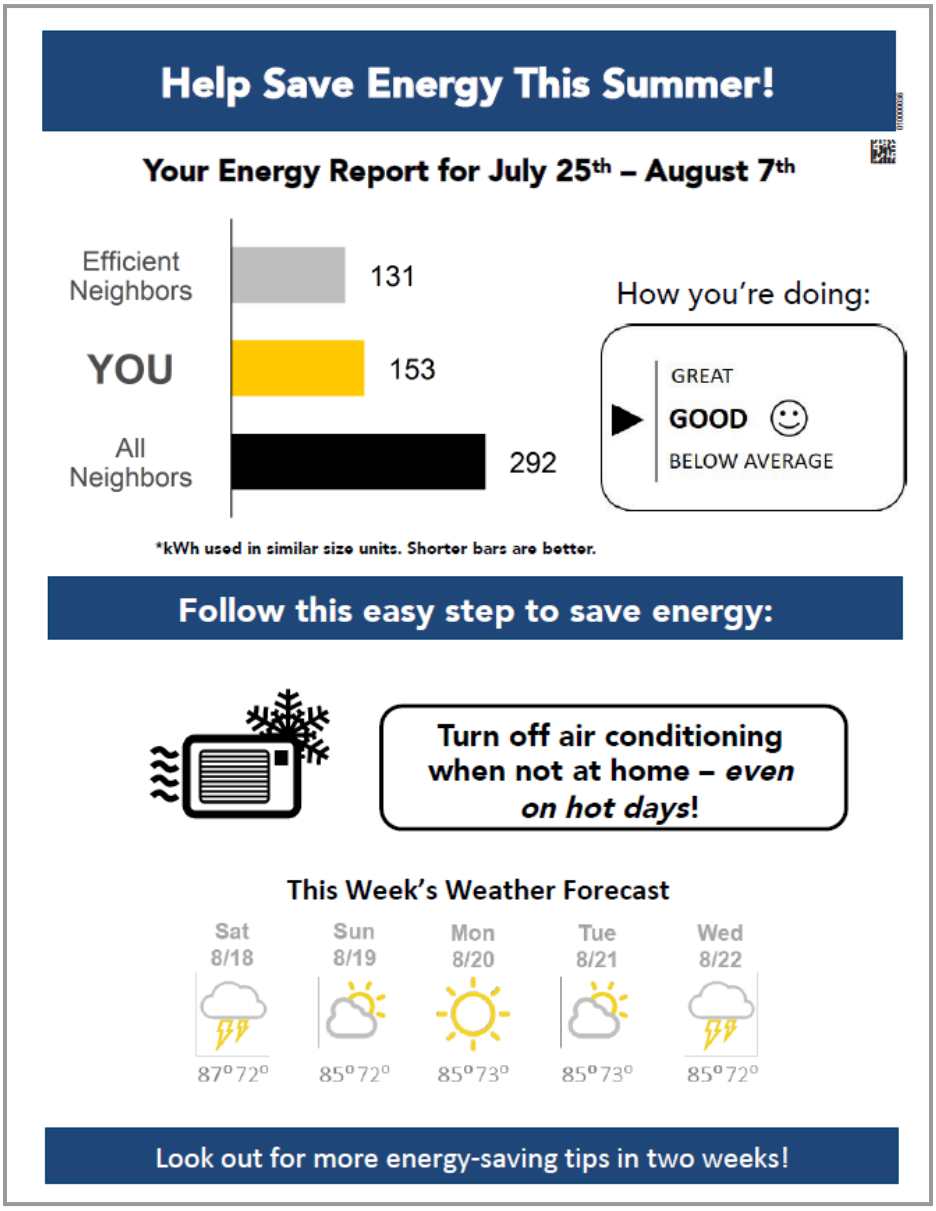
Bar height calculated as treatment minus control. Bars below zero indicate average energy use among treatment units is less than control units relative to baseline.

Appendix I - Test for differential attrition

	In Sample 1 Week	In Sample 8 Week
Sent Letter	0.00146	0.01386
	(0.01192)	(0.01119)
R-squared	0.2068	0.2922
Obs	4,723	4,723
Control Mean (%)	0.698	0.696
Control Std. Dev. (%)	0.459	0.460

Notes: *** p < 0.001, ** p < 0.01, * p < 0.05, + p < 0.10. Heteroskedasticity-consistent standard errors (HC2) in parentheses. Each column represents a separate regression. Each regression includes block fixed effects, baseline mean daily energy use, and indicators for imputed mean baseline energy use by day.

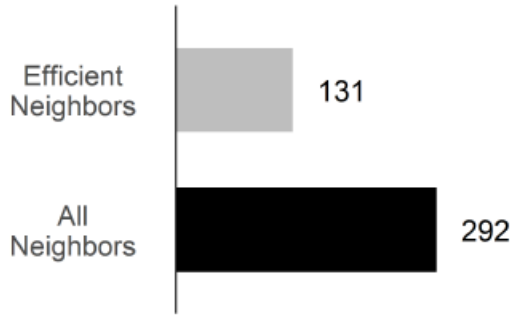
Appendix J - Informational flyers



Notes: The single-energy-saving-tip changed for each mailing, as did the weather weekly weather forecast. The first mailing included the tip "Turn off air conditioning when not at home - *even on hot days!*" . The next mailings included the tips: "Use fans instead of air conditioning to stay cool" for mailing two, "Close drapes and blinds on hot, sunny days" for mailing three, and "Unplug devices when not in use" for mailing four. The backside of each mailing was translated into Spanish.

Help Save Energy This Summer!

Your Energy Report for July 25th – August 7th



How you're doing:

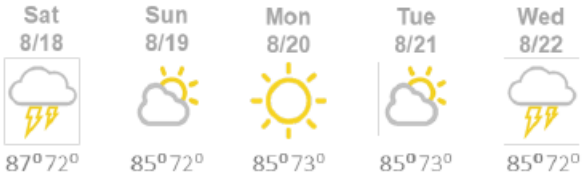
Be an energy efficient neighbor!

*kWh used in similar size units. Shorter bars are better.

Follow this easy step to save energy:

Turn off air conditioning when not at home – *even on hot days*!

This Week's Weather Forecast



Look out for more energy-saving tips in two weeks!