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listen, educate, collaborate

New York Consumer Pulse

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The New York State Smart Grid Consortium (Consortium) is a unique non-profit public-private partnership that promotes broad statewide implementation of a clean, safe, and reliable smart grid. The Consortium brings together many of the world's leading utilities, technology providers, policy makers and research institutions to identify opportunities for accelerating grid modernization. Learn more at **nyssmartgrid.com**.

SGCC's mission is to serve as a trusted source of information for industry stakeholders seeking a broad understanding of consumers' views about grid modernization, electricity delivery and energy usage, and for consumers seeking an understanding of the value and experience of a modern grid. Learn more at **smartgridcc.org.**

This research was conducted by Research Into Action, a market research and evaluation services firm that provides actionable insights about audiences, markets, and processes, and is committed to increasing the responsible use of clean energy and natural resources throughout the nation and the world. Learn more at **researchintoaction.com**.

Executive Summary

This New York Consumer Pulse Study was sponsored by the NYS Smart Grid Consortium to better understand the views of New Yorkers on key energy related issues. It was conducted in partnership with the Smart Grid Consumer Collaborative, which has sponsored a tracking survey of nationally representative U.S. consumers — called Consumer Pulse Studies — since 2011. This 2017 study oversampled in the state of New York (NYS) when conducting the national survey to provide an analysis tailored to NYS. The study examined key measures of consumer awareness, knowledge, attitudes, and perceived benefits and barriers as they relate to Smart Grid-enabled programs, the State's Reforming the Energy Vision initiative, and advanced energy technologies. This New York Consumer Pulse Study report presents the findings specific to NYS, which are then compared to the national results. The report is also analyzed by NYS region, which included Downstate, Long Island, Mid-Hudson and Upstate. This study follows up on a previous survey conducted by the NYS Smart Grid Consortium in partnership with New York State Energy Research and Development Authority (NYSERDA) in 2015.

Major Findings

New York State's Reforming the Energy Vision (REV)[1]

- One in five (20%) New Yorkers are aware of the State's REV initiative, and slightly fewer (16%) are aware of New York State's current grid modernization efforts. Half of New Yorkers (50%) indicated they are interested in learning more about REV, though only 3% reported visiting the REV website.

- More than half of New Yorkers (56%) support the overall REV goals.

- Downstate New Yorkers are the most aware of and interested in REV, while Mid-Hudson residents are the least. General support for REV is, however, similar across the New York regions.

- New Yorkers indicated 'investing in clean energy' (79%) and 'affordable energy for low income customers' (71%) are higher priorities than 'promotion of microgrids' (50%) or 'promotion of electric vehicles' (50%). Downstate residents are the most supportive of these clean energy efforts, and Mid-Hudson residents are the least supportive in all the areas.

- Overall, certain demographic groups are more likely aware of, interested in, and supportive of NYS's clean energy efforts. These "clean energy champions" are statistically more concentrated among Millennials and urban residents. In contrast, "clean energy non-enthusiasts" in NYS are more concentrated among Greatest Generation and rural residents.

- More than half of New Yorkers are interested (53%) or already participating (1%) in community solar programs. Interest in community solar is similar across the New York regions. Among New Yorkers who reported being interested or already participating in community solar, two-fifths (40%) reported they would be willing to donate 50% or more of any excess generation to lower-income households.

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[1] Reforming the Energy Vision (REV) is Governor Andrew Cuomo's comprehensive energy strategy for New York. The stated objective of REV is to help consumers make more informed energy choices, develop new energy products and services, and protect the environment while creating new jobs and economic opportunity throughout the State. For more information go to www.rev.ny.gov.

Consumer Knowledge and Awareness

- Consumer awareness and knowledge of the Smart Grid and smart meters in NYS is currently moderate (68% and 65%, respectively); though it is lower than the national level. NYS is considered a non-advanced metering state (i.e., Advanced Metering Infrastructure rate is less than 50%), which may be the reason for awareness being lower than the national level. Downstate respondents were significantly more likely to report being aware and knowledgeable of the Smart Grid. Regional differences for smart meter awareness were within the margin of error.

- A large portion of New Yorkers still do not feel sufficiently informed about ways to make their home energy efficient. New Yorkers rate their knowledge of this lower than the national level (51% versus 59% rated 'knowledgeable').

Smart Grid Benefits

- New York consumers find saving money, preventing electricity outages, and reducing greenhouse gas emissions to be the most important benefits associated with the Smart Grid (73%, 69%, and 68% rated 'important', respectively).

Consumer Attitudes

- Most New York consumers report that knowing their home is energy efficient is highly important to them (83%).

- New York consumers primarily attribute saving money and environmental benefits as important reasons for saving energy (51% and 26%, respectively). Residents in Mid-Hudson Valley and Upstate attribute money-saving benefits more strongly compared to residents in other NYS regions, while Downstate residents attribute environmental benefits more strongly.

Barriers

- New York consumers report that equipment replacement costs are the primary barrier to engaging in energy-saving actions at home (32%), but this is significantly lower than the national level (40%).

- Renters in New York face unique barriers to saving energy, including their landlord being unwilling to make improvements even with cost sharing (71%, significantly higher than the national level of 65%), being unable to make alterations to their home (57%), and not being able to ask their landlord to make energy efficiency improvements (60%). Additionally, slightly less than half of renters (45%) are willing to invest any amount of their own money to make energy efficiency improvements to their home.

Consumer-Utility Relationship

- The majority of New Yorkers across the state are satisfied with their electricity provider (78%).

- New York consumers report having moderate levels of contact with their electric utility; 45% reported making contact within the last six months. Those who did report making contact were largely satisfied with their overall experience (78% satisfied).

- Most consumers in NYS who have contacted their utility report that contact occurred via telephone (55%) or through the utility website (46%); few consumers report engaging with their utility via smartphone applications or through social media.

- New York consumers who interact with their utility through digital channels (website, smartphone applications, or social media) are more concentrated among those living in the Downstate region.

- New Yorkers' support for the clean energy expansion at New York's electric utilities drops when there is a cost to the customers (80% if free), but the support is still sustained at moderate levels with small monthly fees ($2–$15, between 41% and 64%).

Consumer Engagement and Interest

- Slightly less than one in five New York consumers (18%) report having participated in or used at least one Smart Grid-enabled utility program (e.g., Critical Peak Rebate, Critical Peak Pricing, Pre-paid billing, real-time outage reporting and tracking, etc.).

- Online billing and payment (37%), energy usage comparison tools (10%), and smart thermostats (9%) are the most common Smart Grid-enabled programs and products New York consumers report using.

- New York consumers are most interested in real-time reporting of electricity outages, followed by energy use information, and Critical Peak Rebate programs (64%, 61%, and 56% respectively). New Yorkers are also highly interested in purchasing energy storage systems (68%), though less so than consumers at the national level (74%).

- New Yorkers report slightly less interest in Smart Grid-enabled utility programs overall than the national-level respondents. Those living in Downstate generally appear more interested in Smart Grid-enabled utility programs, especially in Direct Load Control programs, than those in other New York regions.

- New York consumers who are more interested in participating in utility programs or purchasing Smart Grid-enabled products are more concentrated among Millennials, homeowners, and those living in urban areas.

Conclusions and Implications

The following conclusions and recommendations draw from our analysis and major findings to inform future investments in clean energy and program design efforts in New York.

Conclusion 1

Consumer awareness of and interest in Smart Grid-enabled services and products, attitudes toward energy efficiency, and various measures of consumer-utility relationships appear to be average in NYS, compared to the national level. There are, however, stark regional and demographic differences in how New Yorkers engage with clean energy: Millennials, New Yorkers who live in urban areas (especially in Downstate), or those who have higher incomes tend to be clean energy champions. In contrast, consumers who live in rural areas, are members of the Greatest Generation (born before 1945), or who have lower incomes are more likely clean energy non-enthusiasts.

> **IMPLICATION:** In consideration of the regional and generational differences within the state of New York, it may be helpful to avoid "one size fits all" outreach, education and program design. Targeting audiences that are already listening and using messages and formats that will resonate with these groups may deliver more cost-effective results for the state and energy stakeholders.

Conclusion 2

There seems to be a strong overlap in demographic characteristics among those who embrace a digital lifestyle and those who have aptitude for a clean energy lifestyle. These consumers tend to be younger, urban, and college educated. They also demonstrate an interest in and willingness to try smart energy products and services, and they actively engage in digital forms of communication.

> **IMPLICATION:** Employing digital marketing and communication tools presents electricity providers with opportunities to connect with important market segments that will most likely engage in Smart Grid-enabled programs and technologies. Facebook, YouTube, Pinterest, Instagram, and Twitter are valuable social media platforms that can facilitate communications and information dissemination (e.g., notifications of outage or demand response program, campaigns, usage information, etc.). To break through the static of this online environment, it is important for program or product designers to consider things such as responsive design (i.e., design that adapts to the device in use), search engine optimization and marketing, online content, and native advertising as they design and promote new offerings.

Conclusion 3

Despite having a stronger aptitude for a clean energy lifestyle, younger people – especially Millennials – generally perceive more barriers to taking energy-saving actions. Millennials and renters in particular feel disadvantaged due to split incentives, and they are reluctant to cost-share with their landlords.

> **IMPLICATION:** Reducing the barriers often perceived by this group (e.g., limited actions they can take to save energy) may activate their interest and desire to engage in smart energy. For instance, developing more program opportunities that renters (the young and future homeowners) can also take advantage of without involving their landlords (such as energy usage information, peak time rebate, peak pricing, or prepaid billing) may empower them to actively engage in energy-saving actions. This also points to the need for integrating educational resources targeted to this group into electricity provider program designs.

Conclusion 4

Many New Yorkers are unaware of the State's REV efforts. Only twenty percent of New Yorkers have heard about REV and only two percent have visited the website.

IMPLICATION: This lack of awareness highlights the need for further education and other initiatives that will improve awareness, particularly in the Mid-Hudson and Upstate regions.

Conclusion 5

New Yorkers voice widespread support for community solar and initiatives that address the challenges faced by lower income consumers. Over half of New York consumers were interested in community solar and interest was particularly strong in the Downstate region (61%). When asked if consumers would be willing to donate 50% of any excess generation to low income households, 40% of New Yorkers voiced support. Again, support was highest in the Downstate region (49%)

IMPLICATION: This *esprit de corps* may provide opportunities for the State to engage consumers who face income and physical barriers to participating in solar and other renewable energy programs. With the right outreach and participation rewards to those who have the income and agency to invest, REV's renewable goals may be a bit easier to achieve.

1. Study Objectives and Methodology

Study Background and Objective

This New York Consumer Pulse Study was sponsored by the NYS Smart Grid Consortium to better understand the views of New Yorkers on key energy related issues. It was conducted in partnership with the Smart Grid Consumer Collaborative, which has sponsored a tracking survey of nationally representative U.S. consumers — called Consumer Pulse Studies — since 2011. The study examined key measures of consumer awareness, knowledge, attitudes, and perceived benefits and barriers as they relate to Smart Grid-enabled programs, the State's Reforming the Energy Vision initiative, and advanced energy technologies. This study follows up on a previous survey conducted by the NYS Smart Grid Consortium in partnership with New York State Energy Research and Development Authority (NYSERDA) in 2015.

Methodology

Survey Instrument

The survey instrument consisted of two parts: The core battery of Consumer Pulse Study questions asked of the national as well as NYS samples; and an additional set of questions asked of the New York sample only about NYS's energy efforts particularly regarding Governor Cuomo's Reforming the Energy Vision (REV) initiative. The survey instrument took slightly less than 20 minutes to administer. The final instrument is attached in Appendix A.

Sampling

To produce a representative sample of New York consumers, we proportionately sampled from the four regions of the state — Upstate, Downstate, Long Island, and Mid-Hudson Valley areas — based on the counts of the occupied households reported by the U.S. Census Bureau (2015 American Community Survey).[2] We also controlled the sample balance at the state level to the known census proportions by a set of quota variables, including homeownership, age, household income, and education. To correct any sample-population differentials, we applied the poststratification weight which reflected all of these key demographic parameters.

We obtained a total of 721 completed surveys using online consumer survey panels provided by Survey Sampling International (SSI) in March 2017. The total NYS sample size is sufficient to achieve 95% confidence and +/-5% precision as an overall NYS sample, and 90% confidence and +/-10% precision within each region. The sample size of the national survey was 1,652 including the NYS sample.

1.2.3. Data Analysis

We compared the NYS and national results for the core question battery. For all the questions we analyzed, we used the four NYS regions as the primary cross variable.[3] We also examined the results by a variety of demographic characteristics to determine if there were commonalities and insights in understanding and engaging NYS consumers, including:

- Generations (Greatest Generation born before 1945, Baby Boomers born between 1946-1964, Generation X born between 1965-1981, and Millennials born between 1982-1999).
- Homeownership (owners and renters).
- Income level (high, medium, and low, based on household income and the number of household members).
- Seasonal billing variance (highest bill in the summer, highest bill in the winter, no seasonal variance).

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[2] Appendix B shows how we defined the four regions by county.

[3] The national Consumer Pulse Study used the Smart Grid Consumer Collaborative's market segments as the primary analytical cross variable. Appendix C shows the relevant analysis by this market segment among the NYS sample.
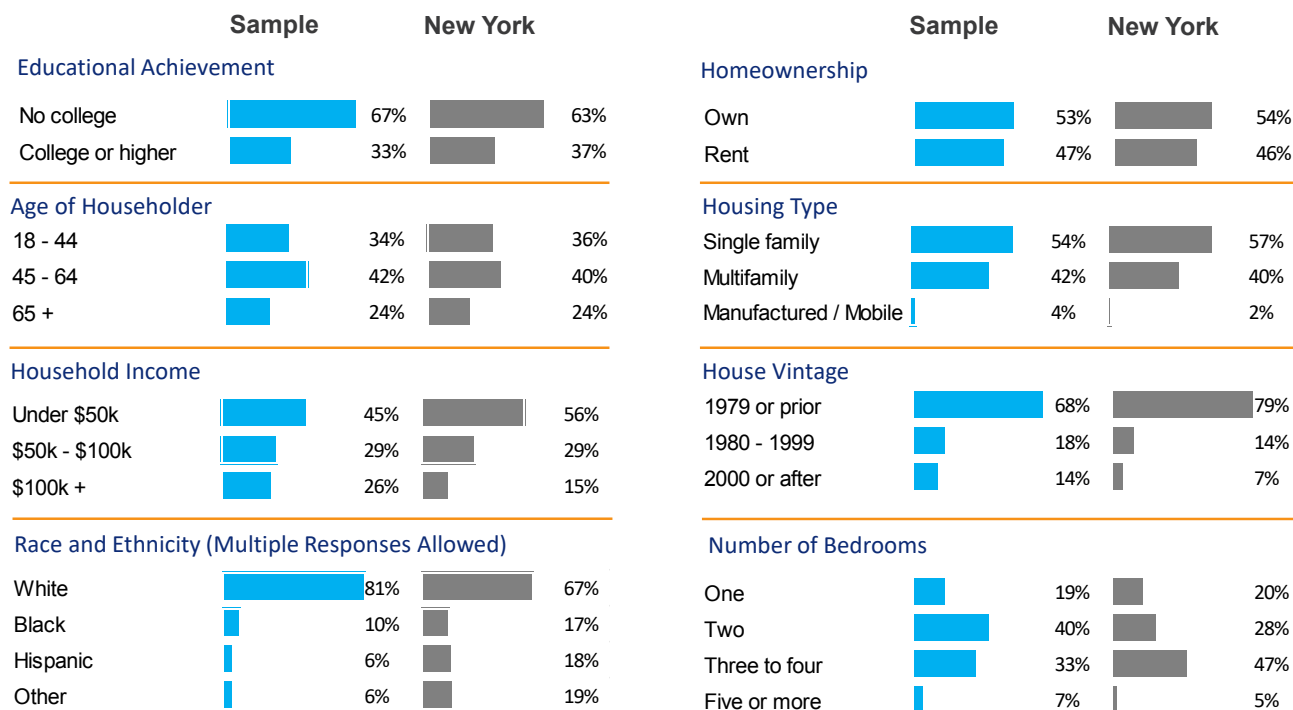
2. Detailed Findings

Chapter 2 presents detailed NYS results of the Consumer Pulse study. It explores New York consumers' knowledge and perceived benefits of Smart Grid and smart meters; attitudes toward and perceived barriers to adopting energy efficiency; relationships with their respective electricity companies; participation and interest in energy programs; and adoption and interest in advanced energy products compared with the national level and compared across NYS regions, as well as based on other factors such as generational cohort, homeownership, income level, and education.

Respondent Characteristics

As illustrated in *Figure 2-1*, key demographic and housing characteristics of the NYS sample largely resembles those of the NYS census.[4]

Figure 2-1: Sample Characteristics Compared to the NYS Census

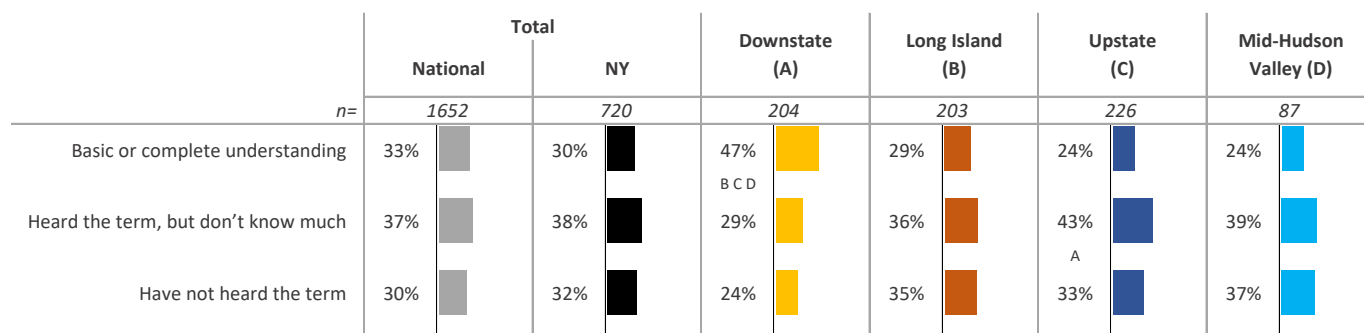|	Sample	New York		Sample	New York
Educational Achievement			**Homeownership**		
No college	67%	63%	Own	53%	54%
College or higher	33%	37%	Rent	47%	46%
Age of Householder			**Housing Type**		
18 - 44	34%	36%	Single family	54%	57%
45 - 64	42%	40%	Multifamily	42%	40%
65 +	24%	24%	Manufactured / Mobile	4%	2%
Household Income			**House Vintage**		
Under $50k	45%	56%	1979 or prior	68%	79%
$50k - $100k	29%	29%	1980 - 1999	18%	14%
$100k +	26%	15%	2000 or after	14%	7%
Race and Ethnicity (Multiple Responses Allowed)			**Number of Bedrooms**		
White	81%	67%	One	19%	20%
Black	10%	17%	Two	40%	28%
Hispanic	6%	18%	Three to four	33%	47%
Other	6%	19%	Five or more	7%	5%

In this figure, bar colors simply distinguish sample vs. New York state census. The sample shown is post-weight data. We calculated New York sample-specific weights that adjust sample-population differentials to reflect the key demographic parameters (by New York state region, homeownership, household income, age, and education). This weight did not adequately adjust the lower than census sample proportion of non-White, and it is likely because of the nature of online panels that underrepresent non-White population.

Consumer Knowledge of Smart Grid and Smart Meter

Knowledge and Awareness of Smart Grid and Smart Meters

Consumer awareness of Smart Grid *(Figure 2-2)* in NYS is similar to the national level; however, New York consumer awareness and knowledge of smart meters *(Figure 2-3)* is lower than the national level. Awareness of Smart Grid is significantly higher in Downstate than in other NYS regions. Differences in smart meter awareness by NYS region are within margin of error.

Figure 2-2: Awareness and Knowledge of Smart Grid by NYS Region

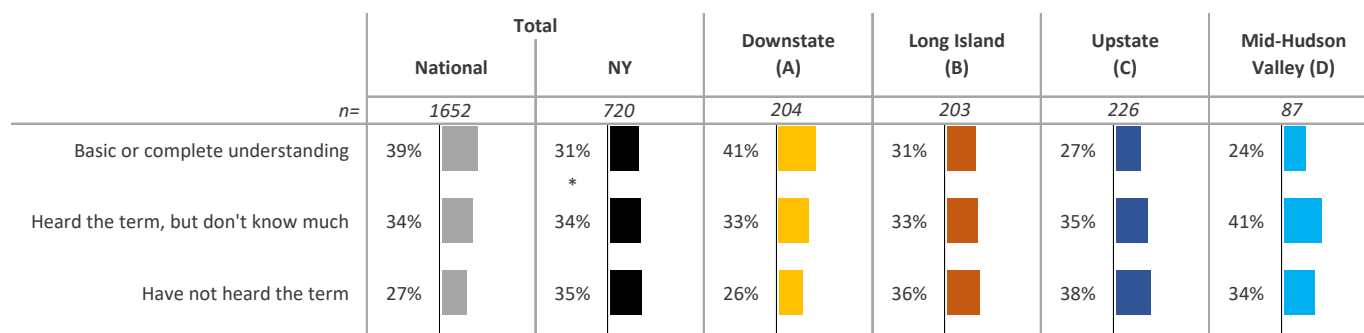|	Total		Downstate (A)	Long Island (B)	Upstate (C)	Mid-Hudson Valley (D)
	National	NY				
n=	1652	720	204	203	226	87
Basic or complete understanding	33%	30%	47% B C D	29%	24%	24%
Heard the term, but don't know much	37%	38%	29%	36%	43% A	39%
Have not heard the term	30%	32%	24%	35%	33%	37%

Note: A, B, C, D indicate statistical significant differences between regions. For instance, in row "Basic or complete understanding" of smart grid, the percent among downstate respondents (A) is statistically significantly different from those in Long Island (B), Upstate (C), and Mid-Hudson Valley (D).

* Indicates significant difference between New York and National Samples.

Q1: Which of the following statement best describes your current level of knowledge about the "Smart Grid"?

Figure 2-3: Awareness and Knowledge of Smart Meters by NYS Region

	Total		Downstate (A)	Long Island (B)	Upstate (C)	Mid-Hudson Valley (D)
	National	NY				
n=	1652	720	204	203	226	87
Basic or complete understanding	39%	31% *	41%	31%	27%	24%
Heard the term, but don't know much	34%	34%	33%	33%	35%	41%
Have not heard the term	27%	35%	26%	36%	38%	34%

Note: A, B, C, D indicate statistical significant differences between regions. For instance, in row "Basic or complete understanding" of smart grid, the percent among downstate respondents (A) is statistically significantly different from those in Long Island (B), Upstate (C), and Mid-Hudson Valley (D).

* Indicates significant difference between New York and National Samples.

Q2: Which of the following statement best describes your current level of knowledge about a "Smart Meters"?

Millennials are more aware of Smart Grid (74% versus 71% of Generation X, 67% of Baby Boomers, and 50% of the Greatest Generation) and smart meters (74% versus 67% of Generation X, 64% of Baby Boomers, and 43% of the Greatest Generation). Higher-income consumers are also more aware of these technologies than are those in other income brackets (76% versus 71% of middle-income and 51% of low-income consumers for Smart Grid, and 72% versus 69% of middle-income and 47% of low-income consumers for smart meters). Homeowners were also more likely to report being aware of smart meters than renters (71% versus 59%); we found no difference in awareness based on housing tenure for Smart Grid.

Perceived Benefits of Smart Grid

As illustrated in *Figure 2-4*, similar to respondents at the national level, respondents in NYS most frequently rated 'saving money', 'preventing power outages', and 'reducing greenhouse gas emissions' as important Smart Grid benefits. More New Yorkers, especially Downstate respondents, compared to national respondents, found the fact that Smart Grid can help meet increased electric vehicle requirements an important benefit.

Figure 2-4: Importance of Potential Smart Grid Benefits by NYS Region

	Total		Downstate (A)	Long Island (B)	Upstate (C)	Mid-Hudson Valley (D)
	National	NY				
n=	1477-1523	631-656	178-188	180-186	190-204	74-79
Save money by using energy more efficiently	74%	73%	68%	71%	79%	71%
Prevent and reduce length of outages	70%	69%	71%	66%	70%	72%
Reducing greenhouse gas emissions by making it easier to connect renewable	65%	68%	68%	67%	72% D	55%
Limiting the need for new power plants	62%	63%	64%	63%	63%	65%
Provide instant information to increase operational efficiency for utility	58%	59%	59%	59%	60%	56%
Deliver quality power for increasingly digital homes	56%	58%	62%	58%	57%	49%
Range of rate and billing programs	59%	55% *	58%	58%	54%	46%
Meet the requirements for electric vehicles	45%	50% *	59% C	53%	44%	43%

* Indicates significant difference between New York and National Samples.

Note: The percent above are those reporting each benefit as "important". Analysis excludes "Don't Know" responses. A, B, C, D indicate statistical significant differences between regions.

Q7: Smart grid refers to a set of new technologies to upgrade the grid that carries electricity to homes and businesses. Smart meters are part of the smart grid system. They provide more detailed information about when consumers are using electricity. The following statements

The following illustrates other group differences we observed for each item.

Saving money by using energy more efficiently

Urban areas were less likely to rate saving money as an important benefit of using energy more efficiently than suburban areas (68% versus 78%).

Reducing greenhouse gas emissions by making it easier to connect renewable energy sources

Renters are more likely to rate reducing greenhouse gas emissions by making it easier to connect to renewable energy sources as an important benefit of Smart Grid than homeowners (72% versus 64%). Those in Upstate New York are also more likely to rate this as important than those in Mid-Hudson Valley (72% vs 55%).

Range of rate and billing plans

Homeowners are more likely than renters to rate access to a range of rate and billing plans as an important benefit of Smart Grid (61% versus 50%).
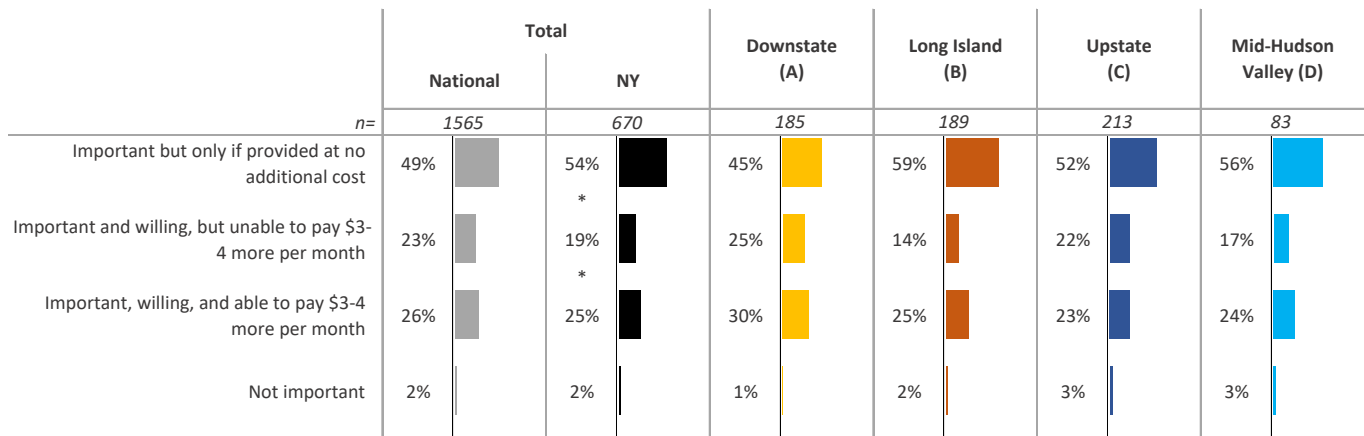
Meet the requirements for electric vehicles

Consumers in urban areas were more likely to rate meeting the requirements for electric vehicles as important than those in rural areas (54% versus 39%). Residents of Downstate New York are also more likely to rate this as an important benefit than those in the Mid-Hudson and Upstate areas (59% versus 44% and 43%, respectively).

Willingness to Pay for Benefits

As illustrated in *Figure 2-5*, New York respondents find Smart Grid benefits important, but are slightly less willing to pay for them than national respondents. Regional differences are within the margin of error.

Figure 2-5: Willingness to Pay for Smart Grid Benefits by NYS Region

|	Total		Downstate (A)	Long Island (B)	Upstate (C)	Mid-Hudson Valley (D)
	National	NY				
n=	1565	670	185	189	213	83
Important but only if provided at no additional cost	49%	54% *	45%	59%	52%	56%
Important and willing, but unable to pay $3-4 more per month	23%	19% *	25%	14%	22%	17%
Important, willing, and able to pay $3-4 more per month	26%	25%	30%	25%	23%	24%
Not important	2%	2%	1%	2%	3%	3%

* Indicates significant difference between New York and National Samples.

Note: Analysis excludes "Don't Know" responses.

Q8: As the list on the last screen just described, the smart grid helps you save money by providing near real-time energy usage information, new rate plans, and the ability to better manage electricity use. Would you say these smart grid benefits are…

Millennials appear to be considerably more willing to pay more for the Smart Grid compared to the Greatest Generation, Baby Boomers, and Generation X respondents (60% versus 38%, 37%, and 44%, respectively).

Figure 2-5a: Willingness to Pay for Smart Grid Benefits by Generation
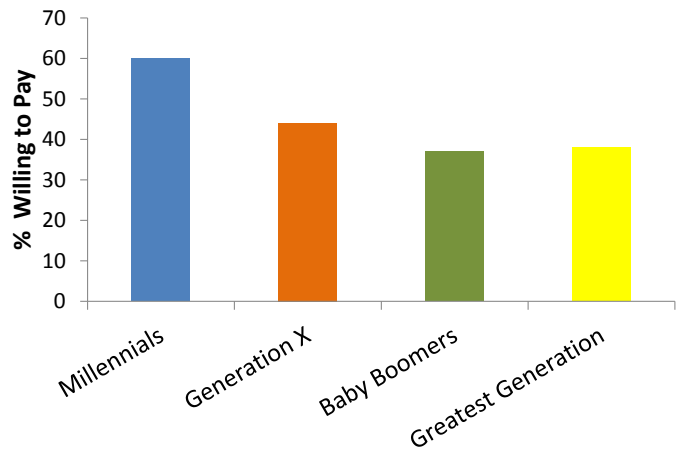
Consumers' Attitudes Towards Energy Efficiency

Importance of Having an Energy-Efficient Home

As illustrated in *Figure 2-6*, the majority of New Yorkers rated having an energy-efficient home as important at a similar level as the national respondents. Millennials are more likely to rate this as important than members of the Greatest Generation (88% versus 71%). We found no difference by NYS region.

Figure 2-6: Importance of Having an Energy Efficient Home by NYS Region

	Total		Downstate (A)	Long Island (B)	Upstate (C)	Mid-Hudson Valley (D)
	National	NY				
n=	1630	707	203	200	221	83
Important (Rating of 6 - 10)	85%	83%	85%	80%	86%	75%
Neutral (Rating of 5)	8%	9%	6%	8%	9%	15%
Not important (Rating of 0 - 4)	7%	9%	9%	12%	5%	10%

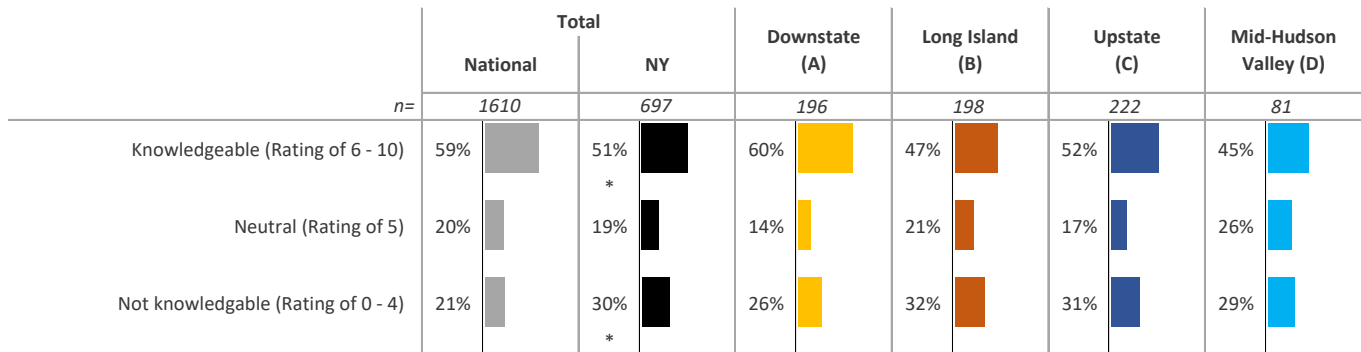Note: Analysis excludes "Don't Know" responses.

Q4: How important is it to you, personally, to know that your home is energy efficient and that you have done all that you can to lower your energy costs?

Level of Knowledge About How to Make a Home Energy Efficient

The data presented in *Figure 2-7* suggests that a sizable portion of New York consumers do not feel sufficiently informed about ways to make their home more energy efficient (49%, significantly higher percent than the national level at 41% rating not knowledgeable). Homeowners appear to be more knowledgeable about energy-saving actions compared to renters (55% versus 47%). Regional differences are within the margin of error.

Figure 2-7: Level of Knowledge on How to Make Home Energy Efficient by NYS Region

	Total		Downstate (A)	Long Island (B)	Upstate (C)	Mid-Hudson Valley (D)
	National	NY				
n=	1610	697	196	198	222	81
Knowledgeable (Rating of 6 - 10)	59%	51% *	60%	47%	52%	45%
Neutral (Rating of 5)	20%	19%	14%	21%	17%	26%
Not knowledgable (Rating of 0 - 4)	21%	30% *	26%	32%	31%	29%

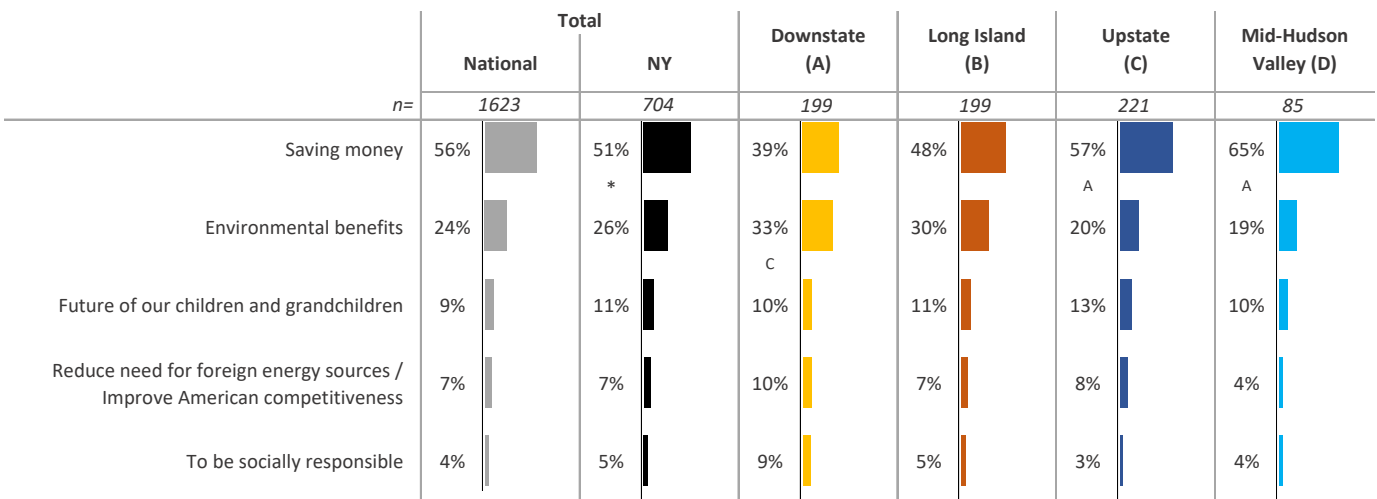* Indicates significant difference between New York and National Samples.
Note: Analysis excludes "Don't Know" responses.
Q3: How knowledgeable are you about actions you can take to make your home more energy efficient?

Reasons to Save Energy

In line with the national respondents, saving money is the leading reason for saving energy among New Yorkers but significantly less so than the national level *(Figure 2-8)*. Regional differences are stark: The preponderance of Upstate and Mid-Hudson Valley respondents cite saving money as the reason to save energy, while Downstate respondents cite environmental benefits almost equally as saving money. Millennials are most likely to report environmental benefits as the most important reason for saving energy compared to members of Generation X (35% versus 21%). Urban areas are also more likely to rank environmental benefits highly compared to suburban areas (31% versus 21%).

Figure 2-8: Most Important Reason for Saving Energy by NYS Region

	Total		Downstate (A)	Long Island (B)	Upstate (C)	Mid-Hudson Valley (D)
	National	NY				
n=	1623	704	199	199	221	85
Saving money	56%	51% *	39%	48%	57% A	65% A
Environmental benefits	24%	26%	33% C	30%	20%	19%
Future of our children and grandchildren	9%	11%	10%	11%	13%	10%
Reduce need for foreign energy sources / Improve American competitiveness	7%	7%	10%	7%	8%	4%
To be socially responsible	4%	5%	9%	5%	3%	4%

* Indicates significant difference between New York and National Samples.
Note: Analysis excludes "Don't Know" responses and those who said, "savings energy is not important to me." A, B, C, D indicate statistically significant differences between regions.
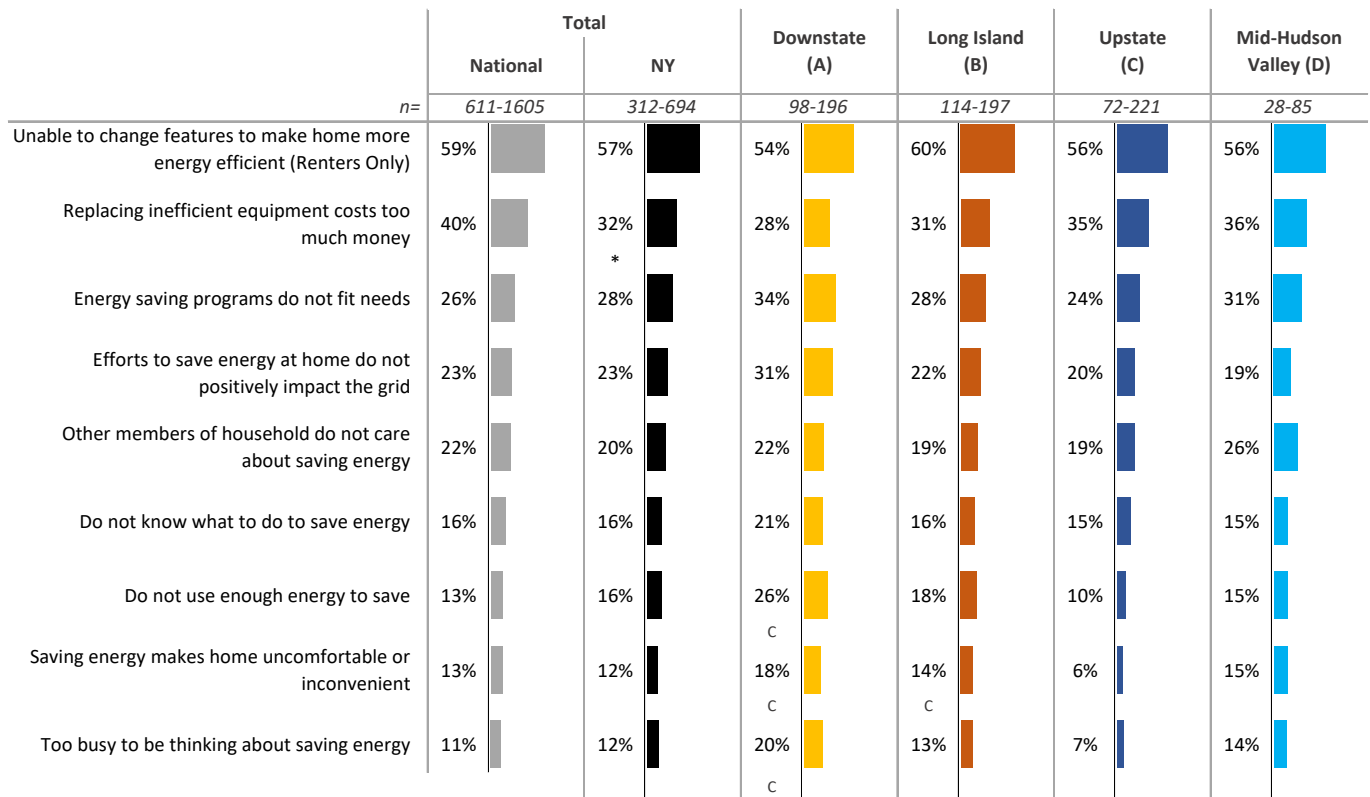Q5: In your opinion, which of the following is the most important reason to save energy?

Consumer Barriers to Energy Efficiency

Barriers to Engaging in Energy-Saving Activities

As illustrated in *Figure 2-9*, similar to the national level, across the state, New Yorkers' leading barriers to taking energy-saving actions are associated with renters expressing the sentiment that they are unable to make energy efficiency alterations to their living places. Downstate respondents are most likely to identify challenges in their attempts to save energy such as not using enough energy to save much, being uncomfortable or inconvenienced, and being too busy.

Figure 2-9: Barriers to Engaging in Energy-Saving Activities by NYS Region

	Total		Downstate (A)	Long Island (B)	Upstate (C)	Mid-Hudson Valley (D)
	National	NY				
n=	611-1605	312-694	98-196	114-197	72-221	28-85
Unable to change features to make home more energy efficient (Renters Only)	59%	57%	54%	60%	56%	56%
Replacing inefficient equipment costs too much money	40%	32% *	28%	31%	35%	36%
Energy saving programs do not fit needs	26%	28%	34%	28%	24%	31%
Efforts to save energy at home do not positively impact the grid	23%	23%	31%	22%	20%	19%
Other members of household do not care about saving energy	22%	20%	22%	19%	19%	26%
Do not know what to do to save energy	16%	16%	21%	16%	15%	15%
Do not use enough energy to save	13%	16%	26% C	18%	10%	15%
Saving energy makes home uncomfortable or inconvenient	13%	12%	18% C	14% C	6%	15%
Too busy to be thinking about saving energy	11%	12%	20% C	13%	7%	14%

* Indicates significant difference between New York and National Samples.

Note: The percent above are those reporting each barrier as "very often applies" or "always applies". Analysis excludes "Don't Know" responses. A, B, C, D indicate statistically significant differences between regions.

Q9: The following is a list of potential challenges people may have to be engaged in energy-saving activities at home. For each one, please tell us how often each applies to you.

We observed the following differences for each item:

Replacing inefficient equipment costs too much money

Millennials (40%) and Generation X (39%) are more likely to report that replacing inefficient equipment costs too much money than are Baby Boomers (26%).

Efforts to save energy at home do not positively impact the grid

Millennials are more likely to report that efforts to save energy at home do not positively impact the grid than Baby Boomers (32% versus 17%). We hypothesize that Millennials (who are more likely to be renters) perceive less control over energy use and do not use enough energy to reduce by large amounts, which makes them feel their efforts toward reducing use don't positively impact the grid.

Other members of household do not care about saving energy

Millennials are more likely to report that other members of their household do not care about saving energy than Baby Boomers (30% versus 14%).

Do not know what to do to save energy

Millennials (28%) and members of Generation X (21%) are more likely to report that they do not know what to do to save energy than members of the Greatest Generation (9%) and Baby Boomers (9%).

Do not use enough energy to save

Millennials are more likely to report that they do not use enough energy to bother taking energy-saving actions than members of Generation X (24% versus 12%), as are consumers in urban (22%) versus suburban (12%) areas.

Saving energy makes homes uncomfortable or inconvenient

Millennials are more likely to report that saving energy makes their home uncomfortable or is inconvenient than Baby Boomers (19% versus 8%), as are homeowners compared to renters (16% versus 8%).

Too busy to be thinking about saving energy

Millennials are more likely to report that they are too busy to be thinking about saving energy than members of the Greatest Generations and Baby Boomers (22% versus 5% and 9%, respectively). Consumers in urban areas are also more likely to report this than those in suburban areas (17% versus 9%).
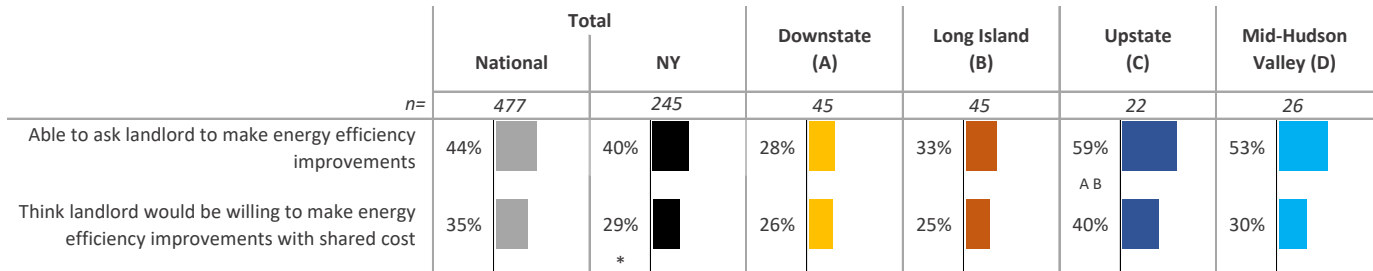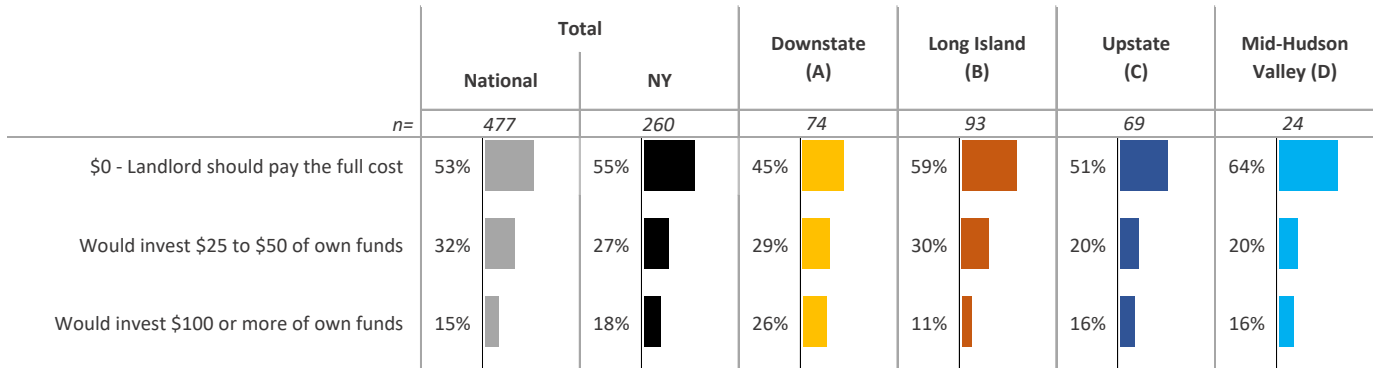
Figure 2-9a: Barriers to Engaging in Energy-Saving Activities by Generation
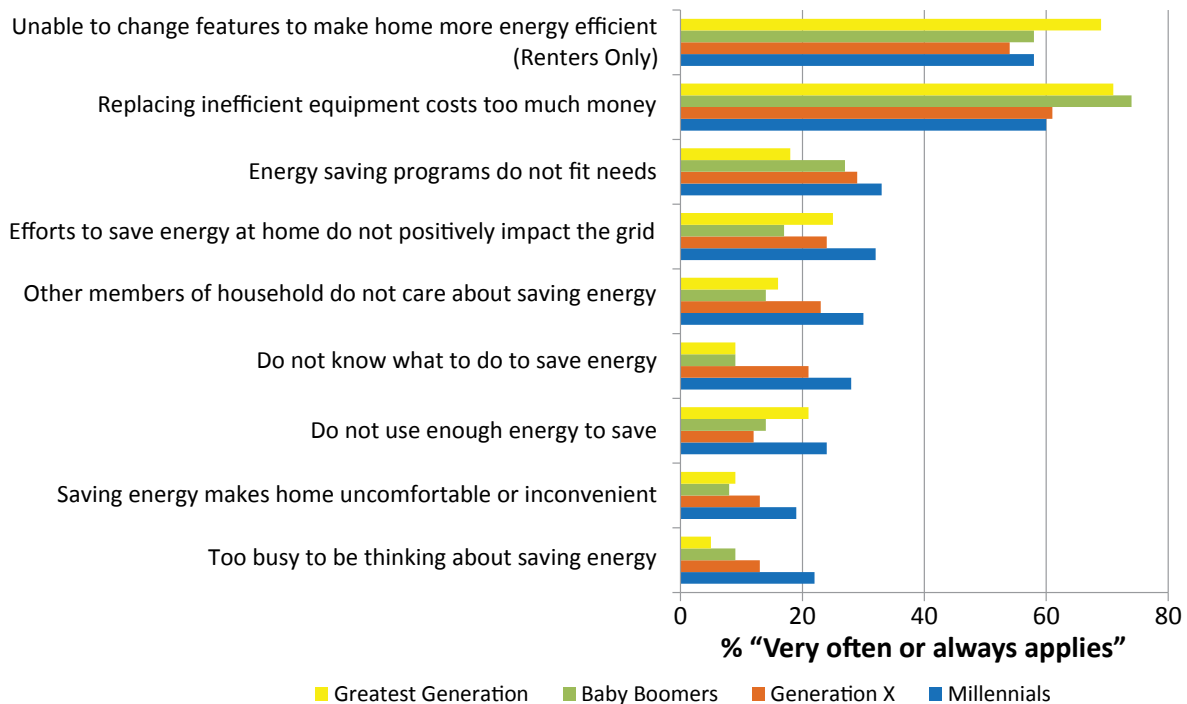
Barriers to Making Energy Efficiency Improvements for Renters

Many renters in NYS and nationally are not able to ask their landlord to make energy efficiency improvements, especially Downstate and Long Island renters. Even fewer New York renters believe their landlord would make the improvements even if they shared the cost *(Figure 2-10)*.

Figure 2-10: Barriers to Making Energy Efficiency Improvements for Renters by NYS Region

	Total		Downstate (A)	Long Island (B)	Upstate (C)	Mid-Hudson Valley (D)
	National	NY				
n=	477	245	45	45	22	26
Able to ask landlord to make energy efficiency improvements	44%	40%	28%	33%	59% A B	53%
Think landlord would be willing to make energy efficiency improvements with shared cost	35%	29% *	26%	25%	40%	30%

* Indicates significant difference between New York and National samples.

Note: Analysis excludes "Don't Know" responses. A, B, C, D indicate statistically significant differences between regions.

Q23: Are you able to ask your landlord to make improvements to your house or apartment to improve efficiency and lower your electricity bill?

Q24: Do you think your landlord or property owner would make a small investment improving your home or apartment to save on electricity if you shared the cost?

This is especially true of renters in urban areas; only 31% of urban renters reported they feel they can ask their landlords to make improvements versus 53% and 60% in suburban and rural areas, respectively.

Many renters in New York and throughout the nation believe their landlord should pay the full cost of any energy efficiency improvements made to their living place *(Figure 2-11)*. Regional differences are within the margin of error.

Figure 2-11: Renters' Willingness to Pay for Efficiency Improvements by NYS Region

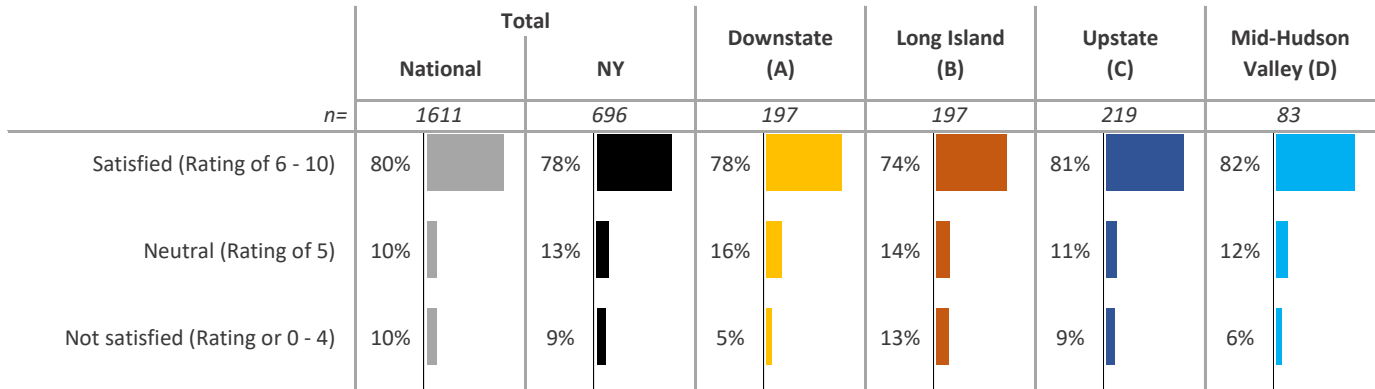|	Total		Downstate (A)	Long Island (B)	Upstate (C)	Mid-Hudson Valley (D)
	National	NY				
n=	477	260	74	93	69	24
$0 - Landlord should pay the full cost	53%	55%	45%	59%	51%	64%
Would invest $25 to $50 of own funds	32%	27%	29%	30%	20%	20%
Would invest $100 or more of own funds	15%	18%	26%	11%	16%	16%

Q25: How much would you be willing to invest of your own funds if you knew it would return an equal or higher savings on your electric bill?

Consumers' Relationship with Electric Utility

Level of Satisfaction with Electric Utility

New Yorkers' satisfaction with their electric utilities roughly mirrors that of consumers across the nation and the state *(Figure 2-12)*. Homeowners are more likely to report being satisfied compared to renters (81% versus 74% satisfied). Regional differences are within the margin of error.

Figure 2-12: Level of Satisfaction with Electric Utility by NYS Region

	Total		Downstate (A)	Long Island (B)	Upstate (C)	Mid-Hudson Valley (D)
	National	NY				
n=	1611	696	197	197	219	83
Satisfied (Rating of 6 - 10)	80%	78%	78%	74%	81%	82%
Neutral (Rating of 5)	10%	13%	16%	14%	11%	12%
Not satisfied (Rating or 0 - 4)	10%	9%	5%	13%	9%	6%

Note: Analysis excludes "Don't Know" responses.

Q16: Based on your overall experience, how satisfied are you with your electricity company?

Accuracy of Utility Outage Reporting

As shown in *Figure 2-13*, the majority of New Yorkers think the accuracy of utility outage reporting in the last five years has been about the same (55%) or has improved (36%). Overall, consumer confidence in the accuracy of electricity outage reporting is closely tied to their overall satisfaction with their utility; the less satisfied they are with their utility, the less confidence they have in outage reporting:

- Satisfaction by accuracy level: More accurate (8.8), about the same (7.9), less accurate (6.2)
- Homeowners were also more likely to have faith in the accuracy of reporting compared to renters (41% versus 29%). Regional differences are within the margin of error.

Figure 2-13: Accuracy of Utility Outage Reporting by NYS Region
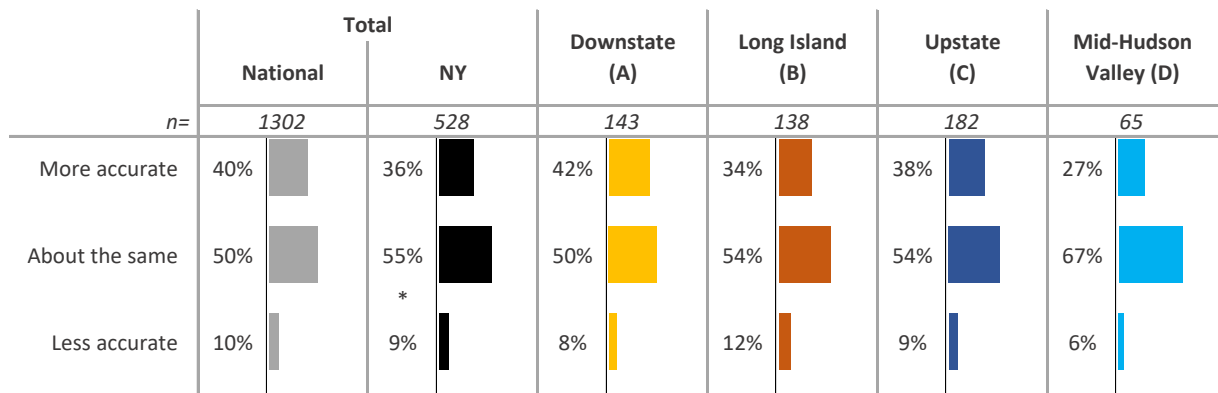
	Total		Downstate (A)	Long Island (B)	Upstate (C)	Mid-Hudson Valley (D)
	National	NY				
n=	1302	528	143	138	182	65
More accurate	40%	36%	42%	34%	38%	27%
About the same	50%	55% *	50%	54%	54%	67%
Less accurate	10%	9%	8%	12%	9%	6%

* Indicates significant difference between New York and National Samples.
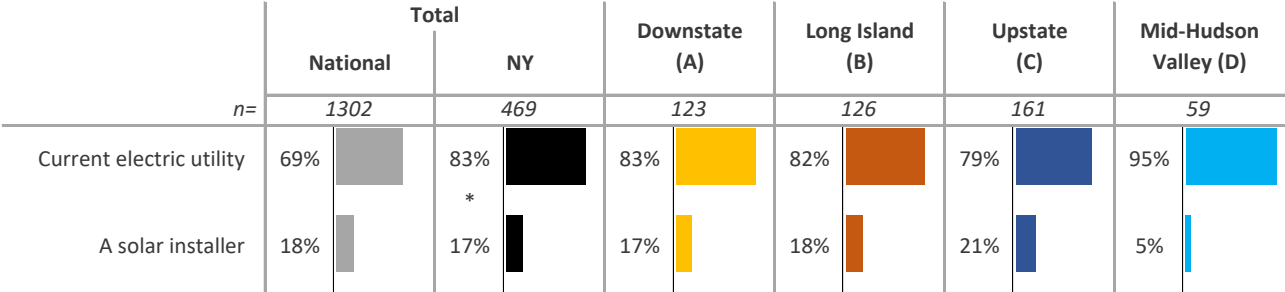
Note: Analysis excludes "Don't Know" responses and those respondents who have not experience an outage in the past five years.

Q6: Thinking about when the power is out, would you say the time your electricity company gives you for having your power restored is more accurate, about the same, or less accurate than estimated restoration times from five years ago?

Preferred Choice of Electricity Service Provider

About three-quarters of New Yorkers report they would still choose their current electric utility if electricity service is provided in an open market, significantly more than national respondents *(Figure 2-14)*.

Figure 2-14: Preferred Choice of Electricity Service Provider by NYS Region

	Total		Downstate (A)	Long Island (B)	Upstate (C)	Mid-Hudson Valley (D)
	National	NY				
n=	1302	469	123	126	161	59
Current electric utility	69%	83% *	83%	82%	79%	95%
A solar installer	18%	17%	17%	18%	21%	5%

* Indicates significant difference between New York and National Samples.

Note: Analysis excludes "another electricity company" and "a telecom provider" responses which were available as response options in the survey because these are not valid responses for residents of NYS, therefore national percent doesn't add up to 100%. Analysis also excludes "Don't Know" and "Other" responses and those respondents who do not pay electricity.

Q17: If you have a choice of which company you can buy electricity from, would you choose...

As shown in *Figure 2-14a,* Millennials and Generation X respondents are more likely to report choosing a solar installer compared to those in the Greatest Generation or Baby Boomers (21% and 26% versus 2% and 8%, respectively).

Figure 2-14a: Preferred Choice of Electricity Service Provider by Generation

■ Greatest Generation   ■ Baby Boomers   ■ Generation X   ■ Millennials
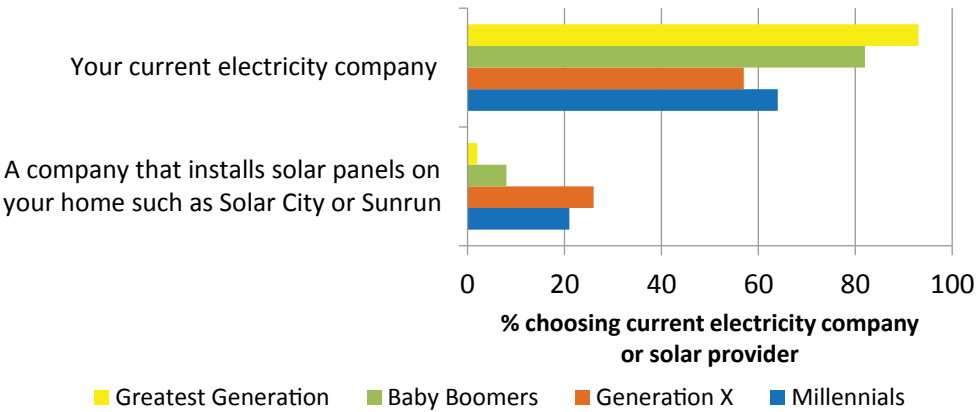
Support of Electric Utility Clean Energy Expansion

As shown in *Figure 2-15*, across NYS, consumer support for electric utility clean energy expansion drops significantly when there is a cost to the customer; however, consumer support is sustained at moderate levels even with the scenarios with small monthly fees ($2–$15). Among those who were asked of their support of their electric utility's clean energy expansion at any additional cost ($2–$15 per month), consumers with higher electric bills in the winter are more likely to support clean energy expansion than those with no seasonal billing variation (63% versus 43%), as are those in the middle and high-income classes compared to those in a lower-income class (52% and 54%, respectively, versus 39%). Millennials are also more likely to support this than are Baby Boomers (61% versus 45%). Regional differences are within the margin of error.

Figure 2-15: Support of Electric Utility Clean Energy Expansion by NYS Region
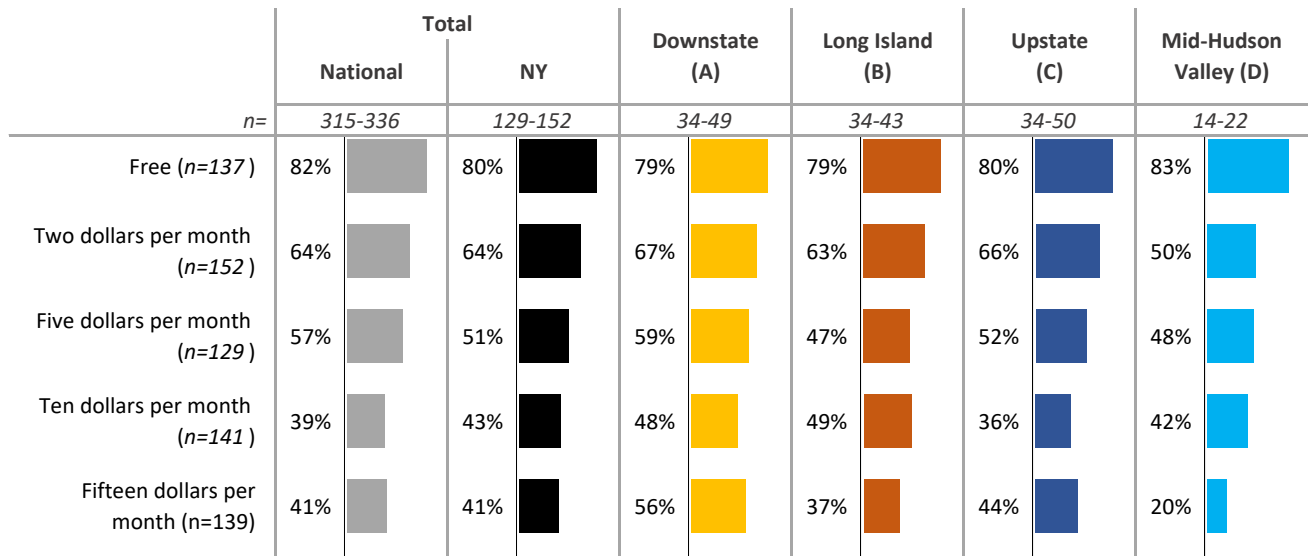
	Total			Downstate (A)	Long Island (B)	Upstate (C)	Mid-Hudson Valley (D)
	National		NY				
n=	315-336		129-152	34-49	34-43	34-50	14-22
Free (n=137)	82%		80%	79%	79%	80%	83%
Two dollars per month (n=152)	64%		64%	67%	63%	66%	50%
Five dollars per month (n=129)	57%		51%	59%	47%	52%	48%
Ten dollars per month (n=141)	39%		43%	48%	49%	36%	42%
Fifteen dollars per month (n=139)	41%		41%	56%	37%	44%	20%

Note: Sample sizes vary because we randomly assigned equal proportions of respondents to each of the five price levels. The percent include responses "probably would support" and "definitely would support". Analysis excludes "Don't Know" responses.

Q15: Suppose your electricity company wanted to greatly expand its use of a range of clean energy sources, such as solar energy, wind power, geothermal and biomass, and estimated that the extra cost reflected on your bill would be about [Amount] dollars per month per customer. Based on that assumption, how likely would you be to support your electricity company's plan to expand clean energy?

Contact with Electric Utility in Past Six Months

NYS respondents are less likely to have contacted their electric utility in the past six months than national respondents *(Figure 2-16)*. Within the state, Mid-Hudson Valley and Long Island respondents are least likely to report having had contact with their electric utility in past six months. In addition, those with higher bills in the winter were more likely to report having contact with their electric utility than those with higher bills in the summer or no seasonal variation in their bills (65% versus 45% and 43%, respectively).

Figure 2-16: Contact with Electric Utility in Past Six Months by NYS Region
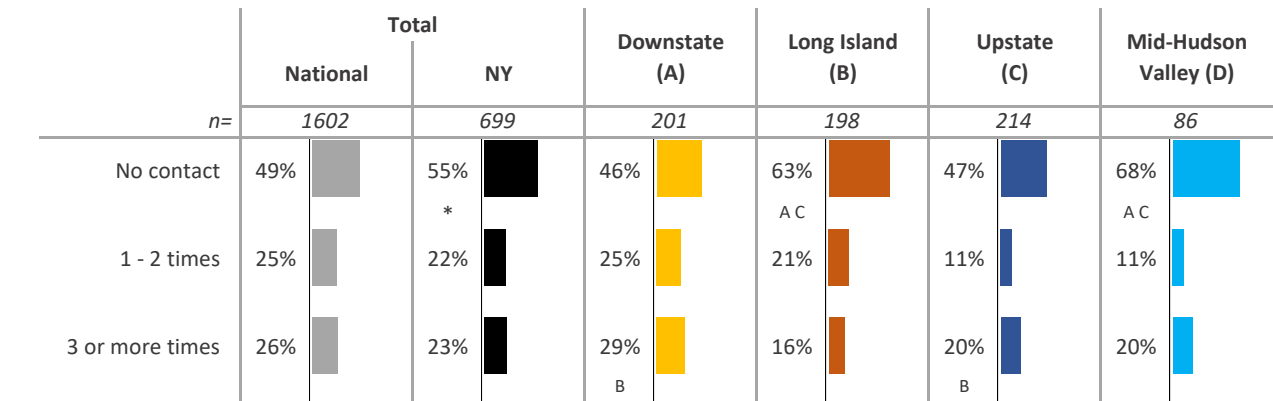
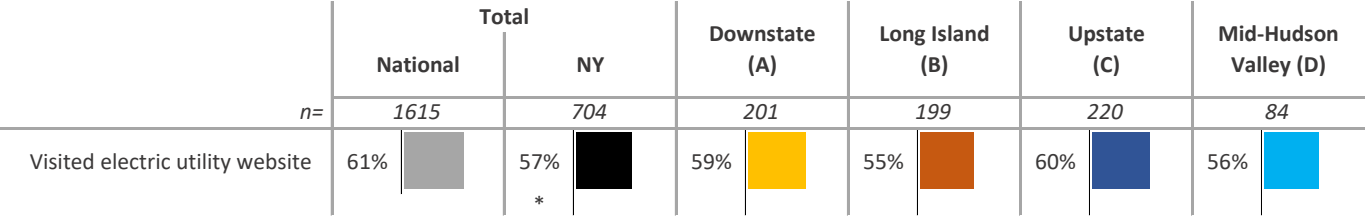|	Total		Downstate (A)	Long Island (B)	Upstate (C)	Mid-Hudson Valley (D)
	National	NY				
n=	1602	699	201	198	214	86
No contact	49%	55% *	46%	63% A C	47%	68% A C
1 - 2 times	25%	22%	25%	21%	11%	11%
3 or more times	26%	23%	29% B	16%	20% B	20%

* Indicates significant difference between New York and National Samples.

Note: Analysis excludes "Don't Know" responses. A, B, C, D indicate statistically significant differences between regions.

Q21: How many times have you been in contact with your electricity company in the last 6 months, for example, by phone, online, by visiting their office in-person, or in some other way?

Millennials and members of Generation X are more likely to have had contact with their electric utility compared to members of the Greatest Generation and Baby Boomers (66% and 51% versus 22% and 35%, respectively).

Figure 2-16a: Contact with Electric Utility in Past Six Months by Generation

Contact with their utility in the last 6 months (%)
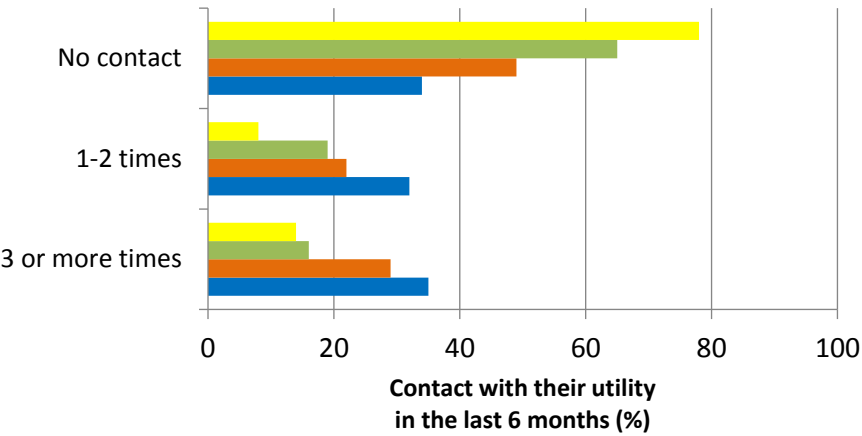
Mode of Contact with Electric Utility

Figure 2-17 shows the modes of contact used when New York respondents made contact with their electricity provider in past six months. The mode of contact used by New Yorkers are very similar to the national respondents — most commonly by telephone (55%) and visiting their utility's website (46%). Downstate respondents are more likely to report using multiple modes of contact compared to those in other New York regions, particularly various online or smartphone tools such as email, text, and social media. While website usage is common across generations, younger generations especially Millennials reported significantly higher usage of online and smartphone tools.

Figure 2-17: Mode of Contact with Electric Utility by NYS Region
(Among those who reported having contact in past six months; Multiple Responses Allowed.)
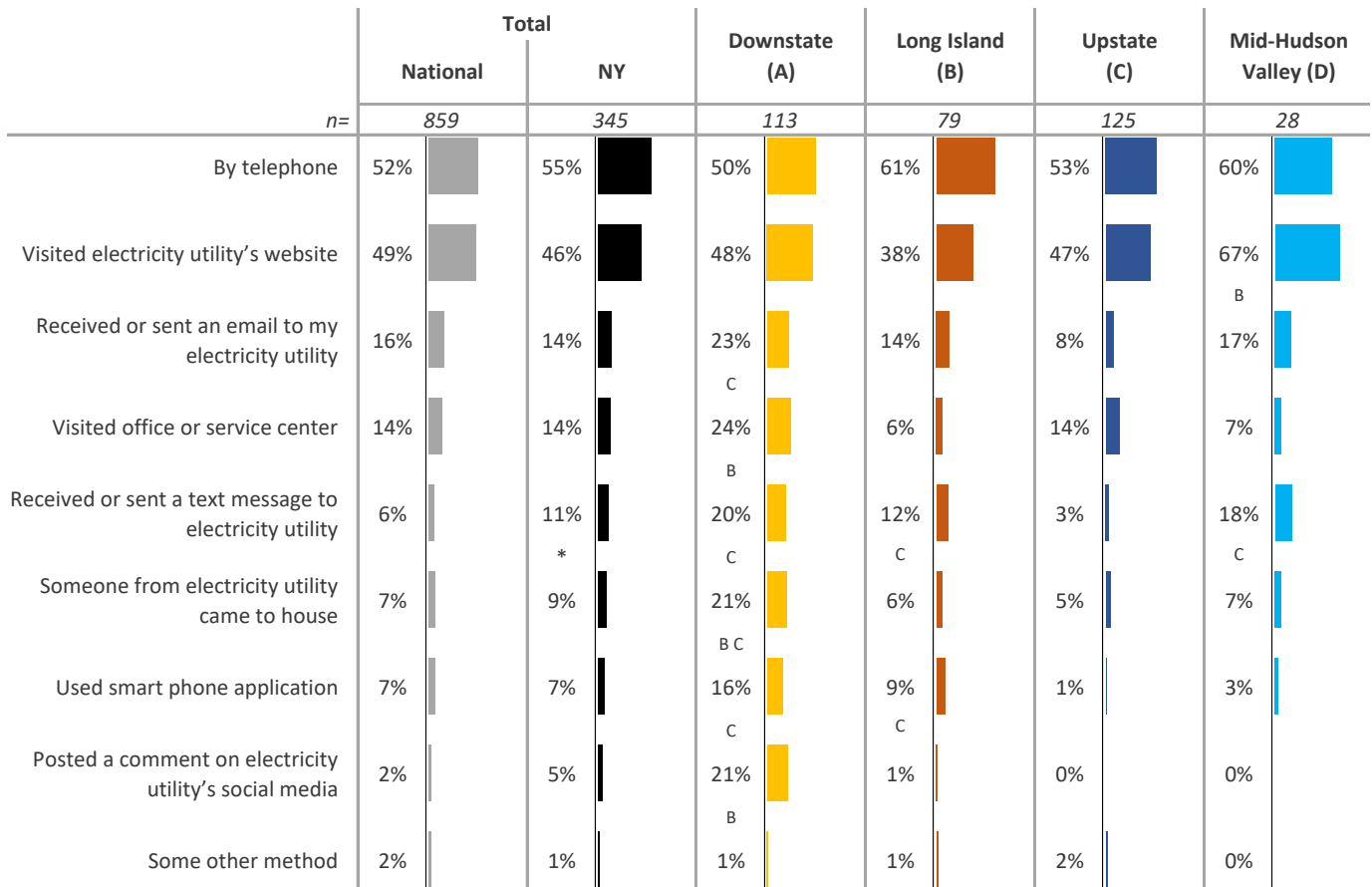
	Total		Downstate (A)	Long Island (B)	Upstate (C)	Mid-Hudson Valley (D)
	National	NY				
n=	859	345	113	79	125	28
By telephone	52%	55%	50%	61%	53%	60%
Visited electricity utility's website	49%	46%	48%	38%	47%	67% B
Received or sent an email to my electricity utility	16%	14%	23% C	14%	8%	17%
Visited office or service center	14%	14%	24% B	6%	14%	7%
Received or sent a text message to electricity utility	6%	11% *	20% C	12% C	3%	18% C
Someone from electricity utility came to house	7%	9%	21% B C	6%	5%	7%
Used smart phone application	7%	7%	16% C	9% C	1%	3%
Posted a comment on electricity utility's social media	2%	5%	21% B	1%	0%	0%
Some other method	2%	1%	1%	1%	2%	0%

* Indicates significant difference between New York and National Samples.

Note: Analysis excludes "Don't Know" responses. A, B, C, D indicate statistically significant differences between regions.

Q22: Which of the following methods have you used to contact your electricity company or has your electricity company used to contact you in the last 6 months?

Ever Visiting Electric Utility Website

Fewer NYS respondents reported ever visiting their electric utility's website than national respondents. *(Figure 2-18)*. Millennials and Generation X are more likely to report visiting the website than those in the Greatest Generation and Baby Boomers (68% and 61% versus 39% and 54%, respectively). Homeowners are also more likely to report visiting a website compared to renters (62% versus 52%). Conversely, those in the lower-income class were less likely to report visiting a website compared to those in the middle and higher-income classes (47% versus 59% and 61%, respectively). Regional differences are within the margin of error.

Figure 2-18: Ever Visiting Electric Utility Website by NYS Region

	Total		Downstate (A)	Long Island (B)	Upstate (C)	Mid-Hudson Valley (D)
	National	NY				
n=	1615	704	201	199	220	84
Visited electric utility website	61%	57% *	59%	55%	60%	56%

* Indicates significant difference between New York and National Samples.

Q20: Have you ever visited your electricity company's website?

Social Media Use

Figure 2-19 summarizes New Yorkers' social media use. Facebook, for instance, has penetrated 73% of New Yorkers for any use (slightly less than the national level). Furthermore, 13% of New Yorkers reported specifically using it to help manage energy usage or to obtain energy efficiency tips. Other social media such as YouTube, Instagram, and Twitter are also commonly used at about the same rates as the national levels (49%, 28%, and 25%, respectively), but precipitously lower than Facebook. Overall, only 17% of New Yorkers said they do not use any social media, which is slightly higher rate than the national level. The type of social media used differed across NYS regions; Downstate respondents are more likely to use Instagram, Twitter, and Tumbler, while Upstate residents are more likely to report using Facebook and Pinterest. Downstate respondents are also more likely to report using social media for energy saving information than other NYS regions (36% reporting using versus 14% in Long Island, 12% Upstate, and 4% in Mid-Hudson Valley).

Figure 2-19: Social Media Use by NYS Region (Multiple Responses Allowed)
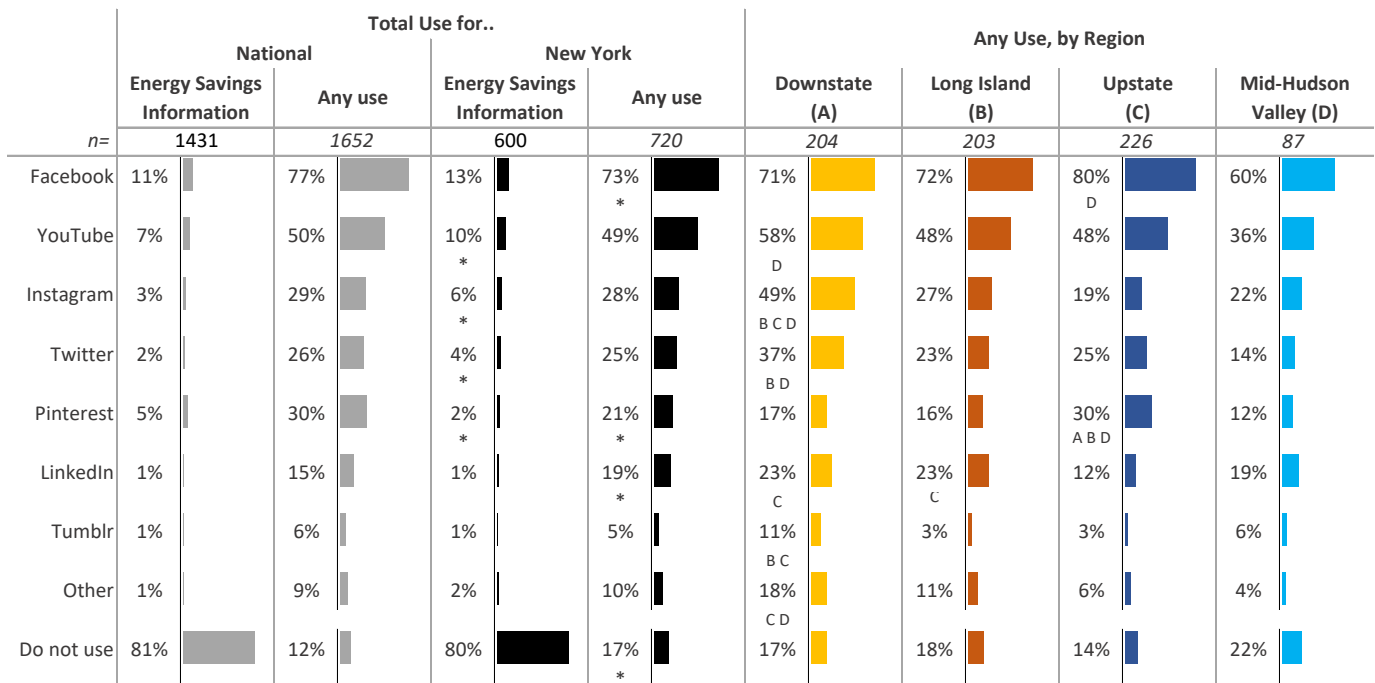
	Total Use for..				Any Use, by Region			
	National		New York					
	Energy Savings Information	Any use	Energy Savings Information	Any use	Downstate (A)	Long Island (B)	Upstate (C)	Mid-Hudson Valley (D)
n=	1431	1652	600	720	204	203	226	87
Facebook	11%	77%	13%	73% *	71%	72%	80% D	60%
YouTube	7%	50%	10% *	49%	58% D	48%	48%	36%
Instagram	3%	29%	6% *	28%	49% B C D	27%	19%	22%
Twitter	2%	26%	4% *	25%	37% B D	23%	25%	14%
Pinterest	5%	30%	2% *	21% *	17%	16%	30% A B D	12%
LinkedIn	1%	15%	1%	19% *	23% C	23% C	12%	19%
Tumblr	1%	6%	1%	5%	11% B C	3%	3%	6%
Other	1%	9%	2%	10%	18% C D	11%	6%	4%
Do not use	81%	12%	80%	17% *	17%	18%	14%	22%

* Indicates significant difference between New York and National Samples.

Note: Analysis excludes "Don't Know" responses. A, B, C, D indicate statistically significant differences between regions.

Q18: Which of the following social media do you routinely use?

Q19: Which of the social media you mentioned, if any, are you using to help you manage energy usage or get energy efficiency tips?

Additionally, Millennials are significantly more likely to report using social media to access energy-savings information than those in other generations (42% reporting using versus 20% of Generation X, 5% of Baby Boomers, and 2% of Greatest Generation).

Participation and Interest in Smart Grid-enabled Electric Utility Energy Programs

Interest and Participation in Smart Grid-enabled Utility Programs

Figure 2-20 summarizes New Yorkers' participation and interest in various utility programs enabled by the Smart Grid. Energy usage comparisons and pre-paid billing plans are the most commonly used utility program types reported by New Yorkers (10% and 6%). Consistent with national findings, real-time outage reporting and real-time energy usage information are the program types for which New Yorkers indicated their highest interest in participation. Compared to national levels, however, NYS residents reported slightly less interest and fewer participation in utility programs overall. Interest in utility programs is consistent across NYS regions, except interest in participating in direct load control programs was significantly higher in Downstate (44%).

Figure 2-20: Interest and Participation in Utility Programs by NYS Region
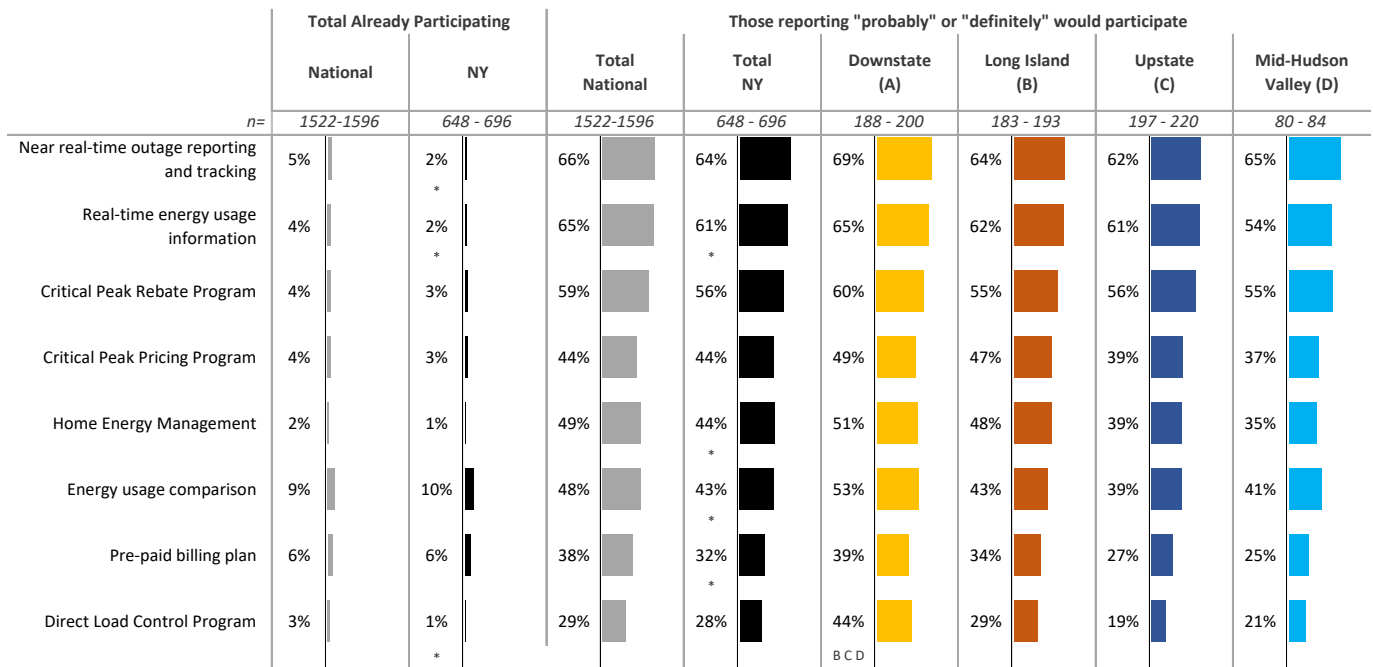
	Total Already Participating		Those reporting "probably" or "definitely" would participate					
	National	NY	Total National	Total NY	Downstate (A)	Long Island (B)	Upstate (C)	Mid-Hudson Valley (D)
n=	1522-1596	648 - 696	1522-1596	648 - 696	188 - 200	183 - 193	197 - 220	80 - 84
Near real-time outage reporting and tracking	5%	2% *	66%	64%	69%	64%	62%	65%
Real-time energy usage information	4%	2% *	65%	61% *	65%	62%	61%	54%
Critical Peak Rebate Program	4%	3%	59%	56%	60%	55%	56%	55%
Critical Peak Pricing Program	4%	3%	44%	44%	49%	47%	39%	37%
Home Energy Management	2%	1%	49%	44% *	51%	48%	39%	35%
Energy usage comparison	9%	10%	48%	43% *	53%	43%	39%	41%
Pre-paid billing plan	6%	6%	38%	32% *	39%	34%	27%	25%
Direct Load Control Program	3%	1% *	29%	28%	44% B C D	29%	19%	21%

* Indicates significant difference between New York and National Samples.

Note: The percent (other than the 'total already participating' column) includes 'probably would participate' and 'definitely would participate. Analysis excludes "Don't Know" responses. A, B, C, D indicate statistically significant differences between regions.

Q10/Q13: [Program description] If you were offered this program, how likely would you be to participate?

The following illustrates other group differences we observed for each program area.

Near real-time outage reporting and tracking

Those in higher-income class are more interested in near real-time reporting and tracking than those in middle or lower-income classes (76% versus 65% and 54%, respectively).

Real-time energy usage information

Millennials and members of Generation X are more interested in real-time energy usage information than Baby Boomers (72% and 71% versus 54%, respectively).

Critical Peak Rebate Program

Millennials are more willing to participate in critical peak rebate programs than members of the Greatest Generation and Baby Boomers (69% versus 45% and 53%, respectively). Higher-income consumers are also more willing to participate than low-income consumers (65% versus 47%).

Energy usage comparison

Homeowners are more interested in energy usage comparisons than renters (55% versus 40%), as are higher and middle-income versus lower-income consumers (57% and 48% versus 33%).

Home Energy Management

Millennials are more willing to participate in home energy management programs than members of the Greatest Generation and Baby Boomers (56% versus 35% and 38%, respectively). Higher-income consumers are also more willing than lower-income consumers (53% versus 33%). Urban and suburban areas are also more willing than rural areas (49% and 45% versus 31%, respectively).

Critical Peak Pricing Program

Millennials are more willing to participate in critical peak pricing programs than members of the Greatest Generation and Baby Boomers (58% versus 35% and 41%, respectively).

Pre-paid billing plan

Millennials and members of Generation X are more interested in pre-paid billing plans than Baby Boomers (51% and 40% versus 22%, respectively). Those with higher bills in the winter also demonstrate greater interest in such programs than those with higher bills in the summer or no seasonal variation in their bills (49% versus 27% and 31%, respectively).

Direct Load Control Program

Millennials are more willing to participate in direct load control programs than members of the Greatest Generation and Baby Boomers (39% versus 19% and 23%, respectively). Conversely, lower-income consumers are less willing to participate in such programs than higher-income consumers (21% versus 35%). Consumers in urban areas are also more willing than those in rural areas (33% versus 18%).

Consumer Adoption and Interest in Smart Grid-enabled products

Figure 2-21 summarizes New Yorkers' adoption of and interest in variety of Smart Grid-enabled products. Online billing/payment and programmable/smart thermostats are the most commonly used products among New Yorkers (37% and 9%) at about the same levels as national respondents. Consistent with national findings, energy storage systems, rooftop or community solar, and programmable/smart thermostats are the product types New Yorkers indicated highest interest in purchasing. Downstate respondents exhibit significantly higher interest in several of these products than respondents in other NYS regions — those are online billing/payment, plug-in hybrid vehicle, and communicating smart appliances.

Figure 2-21: Use and Interest in Other Smart Grid-enabled Products by NYS Region
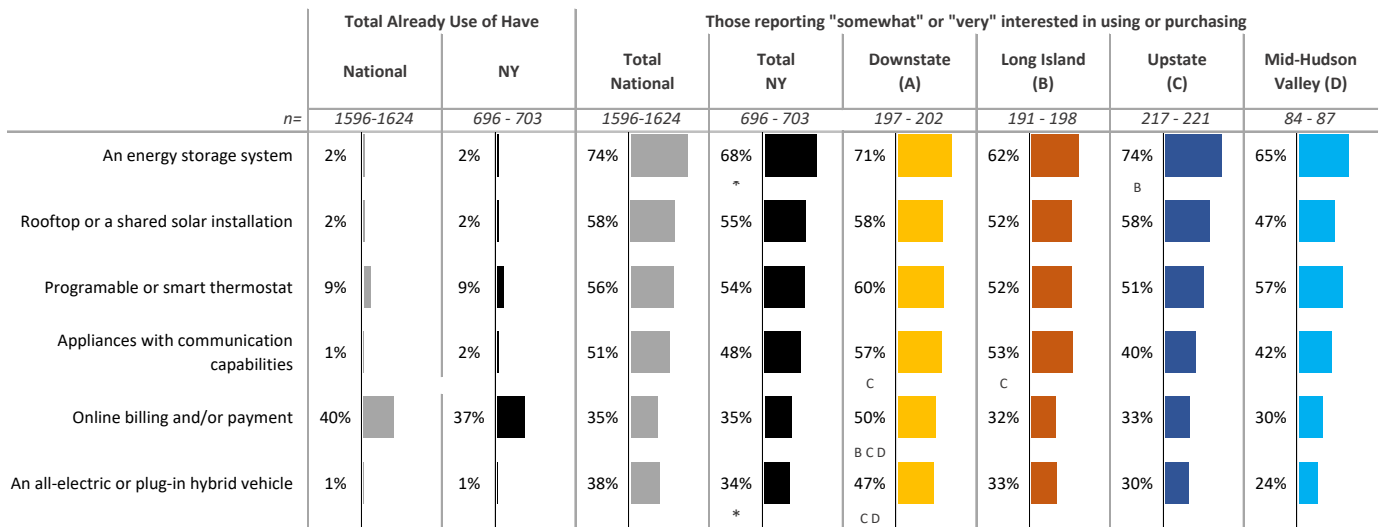
	Total Already Use of Have		Those reporting "somewhat" or "very" interested in using or purchasing					
	National	NY	Total National	Total NY	Downstate (A)	Long Island (B)	Upstate (C)	Mid-Hudson Valley (D)
n=	1596-1624	696 - 703	1596-1624	696 - 703	197 - 202	191 - 198	217 - 221	84 - 87
An energy storage system	2%	2%	74%	68% *	71%	62%	74% B	65%
Rooftop or a shared solar installation	2%	2%	58%	55%	58%	52%	58%	47%
Programable or smart thermostat	9%	9%	56%	54%	60%	52%	51%	57%
Appliances with communication capabilities	1%	2%	51%	48%	57% C	53% C	40%	42%
Online billing and/or payment	40%	37%	35%	35%	50% B C D	32%	33%	30%
An all-electric or plug-in hybrid vehicle	1%	1%	38%	34% *	47% C D	33%	30%	24%

* Indicates significant difference between New York and National Samples.

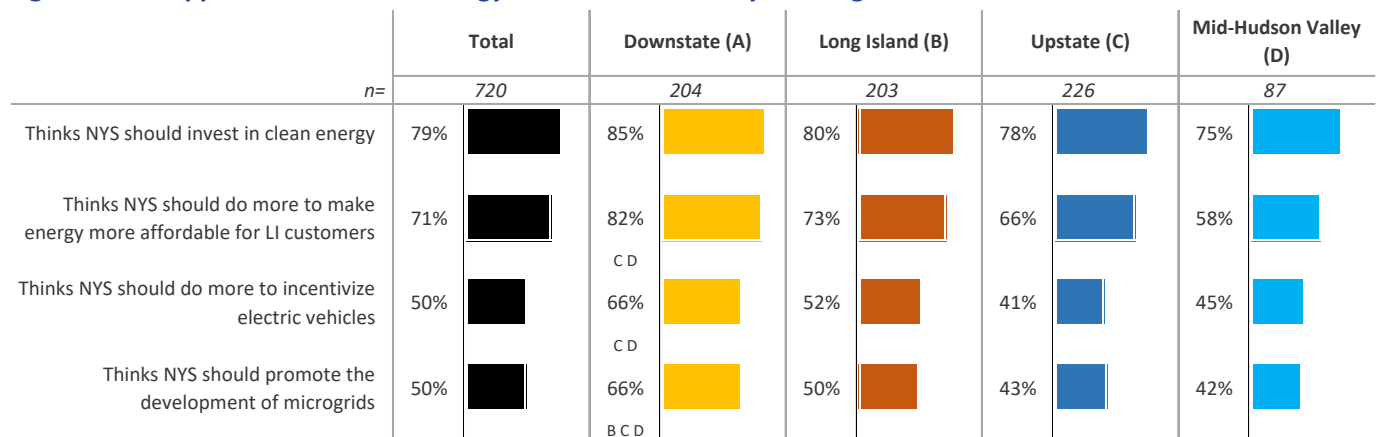Note: The percent (other than the 'total already use or have' column) includes "somewhat interested" and "very interested" responses". Analysis excludes "Don't Know" responses. A, B, C, D indicate statistically significant differences between regions.

Q11/Q12/Q14: [Product description] how interested would you be in purchasing...

The following illustrates other group differences in interest in each Smart Grid-enabled product type.

An energy storage system

Millennials are more interested in energy storage systems than members of the Greatest Generation or Baby Boomers (82% versus 41% and 65%, respectively). Homeowners also are more interested in this technology than renters (77% versus 72%).

Programmable or smart thermostat

Millennials and members of Generation X are more interested in programmable or smart thermostats than members of the Greatest Generation or Baby Boomers (76% and 65% versus 35% and 50%, respectively). In addition, homeowners are more interested in these technologies than renters (64% versus 54%), as are higher- and middle-income consumers compared with lower-income consumers (64% and 62% versus 45%, respectively).

Online billing and/or payment

Millennials and members of Generation X are more interested in online billing and/or payment than members of the Greatest Generation or Baby Boomers (76% and 67% versus 28% and 48%, respectively). Homeowners are more interested than renters (61% versus 51%), as are consumers with higher bills in the winter compared with those with no seasonal variation (68% versus 50%). In addition, higher-income consumers are more interested than lower-income consumers (67% versus 44%).

Rooftop or shared solar installation

Millennials are more interested in rooftop or a shared solar installation than members of the Greatest Generation, Baby Boomers, or members of Generation X (76% versus 37%, 46%, and 62%, respectively).

Appliances with communication capabilities

Millennials are more interested in appliances with communication capabilities than members of the Greatest Generation, Baby Boomers, or members of Generation X (74% versus 25%, 37%, and 59%, respectively). Urban and suburban areas are likewise more interested than rural areas (55% and 51% versus 31%, respectively).

An all-electric or plug-in hybrid vehicle

Millennials and members of Generation X are more interested in all-electric or plug-in hybrid vehicles than members of the Greatest Generation or Baby Boomers (57% and 43% versus 11% and 22%, respectively). Urban areas, too, are more interested than rural areas (43% versus 19%).

Reforming the Energy Vision (REV)

For NYS respondents only, we asked additional set of questions relating to their awareness of and interest in NYS's Reforming the Energy Vision (REV) initiative and in other clean energy issues.

Awareness, Interest, and Support in REV and NYS Clean Energy and Climate Goals

Figure 2-22 summarizes New Yorkers' awareness and interest in REV. In NYS as a whole, few consumers reported awareness of their state's grid modernization effort (16%) or REV (20%). A very small percent of New Yorkers reporting having ever visited the REV website (3%) also demonstrates the low awareness. Once REV was explained, however, half or more of New Yorkers reported their interest in learning more about it (50%) and their support of REV's goals. Generally, the awareness and interest are the highest in Downstate, but New Yorkers across the state reported a similar level of support for REV.

Figure 2-22: Awareness and Interest in Reforming the Energy Vision (REV) by NYS Region
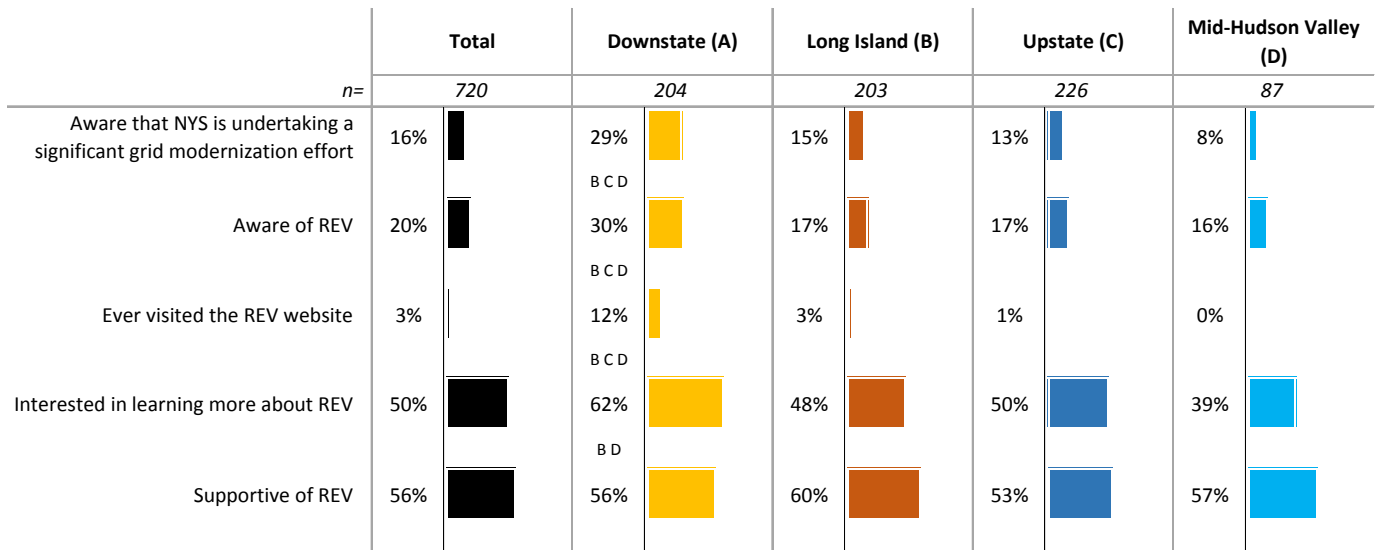
	Total	Downstate (A)	Long Island (B)	Upstate (C)	Mid-Hudson Valley (D)
n=	720	204	203	226	87
Aware that NYS is undertaking a significant grid modernization effort	16%	29% B C D	15%	13%	8%
Aware of REV	20%	30% B C D	17%	17%	16%
Ever visited the REV website	3%	12% B C D	3%	1%	0%
Interested in learning more about REV	50%	62% B D	48%	50%	39%
Supportive of REV	56%	56%	60%	53%	57%

Note: Analysis excludes "Don't Know" responses. A, B, C, D indicate statistically significant differences between regions.

Q26: Are you aware that the State of New York is undertaking a significant grid modernization effort that involves developing smart grid and smart meter infrastructure?

Q28: Prior to today, have you heard of Governor Cuomo's Reforming the Energy Vision (or REV)?

Q29: Prior to today, have you ever visited the REV website?

Q31: Would you be interested in learning more about REV?

Q30: [List of REV goals] Now that you've learned more about REV goals, how much do you support REV?

As illustrated in *Figure 2-23*, most New Yorkers are unaware of specific elements of the NYS clean energy and climate goals, though Downstate New Yorkers tend to be significantly more aware of them compared with residents in other NYS regions.

Figure 2-23: Awareness of NYS Clean Energy and Climate Goal by NYS Region (Multiple Responses Allowed)
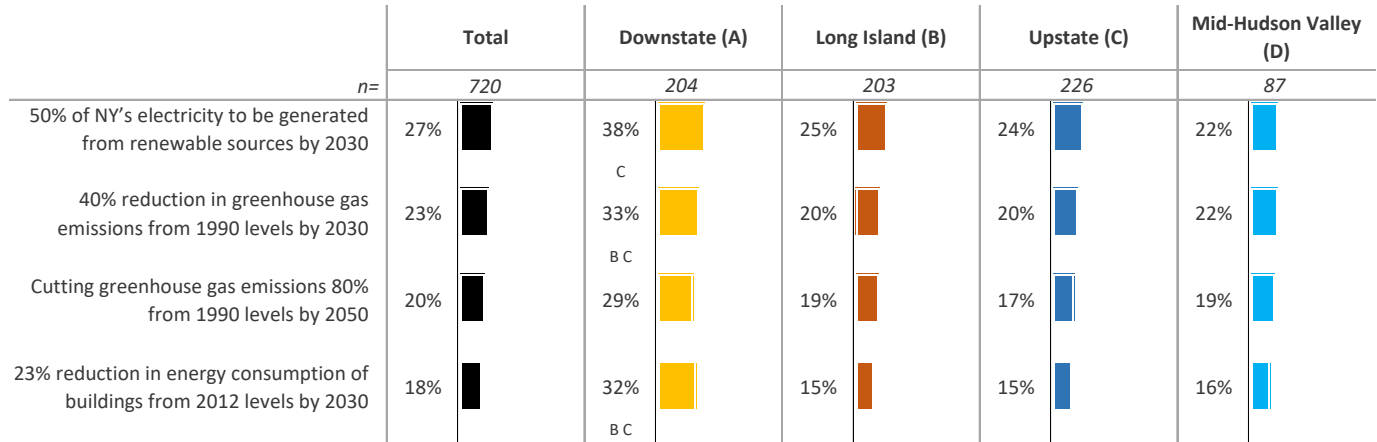
	Total		Downstate (A)		Long Island (B)		Upstate (C)		Mid-Hudson Valley (D)	
n=	720		204		203		226		87	
50% of NY's electricity to be generated from renewable sources by 2030	27%		38% C		25%		24%		22%	
40% reduction in greenhouse gas emissions from 1990 levels by 2030	23%		33% B C		20%		20%		22%	
Cutting greenhouse gas emissions 80% from 1990 levels by 2050	20%		29%		19%		17%		19%	
23% reduction in energy consumption of buildings from 2012 levels by 2030	18%		32% B C		15%		15%		16%	

Note: Analysis excludes "Don't Know" responses. A, B, C, D indicate statistically significant differences between regions.

Q27: New York State has recently adopted the following clean energy and climate goals. For each one please tell us if you were aware of the goal prior to today.

Figure 2-24 summarizes New Yorkers' responses to a series of questions that asked their opinions about various programs and issues that related to NYS clean energy goals, including increased investment in renewable and clean energy in NYS; making energy more affordable for low-income New Yorkers; incentivizing New Yorkers to purchase electric vehicles; and development of microgrids in NYS.

The majority of New Yorkers (79%) across the regions report their general support for NYS investing in renewable energy to increase the use of clean energy in the state. Slightly lower but still the majority of New Yorkers (71%) also expressed their support for NYS helping low-income families make energy more affordable. For two specific issues, promotion of electric vehicles and microgrids, about half of New Yorkers reported their support. Downstate New Yorkers tend to be significantly more supportive of these efforts compared with respondents in other NYS regions.

Figure 2-24: Support for NYS Clean Energy and Climate Goals by NYS Region

	Total	Downstate (A)	Long Island (B)	Upstate (C)	Mid-Hudson Valley (D)
n=	720	204	203	226	87
Thinks NYS should invest in clean energy	79%	85%	80%	78%	75%
Thinks NYS should do more to make energy more affordable for LI customers	71%	82% C D	73%	66%	58%
Thinks NYS should do more to incentivize electric vehicles	50%	66% C D	52%	41%	45%
Thinks NYS should promote the development of microgrids	50%	66% B C D	50%	43%	42%

Note: Analysis excludes "Don't Know" responses. A, B, C, D indicate statistically significant differences between regions.

Q33: In your opinion, should New York State invest in renewable energy to increase the use of clean energy in the state?

Q36: Do you think the New York state should help those low income customers at or below the poverty level to make energy more affordable?

Q37: [Description of NYS's ChargeNY program] Do you think the State of New York should do even more to incentivize New Yorkers to purchase electric vehicles, which will reduce automobile pollution emissions?

Q32: [Description of microgrid] Do you think the State of New York should promote the development of microgrids?

Interest and Participation in Community Solar

As shown in *Figure 2-25*, while current participation rate in community solar in NYS is extremely low (less than 1%), more than half of New Yorkers across the state indicated their interest in future participation (53%).

Figure 2-25: Interest in Community Solar by NYS Region

	Total	Downstate (A)	Long Island (B)	Upstate (C)	Mid-Hudson Valley (D)
n=	720	204	203	226	87
Already participating in community solar	0.6%	1.4%	0.5%	0.0%	1.3%
Interested in participating in community solar	53%	61%	51%	55%	46%

Note: Analysis excludes "Don't Know" responses. A, B, C, D indicate statistically significant differences between regions.

Q34: [Description of community solar project] How interested would you be in participating in a community solar project?

When those who reported interest in future participation in community solar were asked about their willingness to donate 50% or more of excess generation to low-income households living at or below the poverty level *(Figure 2-26)*, 40% of them reported they are willing to donate. Downstate respondents are most generous with excess generation donations, and the willingness precipitously drops in some NYS regions.

Figure 2-26: Willingness to Donate Excess Generation to Low-Income Households by NYS Region

	Total	Downstate (A)	Long Island (B)	Upstate (C)	Mid-Hudson Valley (D)
n=	400	129	104	125	42
Willing to donate 50% or more of excess generation to low income households	40%	49% D	39%	40%	18%

Note: Analysis includes only those reporting interested in participating in a community solar project, and excludes "Don't Know" responses. A, B, C, D indicate statistically significant differences between regions.

Q35: If you had solar panels on your home or participated in a community solar project, and your solar system produced more electricity than you could use, how much of your excess solar electricity production would you be willing to donate to low income households living at or below the poverty level, rather than receiving monetary reimbursement for the excess electricity from your electricity company?

Demographic Assessment Regarding Awareness, Interest, and Support for REV and NYS Clean Energy/Climate Goals

The following section explores how residents of NYS vary based on certain demographic factors such as community size or location, generation, and income in terms of the levels of their awareness, interest, and support for REV and other NYS clean energy and climate goals.

Overall, certain demographic groups are more likely aware of, interested in, and supportive of NYS's clean energy efforts. These "clean energy champions" are statistically more concentrated among Millennials, and urban residents. In contrast, "clean energy non-enthusiasts" in NYS are more concentrated among Greatest Generation, and rural residents.

Community Size

Compared with residents of suburban and rural areas, urban New Yorkers are more likely to be aware of grid modernization efforts, clean energy or climate goals, and REV. They are more likely to have visited the REV website and to express interest in learning more about REV and participating in community solar. Urban New Yorkers are more likely to think NYS should promote the development of microgrids and invest in efforts to make energy more affordable for low-income customers. They also tend to be more willing to donate excess power generation were they to have solar power.

Conversely, rural New Yorkers are significantly less attuned to the state's clean energy efforts generally. In addition to being less aware and supportive of these efforts, the majority of consumers in rural NYS are not in favor of the state investing in renewable energy and promoting electric vehicles or microgrids.

Generation

The survey results were linearly associated with their age or generational cohort; Millennials tend to be clean energy champions, while members of the Greatest Generation are clean energy non-enthusiasts. The younger the consumer, the more likely they are to be aware of grid modernization efforts, clean energy or climate goals, and REV. They are also more likely to have visited the REV website and to express interest in learning about REV and/or participating in community solar. Millennials in New York are also more likely to support the development of microgrids and investments in clean energy, as well as efforts to make energy more affordable for low-income customers and incentives for electric vehicles. They also demonstrate a willingness to donate excess energy if they were to have solar generation capabilities.

Income

Overall, income level is also linearly related to support for clean energy efforts; the higher their income, the more likely consumers are to be aware of grid modernization efforts and clean energy or climate goals; to express interest in participating in community solar; and to think NYS should promote microgrid development, invest in clean energy, and provide more incentives for electric vehicles.

The inverse occurs when it comes to consumer willingness to donate excess solar generation; the lower a New Yorker's income, the more willing they are to donate 100% of any excess power generated from solar. Low-income New Yorkers were significantly less likely than moderate or high-income New Yorkers to support or express interest in learning more about REV.

3. Conclusions and Implications

The following conclusions and recommendations draw from our analysis and major findings to inform future investments in clean energy and program design efforts in New York.

Conclusion 1

Consumer awareness of and interest in Smart Grid-enabled services and products, attitudes toward energy efficiency, and various measures of consumer-utility relationships appear to be average in NYS, compared to the national level. There are, however, stark regional and demographic differences in how New Yorkers engage with clean energy: Millennials, New Yorkers who live in urban areas (especially in Downstate), or those who have higher incomes tend to be clean energy champions. In contrast, consumers who live in rural areas, are members of the Greatest Generation, or who have lower incomes are more likely clean energy non-enthusiasts.

> **IMPLICATION:** In consideration of the regional and generational differences within the state of New York, it may be helpful to avoid "one size fits all" outreach, education and program design. Targeting audiences that are already listening and using messages and formats that will resonate with these groups may deliver more cost-effective results for the state and energy stakeholders.

Conclusion 2

There seems to be a strong overlap in demographic characteristics among those who embrace a digital lifestyle and those who have aptitude for a clean energy lifestyle. These consumers tend to be younger, urban, and college educated. They also demonstrate an interest in and willingness to try smart energy products and services, and they actively engage in digital forms of communication.

> **IMPLICATION:** Employing digital marketing and communication tools presents electricity providers with opportunities to connect with important market segments that will most likely engage in Smart Grid-enabled programs and technologies. Facebook, YouTube, Pinterest, Instagram, and Twitter are valuable social media platforms that can facilitate communications and information dissemination (e.g., notifications of outage or demand response program, campaigns, usage information, etc.). To break through the static of this online environment, it is important for program or product designers to consider things such as responsive design (i.e., design that adapts to the device in use), search engine optimization and marketing, online content, and native advertising as they design and promote new offerings.

Conclusion 3

Despite having a stronger aptitude for a clean energy lifestyle, younger people — especially Millennials — generally perceive more barriers to taking energy-saving actions. Millennials renters in particular feel disadvantaged due to split incentives, and they are reluctant to cost-share with their landlords.

> **IMPLICATION:** Reducing the barriers often perceived by this group (e.g., limited actions they can take to save energy) may activate their interest and desire to engage in smart energy. For instance, developing more program opportunities that renters (the young and future homeowners) can also take advantage of without involving their landlords (such as energy usage information, peak time rebate, peak pricing, or prepaid billing) may empower them to actively engage in energy-saving actions. This also points to the need for integrating educational resources targeted to this group into electricity provider program designs.

Conclusion 4

Many New Yorkers are unaware of the State's REV efforts. Only twenty percent of New Yorkers have heard about REV and only two percent have visited the website.

> **IMPLICATION:** This lack of awareness highlights the need for further education and other initiatives that will improve awareness, particularly in the Mid-Hudson and Upstate regions.

Conclusion 5

New Yorkers voice widespread support for community solar and initiatives that address the challenges faced by lower income consumers. Over half of New York consumers were interested in community solar and interest was particularly strong in the Downstate region (61%). When asked if consumers would be willing to donate 50% of any excess generation to low income households, 40% of New Yorkers voiced support. Again, support was highest in the Downstate region (49%)

> **IMPLICATION:** This *esprit de corps* may provide opportunities for the State to engage consumers who face income and physical barriers to participating in solar and other renewable energy programs. With the right outreach and participation rewards to those who have the income and agency to invest, REV's renewable

Appendix A. Survey Instrument

Introduction

We want to better understand how consumers like you use and manage their electricity, and we need your help. This survey is for a nation-wide study, and your responses will inform the development of products and services that electricity companies and other energy suppliers may offer in the future. Please be assured that your responses are confidential and reported only in aggregate.

Before we get started, we have a few questions to assure that we reach a wide range of people.

Screening

[ASK ALL]

State.   Which state do you currently reside?
[SINGLE RESPONSE]
1.   Choose one from the dropdown list

[ASK IF STATE = NY]

NY_County. In which county do you currently reside?
[SINGLE RESPONSE]
1.   Choose one from the dropdown list

[ASK ALL]

S1. Do you, or anyone in your household, work for the news media, an ad agency, a gas or electricity company, or other company involved in providing equipment or technology used in the production, distribution, or control of electricity?
[SINGLE RESPONSE]
1.   Yes [TERMINATE]
2.   No
98. Don't know [TERMINATE]

[ASK ALL]

S2. Do you rent or own your home?
[SINGLE RESPONSE]
1.   Own
2.   Rent
98. Don't know [TERMINATE]

[ASK ALL]

S3. In what year were you born?
[SINGLE RESPONSE]
1.   Choose one from the dropdown list

[IF S3 <= 2000, TERMINATE]

[ASK ALL]

S4. Which category below best describes your family's total household income in 2016 before taxes?

[SINGLE RESPONSE]

1. Under $25,000
2. $25,000 to under $50,000
3. $50,000 to under $75,000
4. $75,000 to under $100,000
5. $100,000 to under $150,000
6. $150,000 to under $200,000
7. $200,000 or more
98. Don't know [TERMINATE]

[ASK ALL]

S5. Which of the following best describes your education?

[SINGLE RESPONSE]

1. Some high school or less
2. Graduated high school
3. Trade or technical school
4. Some college
5. College graduate
6. Post graduate work or degree
98. Don't know [TERMINATE]
[CHECK QUOTA BEFORE PROCEEDING]

Knowledge

[ASK ALL]

Q1. Which of the following statement best describes your current level of knowledge about the "Smart Grid"?

[SINGLE RESPONSE]

1. I have a fairly complete understanding of what it is, how it would work, and how it would affect homes and businesses
2. I have a basic understanding of what it is and how it would work
3. I've heard the term, but don't know much about what it means
4. I have not heard the term

[ASK ALL]

Q2. Which of the following statement best describes your current level of knowledge about a "Smart Meters"?

[SINGLE RESPONSE]

1. I have a fairly complete understanding of what it is, how it would work, and how it would affect homes and businesses
2. I have a basic understanding of what it is and how it would work
3. I've heard the term, but don't know much about what it means
4. I have not heard the term

[ASK ALL]

Q3. How knowledgeable are you about actions you can take to make your home more energy efficient?

[SINGLE RESPONSE]

1. 0 = Know almost nothing about the topic
2. 1
3. 2
4. 3
5. 4
6. 5
7. 6
8. 7
9. 8
10. 9
11. 10 = Know a great deal about the topic
98. Don't know

[ASK ALL]

Q4. How important is it to you, personally, to know that your home is energy efficient and that you have done all that you can to lower your energy costs?

[SINGLE RESPONSE]

1. 0 = Not at all important
2. 1
3. 2
4. 3
5. 4
6. 5
7. 6
8. 7
9. 8
10. 9
11. 10 = Extremely important
98. Don't know

[ASK ALL]

Q5. In your opinion, which of the following is the most important reason to save energy?

[SINGLE RESPONSE]

1. The money I can save
2. The environmental benefits
3. To reduce the need for foreign sources of energy
4. To be socially responsible
5. For the future of our children and grandchildren
6. To improve America's ability to compete with other countries
96. Other, please specify: [OPEN-ENDED RESPONSE]
97. SAVING ENERGY IS NOT IMPORTANT TO ME
98. Don't know

Q6. Thinking about when the power is out, would you say the time your electricity company gives you for having your power restored is more accurate, about the same, or less accurate than estimated restoration times from five years ago?

[SINGLE RESPONSE]

1. More accurate
2. About the same
3. Less accurate
4. I have not experienced an outage with my electricity company in the last 5 years
98. Don't know

Benefits

Q7. Smart grid refers to a set of new technologies to upgrade the grid that carries electricity to homes and businesses. Smart meters are part of the smart grid system. They provide more detailed information about when consumers are using electricity.

The following statements describe potential benefits of smart grid and smart meters. For each one, please indicate how important each benefit is to you.

[MATRIX QUESTION: SCALE]

[RANDOMIZE] Item	1 – IMPORTANT	2 – SLIGHTLY IMPORTANT	3 – NOT IMPORTANT	4 – DK
The smart grid and smart meters will give me more choices, allowing me to sign up for a range of rate and billing programs, that offer more flexibility in how I'm billed for electricity usage and more control over my energy costs.				
The smart grid and smart meters will help me save money by using energy more efficiently.				
Please verify your place in the survey by selecting "98 DK".				
A smart grid and smart meters will prevent outages and reduce the length of those that do occur.				
A smart grid helps meet growing demand for electricity while limiting the need to invest in new power plants.				
A smart grid delivers the power "quality" necessary to run our increasingly digital homes				
A smart grid reduces greenhouse gas emissions and other pollution by making it easier to connect renewable energy sources to the electricity grid and using current energy sources more efficiently.				
As the market for electric vehicles expands, we need a smarter grid, ready to meet the new requirements electric vehicles will place on the system.				
Smart grid communication improvements can provide information instantly to dramatically increase operational efficiency for the electricity company.				

Q8. As the list on the last screen just described, the smart grid helps you save money by providing near real-time energy usage information, new rate plans, and the ability to better manage electricity use. Would you say these smart grid benefits are...

[SINGLE RESPONSE]

1. Not important
2. Important but only if it can be provided to you at no additional cost
3. Important, and you are willing to pay more ($3-4 extra per month) but unable to pay more at this time
4. Important, and you are willing and able to pay more ($3-4 extra per month) on your monthly electric bill
98. Don't know

Q9. The following is a list of potential challenges people may have to be engaged in energy-saving activities at home. For each one, please tell us how often each applies to you.

[MATRIX QUESTION: SCALE]

[LOGIC] Item	1 – NEVER APPLIES	2 – RARELY APPLIES	3 – SOMETIMES APPLIES	4 – VERY OFTEN APPLIES	5 – ALWAYS APPLIES	98 – DK
I don't know what to do to save energy at home						
Replacing inefficient equipment with more efficient ones costs me too much money						
The energy saving programs that my electricity company offers do not fit my needs						
Other members of my household do not care about saving energy at home						
I don't use enough energy to save at home						
Please verify your place in the survey by selecting "4 rarely applies"						
I'm too busy to be thinking about saving energy at home						
My efforts to save energy at home do not positively impact the grid						
Saving energy makes my home uncomfortable or is inconvenient						
[ASK IF S2=2] As a renter, I can't change home features to make my home more energy efficient						

Program

Q10. Critical Peak Rebate Program would send a notice to people who are enrolled in the program asking them to reduce their electricity use during peak periods when energy usage in the area is expected to be high, such as on very hot days. They would receive a bill credit for reduced usage, and there is no penalty for those who didn't reduce.

If you were offered this program, how likely would you be to participate?

[SINGLE RESPONSE]

1. Definitely wouldn't participate
2. Probably wouldn't participate
3. Might or might not participate
4. Probably would participate
5. Definitely would participate
6. Already participating
98. Don't know

Q11. How interested would you be in purchasing a programmable, communicating or smart thermostat designed to adjust the temperature according to a series of programmed settings that take effect at different times of the day or at any time on-demand through your computer or smart phone?

[SINGLE RESPONSE]

1. Not at all interested
2. Not too interested
3. Neither interested nor not interested
4. Somewhat interested
5. Very interested
6. I already have it
98. Don't know

Q12. How interested would you be in using online billing and/or payment for your electric bill?

[SINGLE RESPONSE]

1. Not at all interested
2. Not too interested
3. Neither interested nor not interested
4. Somewhat interested
5. Very interested
6. I already use it
98. Don't know

[ASK ALL]

Q13. How likely would you be to participate in the following programs or options that you may be offered using smart grid technology.

[MATRIX QUESTION: SCALE]

[LOGIC] Randomize within category	1 – DEFINITELY WOULDN'T PARTICIPATE	2 – PROBABLY WOULDN'T PARTICIPATE	3 – MIGHT OR MIGHT NOT PARTICIPATE	4 – PROBABLY WOULD PARTICIPATE	5 – DEFINITELY WOULD PARTICIPATE	6 – ALREADY PARTICIPATING	98 – DK
PEAK SHIFTING PROGRAMS							
Critical Peak Pricing that prices electricity higher during peak usage times and lower during non-peak times, allowing consumers a choice.							
Direct Load Control that, for a small incentive, allows the electricity company to adjust or turn off large electric loads during peak usage.							
HOME ENERGY MANAGEMENT PROGRAMS							
Home Energy Management that provides a connection to your home's wifi to give you itemized electricity usage and personalized savings ideas.							
Energy Usage Comparison of your home with similar homes in your area.							
Access to real time energy use information.							
Near real time outage reporting and tracking that allows you to send messages and receive updates on outages during such events.							
BILLING AND PAYMENT OPTIONS							
Pre-paid billing plan that eliminates deposits, late fees and reconnection charges and lets you pay up front.							

[ASK ALL]

Q14. How interested would you be in purchasing the following?

[MATRIX QUESTION: SCALE]

[LOGIC] Item	1 – NOT AT ALL INTERESTED	2 – NOT TOO INTERESTED	3 – NEITHER INTERESTED NOR NOT INTERESTED	4 – SOMEWHAT INTERESTED	5 – VERY INTERESTED	6 – ALREADY USE IT	98 – DK
Appliances with communication capabilities that allow owners to operate appliances remotely and help improve functionality and energy efficiency							
An all-electric or plug-in hybrid vehicle							
Rooftop or a shared solar installation for your community							
An energy storage system that could provide backup power for your home							

[ASK ALL]

Q15. Suppose your electricity company wanted to greatly expand its use of a range of clean energy sources, such as solar energy, wind power, geothermal and biomass, and estimated that the extra cost reflected on your bill would be about {SHOW IF SPLITB=0: free} {SHOW IF SPLITB=1: two} {SHOW IF SPLITB=2: five} {SHOW IF SPLITB=3: ten} {SHOW IF SPLITB=4: fifteen} dollars per month per customer.

Based on that assumption, how likely would you be to support your electricity company's plan to expand clean energy?

[SINGLE RESPONSE]

1. Definitely would not support
2. Probably would not support
3. Neutral
4. Probably would support
5. Definitely would support
98. Don't know

Attitudes about your electricity company

[ASK ALL]

Q16. Based on your overall experience, how satisfied are you with your electricity company?

[SINGLE RESPONSE]

0. Very dissatisfied
1.
2.
3.
4.
5.
6.
7.
8.
9.
10. Very satisfied
98. Don't know

[ASK ALL]

Q17. If you have a choice of which company you can buy electricity from, would you choose . . .

[SINGLE RESPONSE]

1. Your current electricity company
2. Another electricity company
3. A telecom provider like AT&T or Comcast
4. A company that installs solar panels on your home such as Solar City or Sunrun
5. Or, some other company (specify:)
6. [IF S2 = 2 (RENT)] Electricity is included in my rent
98. Don't know

Communication

Q18. Which of the following social media do you routinely use?
[MULTIPLE RESPONSE]

1. Twitter
2. LinkedIn
3. YouTube
4. Facebook
5. Flickr
6. Pinterest
7. Instagram
8. Reddit
9. Vine Camera
10. Tumblr
11. Ask.fm
12. Myspace
13. I do not use social media [EXCLUSIVE]
96. Other, please specify: [OPEN-ENDED RESPONSE]
98. Don't know [EXCLUSIVE]

Q19. Which of the social media you mentioned, if any, are you using to help you manage energy usage or get energy efficiency tips?
[MULTIPLE RESPONSE, SHOW ONLY ITEMS SELECTED IN Q17]

1. Twitter
2. LinkedIn
3. YouTube
4. Facebook
5. Flickr
6. Pinterest
7. Instagram
8. Reddit
9. Vine Camera
10. Tumblr
11. Ask.fm
12. Myspace
13. I do not use social media for this purpose [EXCLUSIVE]
96. Other, please specify: [OPEN-ENDED RESPONSE]
98. Don't know [EXCLUSIVE]

Q20. Have you ever visited your electricity company's website?
[SINGLE RESPONSE]

1. Yes
2. No
98. Don't know

Contact

Q21. How many times have you been in contact with your electricity company in the last 6 months, for example, by phone, online, by visiting their office in-person, or in some other way?

[SINGLE RESPONSE]

1. No contact
2. 1-2 times
3. 3-5 times
4. 6-7 times
5. 8-10 times
6. 11 times or more
98. Don't know

Q22. Which of the following methods have you used to contact your electricity company or has your electricity company used to contact you in the last 6 months?

[MULTIPLE RESPONSE]

1. I have had no contact with my electricity company in the past 6 months [EXCLUSIVE]
2. By telephone
3. Visited an office or service center
4. Had someone from the electricity company come to my house
5. Visited my electricity company's website
6. Posted a comment to my electricity company's Twitter, Instagram, or Facebook page
7. Use my electricity company's smart phone application
8. Received or sent an email to my electricity company
9. Received or sent a text message to my electricity company
10. Some other method (specify:)
98. Don't know [EXCLUSIVE]

Q23. Are you able to ask your landlord to make improvements to your house or apartment to improve efficiency and lower your electricity bill?

1. Yes
2. No
3. Don't know

Q24. Do you think your landlord or property owner would make a small investment improving your home or apartment to save on electricity if you shared the cost?

1. Yes
2. No
3. Don't know

Q25. How much would you be willing to invest of your own funds if you knew it would return an equal or higher savings on your electric bill?

1. $0 – my landlord should pay the full cost
2. $25
3. $50
4. $100
5. More than $100

New York State Sample [ASK IF STATE=NY]

[ASK IF STATE=NY AND (Q1<>4 AND Q2<>4)]

Q26. Are you aware that the State of New York is undertaking a significant grid modernization effort that involves developing smart grid and smart meter infrastructure?

1. Yes
2. No
3. Don't know

Q27. New York State has recently adopted the following clean energy and climate goals. For each one, please tell us if you were aware of the goal prior to today.

[MULTIPLE RESPONSE]

1. 50% of New York's electricity to be generated from renewable sources (like solar or wind) by 2030
2. 23% reduction in energy consumption of buildings from 2012 levels by 2030
3. 40% reduction in greenhouse gas emissions [Hover-over: A greenhouse gas is any gaseous compound in the atmosphere that is capable of absorbing infrared radiation, thereby trapping and holding heat in the atmosphere. By increasing the heat in the atmosphere, greenhouse gases are responsible for the greenhouse effect, which ultimately leads to global warming] from 1990 levels by 2030
4. Cutting greenhouse gas emissions 80% from 1990 levels by 2050
98. Don't know [EXCLUSIVE]

Q28. Prior to today, have you heard of Governor Cuomo's Reforming the Energy Vision (or REV)? REV is Governor Cuomo's comprehensive energy strategy for New York. REV's objective is to help consumers make more informed energy choices, help businesses develop new energy products and services, and regulators protect the environment while creating new jobs and economic opportunity throughout the state.

[SINGLE RESPONSE]

1. Yes
2. No
98. Don't know

[ASK IF 28=1]

Q29. Prior to today, have you ever visited the REV website? (https://rev.ny.gov/)

[SINGLE RESPONSE]

1. Yes
2. No
98. Don't know

Q30. Here are some of REV's goals:

- Make energy more affordable for all New Yorkers
- Provide customers additional tools to manage their energy use and reduce their bills
- Support the growth of clean energy innovation (50% of New York's electricity to be generated from renewable sources by 2030)
- Cut greenhouse gas emission 80% by 2050
- Empower New Yorkers to make more informed energy choices
- Improve New York's existing energy infrastructure, making it even more reliable
- Create new jobs and business opportunities

Now that you've learned more about REV goals, how much do you support REV?

[SINGLE RESPONSE]

1. I'm totally opposed to REV
2. I have some reservations about REV
3. I neither oppose nor support REV
4. I am somewhat supportive of REV
5. I'm totally supportive of REV
6. I need more information about REV before making a decision regarding my support
98. Don't know

[ASK ALL]

Q31. Would you be interested in learning more about REV?

[SINGLE RESPONSE]

1. Yes
2. No
98. Don't know

Q32. One innovation that you may see more of because of REV is called a microgrid. A microgrid is a localized grouping of electricity sources that is connected to the traditional centralized grid. One of the main benefits of a microgrid is that it can disconnect from the overall power grid and function independently, allowing certain critical services to continue operating where previously the entire power grid might be shut down. A microgrid also requires some redundancy and extra cost to build.

Do you think the State of New York should promote the development of microgrids?

[SINGLE RESPONSE]

1. Yes
2. No
98. Don't know

Q33. In your opinion, should New York State invest in renewable energy to increase the use of clean energy in the state?

[SINGLE RESPONSE]

1. Yes
2. No
98. Don't know

Q34. A community solar project is a solar power plant whose electricity is shared by multiple households. Community solar allows community members to share the benefits of solar power even if they cannot or prefer not to install solar panels on their property. Community solar participants use more clean energy to meet their needs and get reimbursed for any extra electricity their system produces that participants don't use and is provided to the electricity company.

How interested would you be in participating in a community solar project?

[SINGLE RESPONSE]

1. I already participate in a community solar project
2. Not at all interested
3. Not too interested
4. Neither interested nor not interested
5. Somewhat interested
6. Very interested
98. Don't know

[ASK IF 34=1, 5, or 6]

Q35. If you had solar panels on your home or participated in a community solar project, and your solar system produced more electricity than you could use, how much of your excess solar electricity production would you be willing to donate to low income households living at or below the poverty level, rather than receiving monetary reimbursement for the excess electricity from your electricity company?

[SINGLE RESPONSE]

1. 0% - I would not be willing to donate any excess electricity to low income households
2. Up to 10%
3. Up to 25%
4. Up to 50%
5. Up to 75%
6. 100% - I would be willing to donate all the excess electricity to low income households
98. Don't know

Q36. Do you think the New York state should help those low-income customers at or below the poverty level to make energy more affordable?

[SINGLE RESPONSE]

1. Yes – NYS should do a lot more
2. Yes – NYS should do a little bit more
3. No – NYS has done a good job of helping low-income New Yorkers with energy affordability
4. No – I don't think helping low-income New Yorkers with energy affordability is NYS's responsibility
98. Don't know

Q37. ChargeNY is a New York State program that aims to put 30,000-40,000 electric vehicles on the road and install over 2,500 additional public and workplace charging stations statewide by 2018. Currently, there are tax credits for consumers that purchase electric vehicles, tax credits for businesses that install charging stations, High Occupancy Vehicle lane exemption and toll discounts for electric vehicles, and other incentives to help increase adoption of and infrastructure for electric vehicles.

Do you think the State of New York should do even more to incentivize New Yorkers to purchase electric vehicles, which will reduce automobile pollution emissions?

[SINGLE RESPONSE]

1. Yes – NYS should do a lot more
2. Yes – NYS should do a little bit more
3. No – NYS has done a good job of incentivizing New Yorkers to purchase electric vehicles
4. No – I don't think incentivizing New Yorkers to purchase electric vehicles is NYS's responsibility
98. Don't know

Demographics

[ASK ALL]

Q38. Where do you most frequently access the internet for personal use?
[SINGLE RESPONSE]

1. At my home
2. On the go through a mobile phone
3. At work/office
4. Public library
5. Friend/relative's house
6. Other, please specify: [OPEN-ENDED RESPONSE]
98. Don't know

[ASK ALL]

Q39. Please verify your place in the survey by entering number "4".
[SINGLE RESPONSE]

1. [FORCE NUMERIC RESPONSE]

[ASK ALL]

Q40. Which of the following best describes the area you live in?
[SINGLE RESPONSE]

1. Urban
2. Suburban/Small town
3. Rural
98. Don't know

[ASK ALL]

Q41. Are you currently …
[SINGLE RESPONSE]

1. Employed full-time
2. Employed part-time
3. Unemployed
4. Retired
5. Homemaker
6. Temporarily laid off
7. Student
96. Other, please specify: [OPEN-ENDED RESPONSE]
98. Don't know

[ASK ALL]

Q42. What racial or ethnic background do you identify yourself with the most?
[MULTIPLE RESPONSE]

1. White
2. Black or African American
3. Asian
4. Native
5. Hispanic
96. Other, please specify: [OPEN-ENDED RESPONSE]
98. Don't know

[ASK ALL]

Q43. About how much is your household's average monthly electric bill during the summer months?
[SINGLE RESPONSE]
1. Less than $50
2. $50 to $100
3. $101 to $150
4. $151 to $200
5. $201 to $250
6. $251 to $500
7. $501 to $1000
8. More than $1000
9. [IF S2 = 2 (RENT)] ELECTRICITY IS INCLUDED IN RENT
98. Don't know

[ASK IF 43<> 9]

Q44. About how much is your household's average monthly electric bill during the winter months?
[SINGLE RESPONSE]
1. Less than $50
2. $50 to $100
3. $101 to $150
4. $151 to $200
5. $201 to $250
6. $251 to $500
7. $501 to $1000
8. More than $1000
9. ELECTRICITY IS INCLUDED IN RENT
98. Don't know

[ASK ALL]

Q45. How would you describe the type of home you live in?
[SINGLE RESPONSE]
1. A detached single family home
2. An apartment
3. A townhouse/duplex/row house
4. A condominium
5. Mobile or manufactured home
96. Other, please specify: [OPEN-ENDED RESPONSE]
98. Don't know

[ASK ALL]

Q46. What year was your home built?

[SINGLE RESPONSE]

1. 2005-2011
2. 2000-2004
3. 1995-1999
4. 1990-1994
5. 1985-1989
6. 1980-1984
7. 1970-1979
8. 1960-1969
9. 1950-1959
10. 1940-1949
11. 1930-1939
12. 1920-1929
13. Before 1920
98. Don't know

[ASK ALL]

Q47. How many bedrooms are there in your home?

[SINGLE RESPONSE]

1. Choose one from the dropdown list (1 – 10+, Don't know)

[ASK IF S2=2 (RENT)]

Q48. How likely is it that you will own a home within the next five years?

[SINGLE RESPONSE]

1. Very unlikely
2. Somewhat unlikely
3. Somewhat likely
4. Very likely
98. Don't know

[ASK ALL]

Q49. How many people, including yourself, live in your household?

[SINGLE RESPONSE]

1. Choose one from the dropdown list (1 – 16, Don't know)

[ASK ALL]

Q50. Please record your gender.

[SINGLE RESPONSE]

1. Male
2. Female
96. Other, please specify: [OPEN-ENDED RESPONSE]
98. Don't know

Appendix B. NYS Counties by Region

DOWNSTATE	LONG ISLAND	MID HUDSON	UPSTATE	
New York	Suffolk	Westchester	Albany	Seneca
Richmond	Nassau	Putnam	Schenectady	Chenango
Bronx	Queens	Rockland	Montgomery	Wayne
	Kings	Orange	Greene	Lewis
		Ulster	Columbia	Herkimer
		Dutchess	Rensselaer	Jefferson
		Sullivan	Saratoga	Tioga
			Fulton	Broome
			Schoharie	Erie
			Otsego	Genesee
			Delaware	Niagara
			Warren	Wyoming
			Washington	Allegany
			Essex	Cattaraugus
			Clinton	Chautauqua
			Franklin	Orleans
			Saint Lawrence	Monroe
			Onondaga	Livingston
			Cayuga	Yates
			Oswego	Ontario
			Madison	Steuben
			Cortland	Schuyler
			Tompkins	Chemung
			Oneida	

Appendix C. Segmentation Analysis

The national Consumer Pulse Study used the Smart Grid Consumer Collaborative's market segments as the primary analytical cross variable. Appendix C shows the relevant analysis by this market segment among the NYS sample.

Each market segment exhibits likely demographic, housing, and attitudinal characteristics, shown in *Table C-1* to *Table C-5*.

Table C-1: Status Quo Segment Characteristics

DEMOGRAPHIC AND HOUSING — MORE LIKELY…
Baby Boomers
Lower income or belonging to the low-income class
Single, living alone
Non-college educated
Retired
Living in multifamily, manufactured or mobile homes
Living in rural areas
Lower average electric bills
Living in smaller homes
ATTITUDES AND BEHAVIORS — MORE LIKELY…
Lower Smart Grid/meter awareness
Know little about energy efficiency and don't think it's important
Satisfied with current utility
Preferring to purchase from current provider
Attach low importance to Smart Grid benefits and smart technology programs and services

Table C-2: Technology Cautious Segment Characteristics

DEMOGRAPHIC AND HOUSING — MORE LIKELY…
Greatest Generation
Belonging to the middle-income class
Single, living alone
Retired
Living in multifamily, manufactured or mobile homes
Lower average summer and winter electric bills
ATTITUDES AND BEHAVIORS — MORE LIKELY…
Higher Smart Grid/meter awareness
Knowledgeable about energy efficiency
Satisfied with current utility
Preferring to purchase from current provider
Attach low importance to Smart Grid benefits and smart technology programs and services

Table C-3: Saving Seekers Characteristics

DEMOGRAPHIC AND HOUSING — MORE LIKELY…
Generation X
Lower income or belonging to the lower-income class
Non-college educated
Unemployed
Living in larger homes (# bedrooms)
Living in single family homes
Moderate to high average summer and winter electric bills

ATTITUDES AND BEHAVIORS — MORE LIKELY…
Lower satisfaction with current provider and want a choice
Lower awareness of Smart Grid/meters
Highest interest in pricing options
Average level of interest in new utility services
Higher interest in home energy efficiency

Table C-4: Movers & Shakers Segment Characteristics

DEMOGRAPHIC AND HOUSING — MORE LIKELY…
College educated
Unemployed
Higher income or belonging to the higher-income class
Lower summer electric bills and high winter electric bills
Live in the Pacific Region
Living in suburban areas

ATTITUDES AND BEHAVIORS — MORE LIKELY…
Attach above average importance to home energy efficiency
Higher level of energy efficiency knowledge
Lower satisfaction with current provider and want a choice
Average level of interest in pricing options

Table C-5: Green Champions Segment Characteristics

DEMOGRAPHIC AND HOUSING — MORE LIKELY…
Millennials
Higher income or belonging to the higher-income class
College educated
Employed
Living in non-rural areas
Living in multifamily homes

ATTITUDES AND BEHAVIORS — MORE LIKELY…
Average level of utility satisfaction and want a choice of providers
Attach a higher importance to Smart Grid benefits
Higher interest in pricing options
Higher interest in new utility services
Higher interest in new energy technologies

Table C-6 summarizes the most dominant characteristics of the five segments.[5]

Table C-6: Summary of Dominant Segments Characteristics

	STATUS QUO	TECHNOLOGY CAUTIOUS	SAVINGS SEEKERS	MOVERS & SHAKERS	GREEN CHAMPIONS
Generation	Baby Boomers	Greatest Generation	Generation X		Millennials
Income/class	Low	Middle	Low		High
Education	No college		No college	College	College
Employment	Retired	Retired	Unemployed	Unemployed	Employed
Community type	Rural				Urban/ Suburban
Housing type	Multifamily or Manufactured	Multifamily or Manufactured	Larger homes		
Smart Grid/Meter awareness	Low	High	Low		
Energy efficiency importance	Low		High	High	High
Energy efficiency knowledge	Low	High		High	
Importance of Smart Grid benefits	Low	Low			High
Interest in new utility services	Low	Low	Average	Average	High
Interest in new technologies	Low	Low			High
Satisfaction with utility	High	High	Low	Low	Average

Figure C-1: Awareness and Knowledge of Smart Grid by Segment
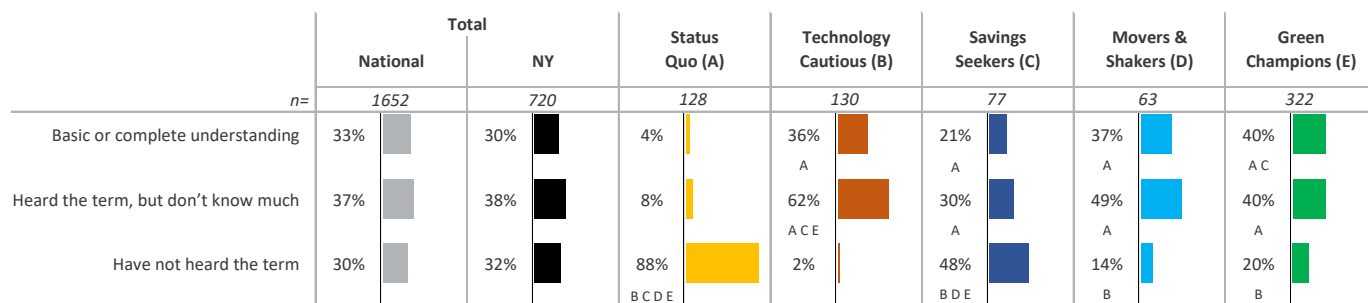
	Total		Status Quo (A)	Technology Cautious (B)	Savings Seekers (C)	Movers & Shakers (D)	Green Champions (E)
	National	NY					
n=	1652	720	128	130	77	63	322
Basic or complete understanding	33%	30%	4%	36% A	21% A	37% A	40% A C
Heard the term, but don't know much	37%	38%	8%	62% A C E	30% A	49% A	40% A
Have not heard the term	30%	32%	88% B C D E	2%	48% B D E	14% B	20% B

Note: A, B, C, D, E indicate statistical significant differences between regions.
* Indicates significant difference between New York and National Samples.
Q1: Which of the following statement best describes your current level of knowledge about the "Smart Grid"?

[5] It should be noted that these market segments have a limited ability of characterization, and over-characterization is a common pitfall in market segmentation exercises. Though the primary task of segmentation exercises is connecting attributes to segments (for instance, Millennials to Green Champions), most segments are more diverse than the attribute itself. In fact, Green Champions for example is constituted with respondents of all the generations, despite the labeling of Millennials. It simply means that Green Champions have – statistically speaking – disproportionately higher chance of being Millennials. Black cells indicate there is no statistically significant or distinct characteristics for the segment.

Figure C-2: Awareness and Knowledge of Smart Meters by Segment

	Total		Status Quo (A)	Technology Cautious (B)	Savings Seekers (C)	Movers & Shakers (D)	Green Champions (E)
	National	NY					
n=	1652	720	128	130	77	63	322
Basic or complete understanding	39%	31% *	6%	30% A	21% A	43% A	41% A C
Heard the term, but don't know much	34%	34%	15%	56% A E	35% A	37% A	33% A
Have not heard the term	27%	35%	79% B C D E	14%	44% B D E	20%	26%

Note: A, B, C, D, E indicate statistical significant differences between regions.

* Indicates significant difference between New York and National Samples.

Q2: Which of the following statement best describes your current level of knowledge about a "Smart Meters"?

Figure C-3: Importance of Potential Smart Grid Benefits by Segment

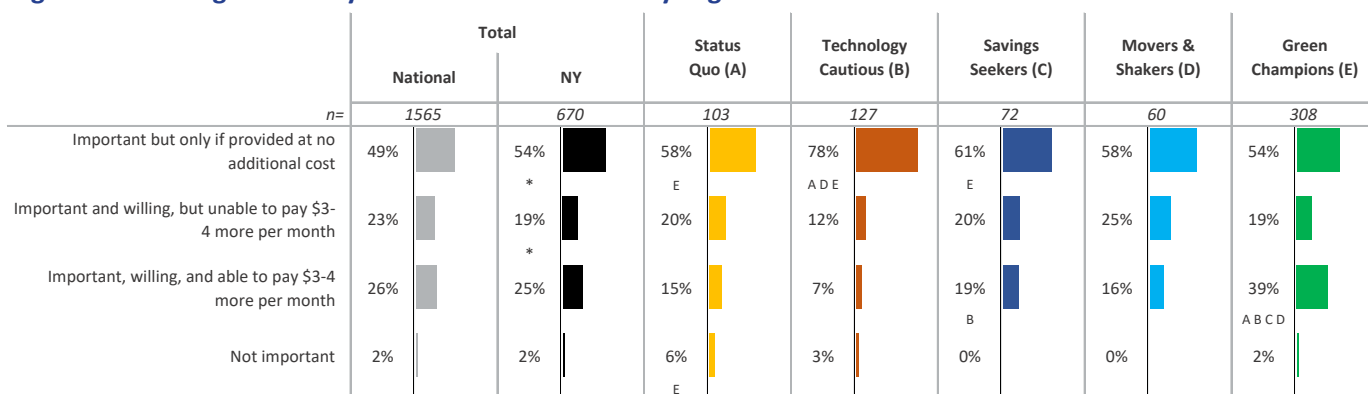|	Total		Status Quo (A)	Technology Cautious (B)	Savings Seekers (C)	Movers & Shakers (D)	Green Champions (E)
	National	NY					
n=	1477-1523	631-656	90-95	115-121	67-72	58-62	297-306
Save money by using energy more efficiently	74%	73%	73%	68%	73%	66%	73%
Prevent and reduce length of outages	70%	69%	66%	66%	76%	67%	69%
Reducing greenhouse gas emissions by making it easier to connect renewable	65%	68%	66%	60%	69%	64%	68%
Limiting the need for new power plants	62%	63%	64%	58%	58%	57%	63%
Provide instant information to increase operational efficiency for utility	58%	59%	59%	54%	58%	51%	59%
Deliver quality power for increasingly digital homes	56%	58%	52%	55%	47%	61%	58%
Range of rate and billing programs	59%	55% *	48%	55%	54%	58%	55%
Meet the requirements for electric vehicles	45%	50% *	46%	54%	36%	53%	50%

* Indicates significant difference between New York and National Samples.

Note: The percent above are those reporting each benefit as "important". Analysis excludes "Don't Know" responses. A, B, C, D, E indicate statistically significant differences between segments.

Q7: Smart grid refers to a set of new technologies to upgrade the grid that carries electricity to homes and businesses. Smart meters are part of the smart grid system. They provide more detailed information about when consumers are using electricity. The following statements describe potential benefits of smart grid and smart meters. For each one, please indicate how important each benefit is to you.

Figure C-4: Willingness to Pay for Smart Grid Benefits by Segment

	Total National	Total NY	Status Quo (A)	Technology Cautious (B)	Savings Seekers (C)	Movers & Shakers (D)	Green Champions (E)
n=	1565	670	103	127	72	60	308
Important but only if provided at no additional cost	49%	54% *	58% E	78% A D E	61% E	58%	54%
Important and willing, but unable to pay $3-4 more per month	23%	19% *	20%	12%	20%	25%	19%
Important, willing, and able to pay $3-4 more per month	26%	25%	15%	7%	19% B	16%	39% A B C D
Not important	2%	2%	6% E	3%	0%	0%	2%

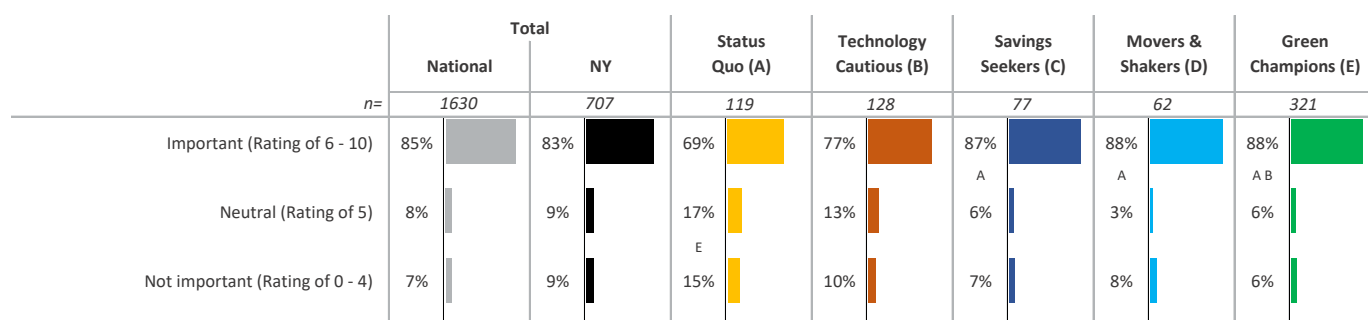* Indicates significant difference between New York and National Samples.

Note: Analysis excludes "Don't Know" responses. A, B, C, D, E indicate statistically significant differences between segments.

Q8: As the list on the last screen just described, the smart grid helps you save money by providing near real-time energy usage information, new rate plans, and the ability to better manage electricity use. Would you say these smart grid benefits are...
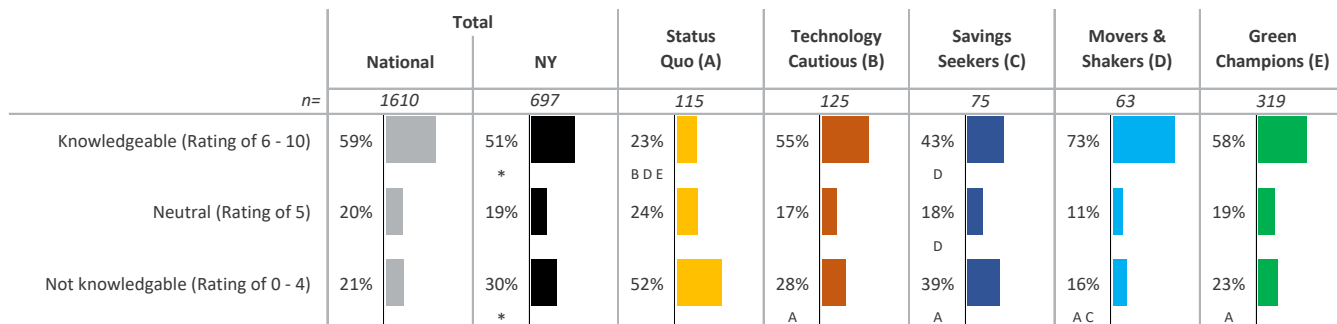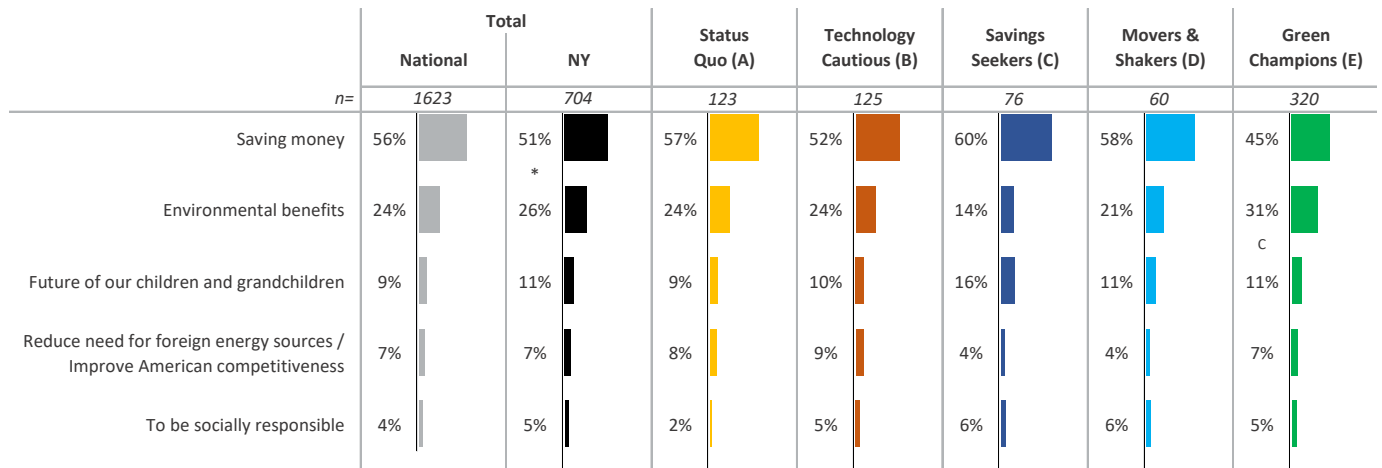
Figure C-5: Importance of Having an Energy Efficient Home by Segment

	Total National	Total NY	Status Quo (A)	Technology Cautious (B)	Savings Seekers (C)	Movers & Shakers (D)	Green Champions (E)
n=	1630	707	119	128	77	62	321
Important (Rating of 6 - 10)	85%	83%	69%	77%	87% A	88% A	88% A B
Neutral (Rating of 5)	8%	9%	17% E	13%	6%	3%	6%
Not important (Rating of 0 - 4)	7%	9%	15%	10%	7%	8%	6%

Note: Analysis excludes "Don't Know" responses. A, B, C, D, E indicate statistically significant differences between segments.

Q4: How important is it to you, personally, to know that your home is energy efficient and that you have done all that you can to lower your energy costs?

Figure C-6: Level of Knowledge on How to Make Home Energy Efficient by Segment

	Total National	Total NY	Status Quo (A)	Technology Cautious (B)	Savings Seekers (C)	Movers & Shakers (D)	Green Champions (E)
n=	1610	697	115	125	75	63	319
Knowledgeable (Rating of 6 - 10)	59%	51% *	23% B D E	55%	43% D	73%	58%
Neutral (Rating of 5)	20%	19%	24%	17%	18% D	11%	19%
Not knowledgable (Rating of 0 - 4)	21%	30% *	52% A	28% A	39% A	16% A C	23% A

* Indicates significant difference between New York and National Samples.

Note: Analysis excludes "Don't Know" responses. A, B, C, D, E indicate statistically significant differences between segments.

Q3: How knowledgeable are you about actions you can take to make your home more energy efficient?

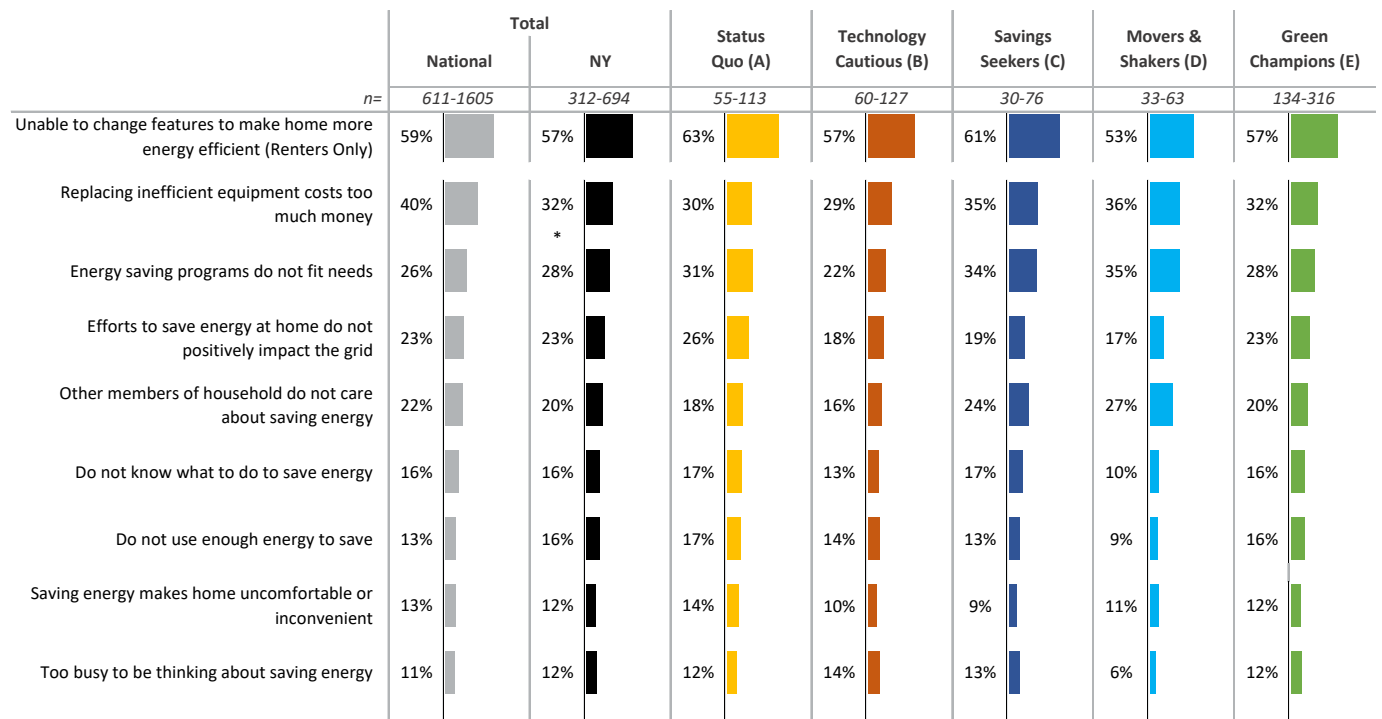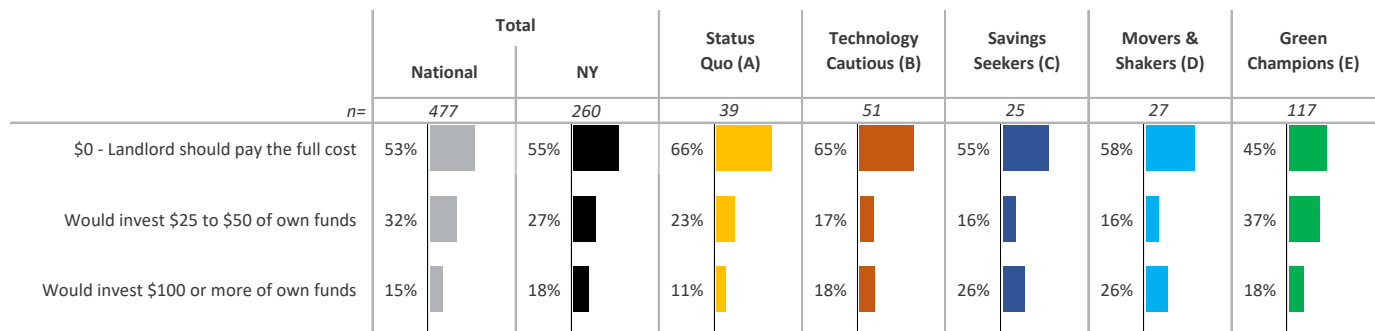## Figure C-7: Most Important Reason for Saving Energy by Segment

	Total		Status Quo (A)	Technology Cautious (B)	Savings Seekers (C)	Movers & Shakers (D)	Green Champions (E)
	National	NY					
n=	1623	704	123	125	76	60	320
Saving money	56%	51% *	57%	52%	60%	58%	45%
Environmental benefits	24%	26%	24%	24%	14%	21%	31% c
Future of our children and grandchildren	9%	11%	9%	10%	16%	11%	11%
Reduce need for foreign energy sources / Improve American competitiveness	7%	7%	8%	9%	4%	4%	7%
To be socially responsible	4%	5%	2%	5%	6%	6%	5%

* Indicates significant difference between New York and National Samples.

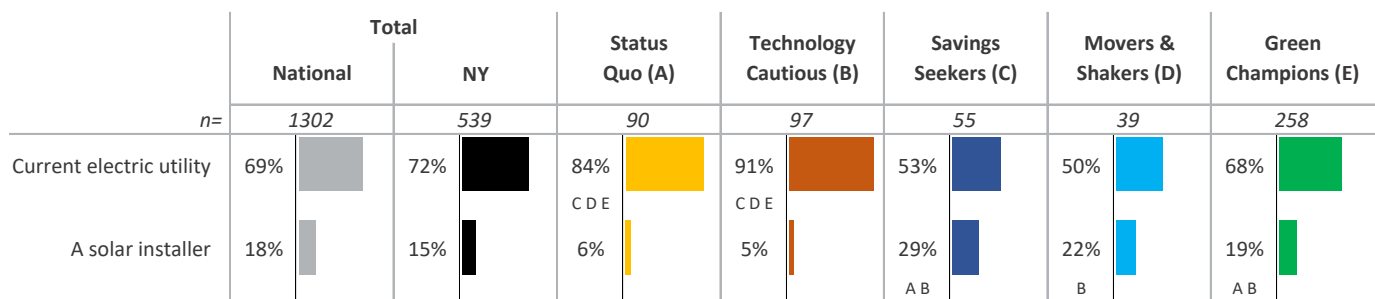Note: Analysis excludes "Don't Know" responses and those who said, "savings energy is not important to me." A, B, C, D, E indicate statistically significant differences between segments.

Q5: In your opinion, which of the following is the most important reason to save energy?

Figure C-8: Barriers to Engaging in Energy-Saving Activities by Segment

	Total		Status Quo (A)	Technology Cautious (B)	Savings Seekers (C)	Movers & Shakers (D)	Green Champions (E)
	National	NY					
n=	611-1605	312-694	55-113	60-127	30-76	33-63	134-316
Unable to change features to make home more energy efficient (Renters Only)	59%	57%	63%	57%	61%	53%	57%
Replacing inefficient equipment costs too much money	40%	32% *	30%	29%	35%	36%	32%
Energy saving programs do not fit needs	26%	28%	31%	22%	34%	35%	28%
Efforts to save energy at home do not positively impact the grid	23%	23%	26%	18%	19%	17%	23%
Other members of household do not care about saving energy	22%	20%	18%	16%	24%	27%	20%
Do not know what to do to save energy	16%	16%	17%	13%	17%	10%	16%
Do not use enough energy to save	13%	16%	17%	14%	13%	9%	16%
Saving energy makes home uncomfortable or inconvenient	13%	12%	14%	10%	9%	11%	12%
Too busy to be thinking about saving energy	11%	12%	12%	14%	13%	6%	12%

* Indicates significant difference between New York and National Samples.

Note: The percent above are those reporting each barrier as "very often applies" or "always applies". Analysis excludes "Don't Know" responses.

Q9: The following is a list of potential challenges people may have to be engaged in energy-saving activities at home. For each one, please tell us how often each applies to you.

Figure C-9: Barriers to Making Energy Efficiency Improvements for Renters by Segment
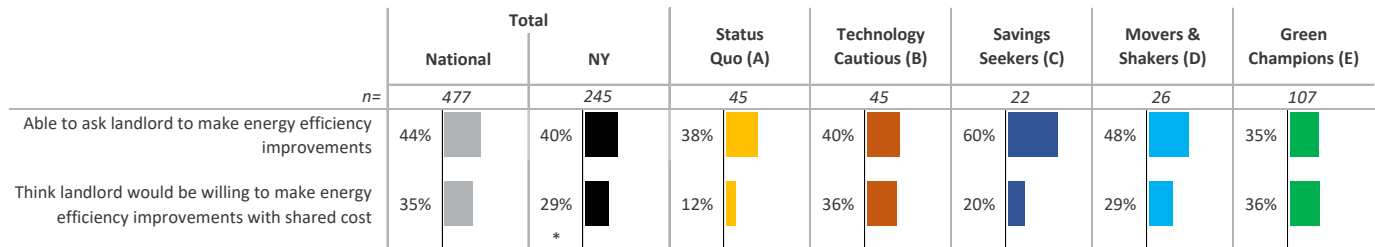
	Total		Status Quo (A)	Technology Cautious (B)	Savings Seekers (C)	Movers & Shakers (D)	Green Champions (E)
	National	NY					
n=	477	245	45	45	22	26	107
Able to ask landlord to make energy efficiency improvements	44%	40%	38%	40%	60%	48%	35%
Think landlord would be willing to make energy efficiency improvements with shared cost	35%	29% *	12%	36%	20%	29%	36%

* Indicates significant difference between New York and National samples.

Note: Analysis excludes "Don't Know" responses. A, B, C, D, E indicate statistically significant differences between segments.

Q23: Are you able to ask your landlord to make improvements to your house or apartment to improve efficiency and lower your electricity bill?

Q24: Do you think your landlord or property owner would make a small investment improving your home or apartment to save on electricity if you shared the cost?

Figure C-10: Renters' Willingness to Pay for Efficiency Improvements by Segment

	Total		Status Quo (A)	Technology Cautious (B)	Savings Seekers (C)	Movers & Shakers (D)	Green Champions (E)
	National	NY					
n=	477	260	39	51	25	27	117
$0 - Landlord should pay the full cost	53%	55%	66%	65%	55%	58%	45%
Would invest $25 to $50 of own funds	32%	27%	23%	17%	16%	16%	37%
Would invest $100 or more of own funds	15%	18%	11%	18%	26%	26%	18%

Q25: How much would you be willing to invest of your own funds if you knew it would return an equal or higher savings on your electric bill?

Figure C-11: Level of Satisfaction with Electric Utility by Segment
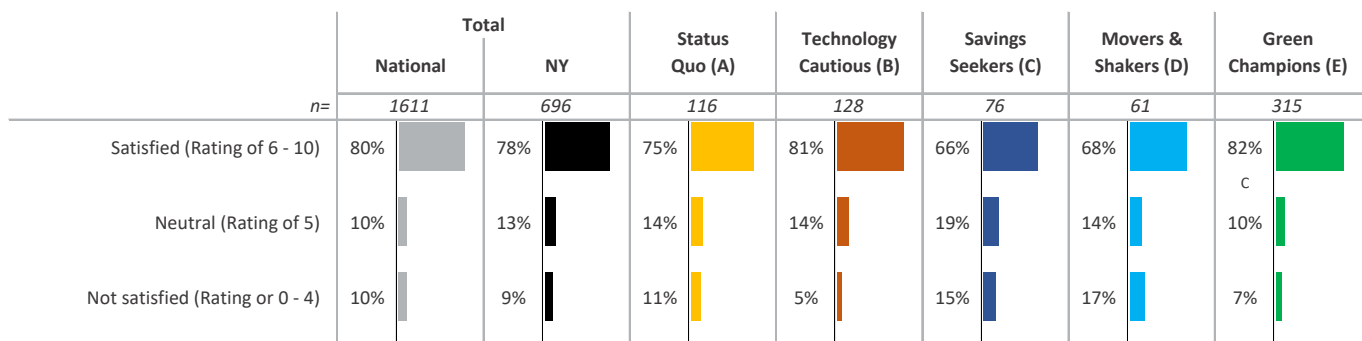
	Total		Status Quo (A)	Technology Cautious (B)	Savings Seekers (C)	Movers & Shakers (D)	Green Champions (E)
	National	NY					
n=	1611	696	116	128	76	61	315
Satisfied (Rating of 6 - 10)	80%	78%	75%	81%	66%	68%	82% c
Neutral (Rating of 5)	10%	13%	14%	14%	19%	14%	10%
Not satisfied (Rating or 0 - 4)	10%	9%	11%	5%	15%	17%	7%

Note: Analysis excludes "Don't Know" responses. A, B, C, D, E indicate statistically significant differences between segments.

Q16: Based on your overall experience, how satisfied are you with your electricity company?

Figure C-12: Accuracy of Utility Outage Reporting by Segment
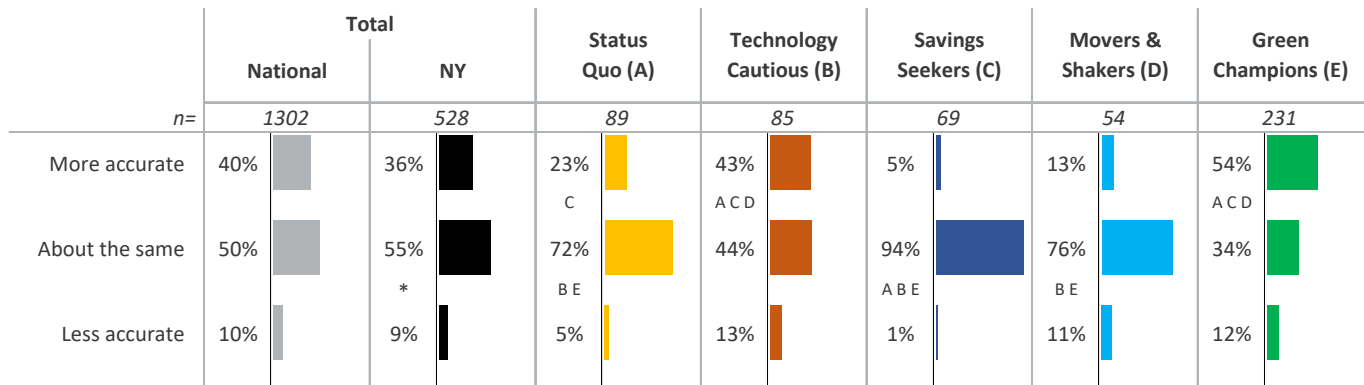
	Total		Status Quo (A)	Technology Cautious (B)	Savings Seekers (C)	Movers & Shakers (D)	Green Champions (E)
	National	NY					
n=	1302	528	89	85	69	54	231
More accurate	40%	36%	23% C	43% A C D	5%	13%	54% A C D
About the same	50%	55% *	72% B E	44%	94% A B E	76% B E	34%
Less accurate	10%	9%	5%	13%	1%	11%	12%

* Indicates significant difference between New York and National Samples.

Note: Analysis excludes "Don't Know" responses and those respondents who have not experience an outage in the past five years. A, B, C, D, E indicate statistically significant differences between segments.

Q6: Thinking about when the power is out, would you say the time your electricity company gives you for having your power restored is more accurate, about the same, or less accurate than estimated restoration times from five years ago?

Figure C-13: Preferred Choice of Electricity Service Provider by Segment

	Total		Status Quo (A)	Technology Cautious (B)	Savings Seekers (C)	Movers & Shakers (D)	Green Champions (E)
	National	NY					
n=	1302	539	90	97	55	39	258
Current electric utility	69%	72%	84% C D E	91% C D E	53%	50%	68%
A solar installer	18%	15%	6%	5%	29% A B	22% B	19% A B

* Indicates significant difference between New York and National Samples.

Note: Analysis excludes "another electricity company" and "a telecom provider" responses which were available as response options in the survey because these are not valid responses for residents of NYS, therefore national percent doesn't add up to 100%. Analysis also excludes "Don't Know" and "Other" responses and those respondents who do not pay electricity. A, B, C, D, E indicate statistically significant differences between segments.

Q17: If you have a choice of which company you can buy electricity from, would you choose . . .

Figure C-14: Support of Electric Utility Clean Energy Expansion by Segment
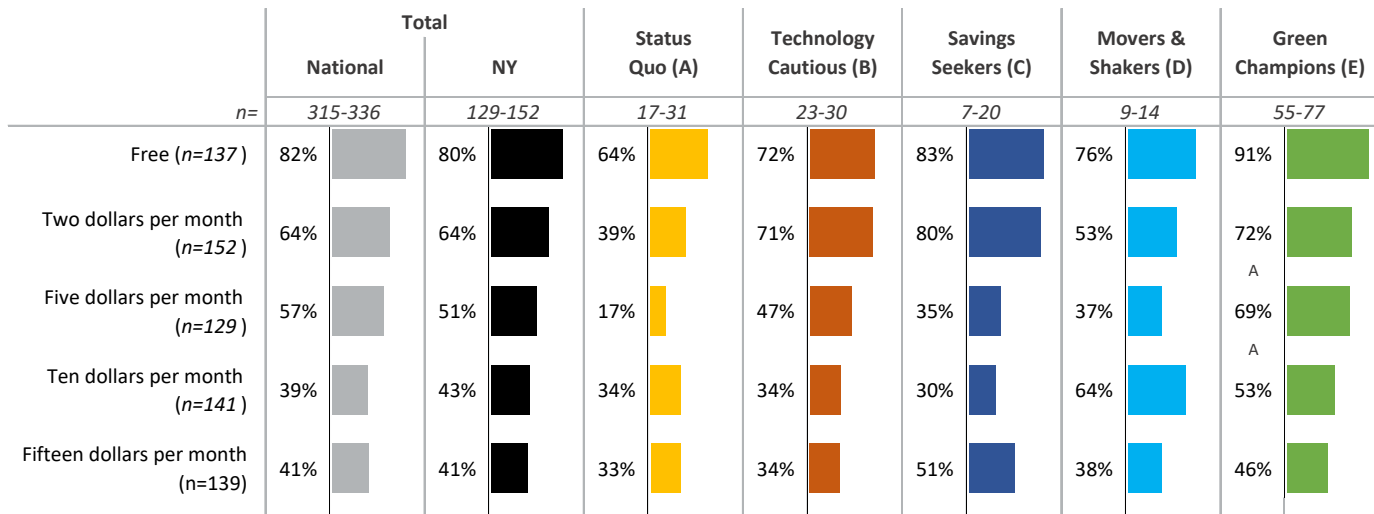
	Total		Status Quo (A)	Technology Cautious (B)	Savings Seekers (C)	Movers & Shakers (D)	Green Champions (E)
	National	NY					
n=	315-336	129-152	17-31	23-30	7-20	9-14	55-77
Free (n=137)	82%	80%	64%	72%	83%	76%	91%
Two dollars per month (n=152)	64%	64%	39%	71%	80%	53%	72% A
Five dollars per month (n=129)	57%	51%	17%	47%	35%	37%	69% A
Ten dollars per month (n=141)	39%	43%	34%	34%	30%	64%	53%
Fifteen dollars per month (n=139)	41%	41%	33%	34%	51%	38%	46%

Note: Sample sizes vary because we randomly assigned equal proportions of respondents to each of the five price levels. The percent include responses "probably would support" and "definitely would support". Analysis excludes "Don't Know" responses.

Q15: Suppose your electricity company wanted to greatly expand its use of a range of clean energy sources, such as solar energy, wind power, geothermal and biomass, and estimated that the extra cost reflected on your bill would be about [Amount] dollars per month per customer. Based on that assumption, how likely would you be to support your electricity company's plan to expand clean energy?

Figure C-15: Contact with Electric Utility in Past Six Months by Segment
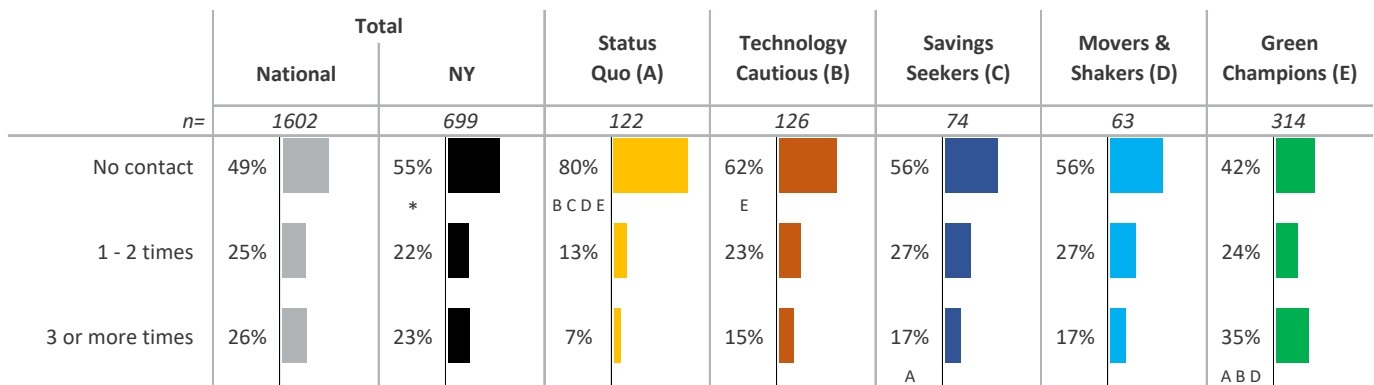
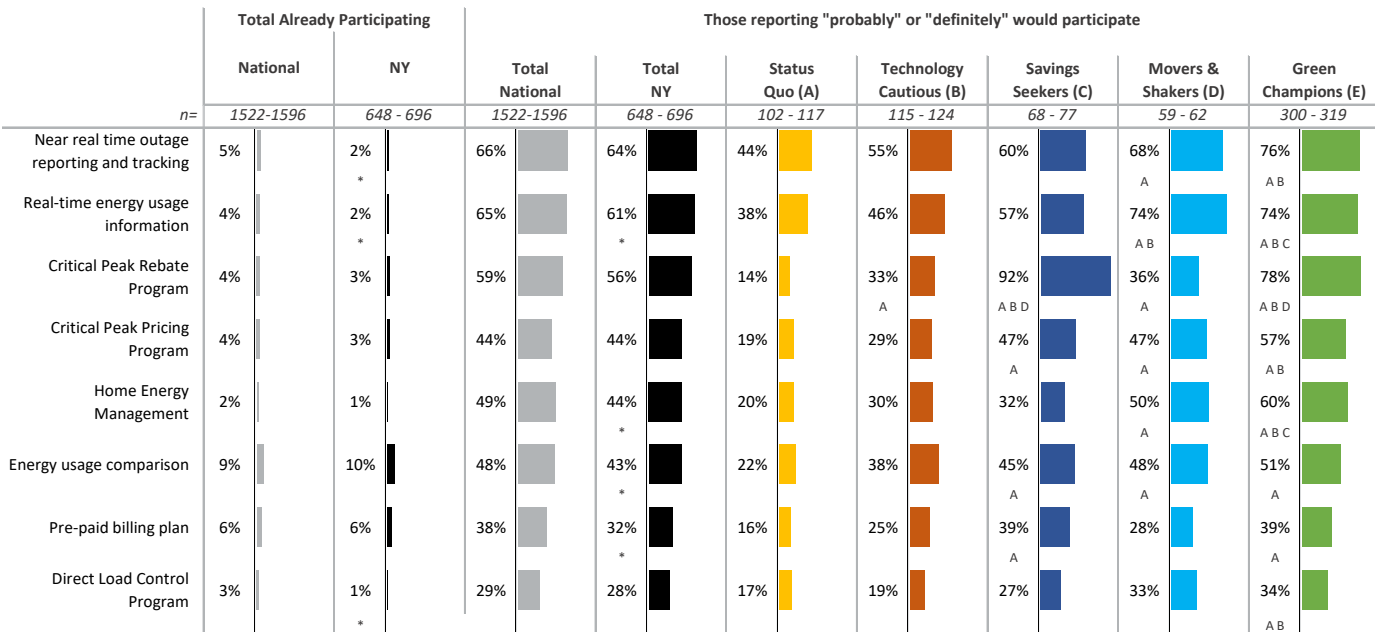|	Total		Status Quo (A)	Technology Cautious (B)	Savings Seekers (C)	Movers & Shakers (D)	Green Champions (E)
	National	NY					
n=	1602	699	122	126	74	63	314
No contact	49%	55% *	80% B C D E	62% E	56%	56%	42%
1 - 2 times	25%	22%	13%	23%	27%	27%	24%
3 or more times	26%	23%	7%	15%	17% A	17%	35% A B D

* Indicates significant difference between New York and National Samples.

Note: Analysis excludes "Don't Know" responses. A, B, C, D, E indicate statistically significant differences between segments.

Q21: How many times have you been in contact with your electricity company in the last 6 months, for example, by phone, online, by visiting their office in-person, or in some other way?

Figure C-16: Mode of Contact with Electric Utility by Segment

	Total		Greatest Generation (A)	Baby Boomers (B)	Generation X (C)	Millennials (D)
	National	NY				
n=	859	345	14	108	105	118
By telephone	52%	55%	64%	52%	56%	57%
Visited electricity utility's website	49%	46%	52%	53%	46%	37%
Received or sent an email to my electricity utility	15%	14%	12%	10%	15%	16%
Visited office or service center	14%	14%	0%	6%	15%	22% B
Received or sent a text message to electricity utility	6%	11% *	0%	7%	12%	15%
Someone from electricity utility came to house	7%	9%	8%	3%	8%	17% B
Used smart phone application	7%	7%	0%	4%	5%	12%
Posted a comment on electricity utility's social media	2%	5%	0%	1%	4%	12% B
Some other method	2%	1%	0%	3%	1%	0%

* Indicates significant difference between New York and National Samples.

Note: Analysis excludes "Don't Know" responses. A, B, C, D, E indicate statistically significant differences between segments.

Q22: Which of the following methods have you used to contact your electricity company or has your electricity company used to contact you in the last 6 months?

Figure C-17: Ever Visiting Electric Utility Website by Segment

	Total		Status Quo (A)	Technology Cautious (B)	Savings Seekers (C)	Movers & Shakers (D)	Green Champions (E)
	National	NY					
n=	1615	704	122	122	76	63	321
Visited electric utility website	61%	57% *	28%	48% A	53% A	54% A	74% A B C D

* Indicates significant difference between New York and National Samples.

Q20: Have you ever visited your electricity company's website?

Note: A, B, C, D, E indicate statistically significant differences between segments.

Figure C-18: Social Media Use by Segment

(Multiple Response Allowed)
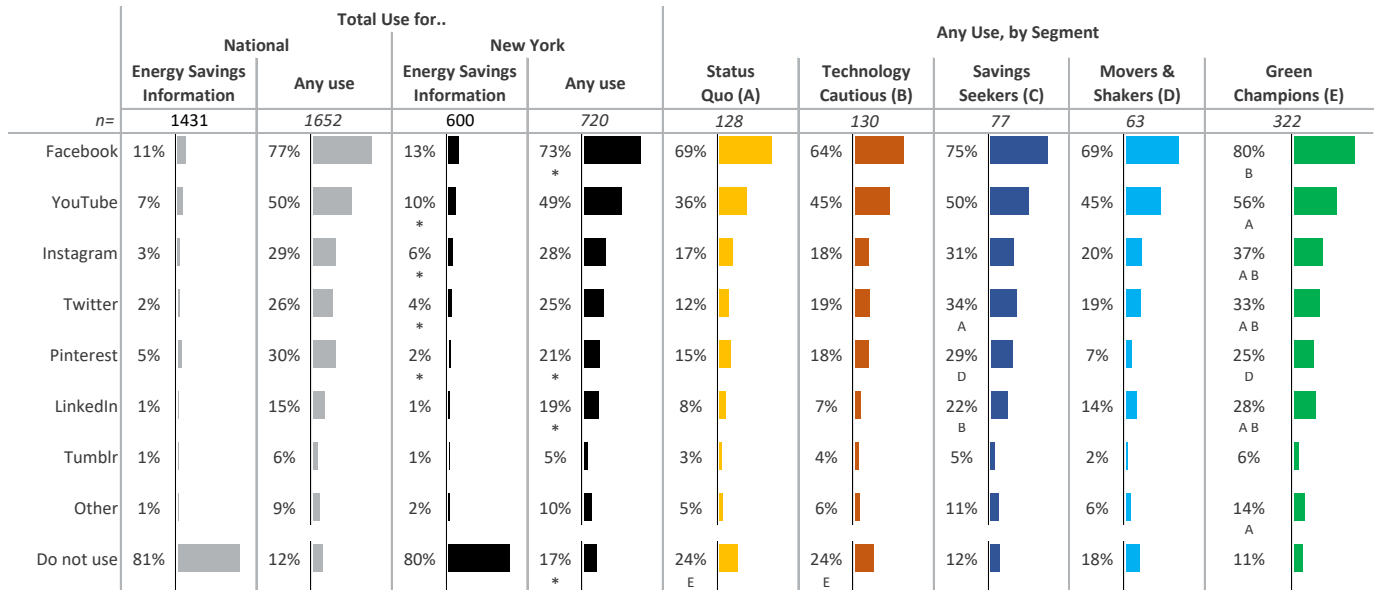
| | Total Use for.. | | | | Any Use, by Segment | | | | |
| | National | | New York | | | | | | |
	Energy Savings Information	Any use	Energy Savings Information	Any use	Status Quo (A)	Technology Cautious (B)	Savings Seekers (C)	Movers & Shakers (D)	Green Champions (E)
n=	1431	1652	600	720	128	130	77	63	322
Facebook	11%	77%	13%	73% *	69%	64%	75%	69%	80% B
YouTube	7%	50%	10% *	49%	36%	45%	50%	45%	56% A
Instagram	3%	29%	6% *	28%	17%	18%	31%	20%	37% A B
Twitter	2%	26%	4% *	25%	12%	19%	34% A	19%	33% A B
Pinterest	5%	30%	2% *	21% *	15%	18%	29% D	7%	25% D
LinkedIn	1%	15%	1%	19% *	8%	7%	22% B	14%	28% A B
Tumblr	1%	6%	1%	5%	3%	4%	5%	2%	6%
Other	1%	9%	2%	10%	5%	6%	11%	6%	14% A
Do not use	81%	12%	80%	17% *	24% E	24% E	12%	18%	11%

* Indicates significant difference between New York and National Samples.

Note: Analysis excludes "Don't Know" responses. A, B, C, D, E indicate statistically significant differences between segments.

Q18: Which of the following social media do you routinely use?

Q19: Which of the social media you mentioned, if any, are you using to help you manage energy usage or get energy efficiency tips?

Figure C-19: Interest and Participation in Utility Programs by Segment

| | Total Already Participating | | Those reporting "probably" or "definitely" would participate | | | | | | |
	National	NY	Total National	Total NY	Status Quo (A)	Technology Cautious (B)	Savings Seekers (C)	Movers & Shakers (D)	Green Champions (E)
n=	1522-1596	648 - 696	1522-1596	648 - 696	102 - 117	115 - 124	68 - 77	59 - 62	300 - 319
Near real time outage reporting and tracking	5%	2% *	66%	64%	44%	55%	60%	68% A	76% A B
Real-time energy usage information	4%	2% *	65%	61% *	38%	46%	57%	74% A B	74% A B C
Critical Peak Rebate Program	4%	3%	59%	56%	14%	33% A	92% A B D	36% A	78% A B D
Critical Peak Pricing Program	4%	3%	44%	44%	19%	29%	47% A	47% A	57% A B
Home Energy Management	2%	1%	49%	44% *	20%	30%	32%	50% A	60% A B C
Energy usage comparison	9%	10%	48%	43% *	22%	38%	45% A	48% A	51% A
Pre-paid billing plan	6%	6%	38%	32% *	16%	25%	39% A	28%	39% A
Direct Load Control Program	3%	1% *	29%	28%	17%	19%	27%	33%	34% A B

* Indicates significant difference between New York and National Samples.

Note: The percent (other than the 'total already participating' column) includes 'probably would participate' and 'definitely would participate'. Analysis excludes "Don't Know" responses. A, B, C, D, E indicate statistically significant differences between segments.

Q10/Q13: [Program description] If you were offered this program, how likely would you be to participate?

Figure C-20: Use and Interest in other Smart Grid-Enabled Products by Segment

	Total Already Using		Those reporting "somewhat" or "very" interested in using or purchasing						
	National	NY	Total National	Total NY	Status Quo (A)	Technology Cautious (B)	Savings Seekers (C)	Movers & Shakers (D)	Green Champions (E)
n=	1596-1624	696 - 703	1596-1624	696 - 703	120 - 122	122 - 129	74 - 76	60 - 62	314 - 322
An energy storage system	2%	2%	74%	68% *	45%	61%	76% A	73% A	68% A B
Rooftop or a shared solar installation	2%	2%	58%	55%	34%	43%	59% A	53%	55% A B
Programable or smart thermostat	9%	9%	56%	54%	36%	39%	54%	57%	54% A B
Appliances with communication capabilities	1%	2%	51%	48%	27%	40%	50% A	53% A	48% A B
Online billing and/or payment	40%	37%	35%	35%	22%	35%	46% A	39%	35% A
An all-electric or plug-in hybrid vehicle	1%	1%	38%	34% *	18%	24%	33%	34%	34% A B

* Indicates significant difference between New York and National Samples.

Note: The percent (other than the 'total already use or have' column) includes "somewhat interested" and "very interested" responses". Analysis excludes "Don't Know" responses. A, B, C, D, E indicate statistically significant differences between segments.

Q11/Q12/Q14: [Product description] how interested would you be in purchasing...

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