BATTLE OF THE BUILDINGS

TEAM CHALLENGE

EPA's NATIONAL BUILDING COMPETITION

ENERGY STAR

2015 WRAP-UP REPORT

EPA United States Environmental Protection Agency

EPA's 2015 ENERGY STAR® National Building Competition: Team Challenge!

Teaming up for a second time

In 2015, EPA invited buildings back for the second consecutive year of Battle of the Buildings: Team Challenge! In the sixth installment of the ENERGY STAR® National Building Competition, more than 6,500 buildings and 125 teams—each consisting of five or more diverse buildings, including retail stores, university buildings, and even animal shelters—lined up at the starting blocks and raced to slim down their energy and water "wastelines." Over the year-long competition, they shed excess energy and water waste, reduced greenhouse gas emissions, and saved money along the way!

The ground rules

Before the starting flag was waved, all competing buildings used EPA's ENERGY STAR Portfolio Manager® tool to establish their starting energy "weights," defined as their energy use adjusted for weather and building size. Some competitors upped the ante by joining an optional category to compete to reduce water use, too. Once the race was on, competitors worked off the waste through improvements in energy and water efficiency with help from EPA's ENERGY STAR and WaterSense® programs, and tracked their monthly energy and water consumption using Portfolio Manager.

At the end of the competition, the team that demonstrated the largest percentage reduction in energy "weight"—compared to the 2014 calendar year and verified by a licensed Professional Engineer or Registered Architect—was declared the winner! EPA also recognized the top teams and buildings to save the most water, as well as the top buildings in each category and any building that improved 20 percent or more. The competitors passed the finish line in December 2015, but their improved performance can yield savings for many years to come.

There were many winners...but only one biggest energy loser

Competitors made great strides in energy and water efficiency through a variety of savings strategies, including implementing behavioral changes, upgrading inefficient equipment, optimizing mechanical systems, and more. The team that took home the gold for energy savings was the **Texas A&M – ESCO Project team,** which improved energy efficiency by 35.5 percent and saved more than $548,900 over the course of the competition! Texas A&M wasn't the only competitor to win big – 69 buildings cut energy use and 41 buildings cut water use by more than 20 percent in just 12 months!

Learn from these winners' path to victory!

From improvements in operations and maintenance to upgrades in equipment and technology, competitors pulled out all the stops to improve efficiency. Get their best energy-saving advice and check out their successful strategies in the following pages.

How to read this report

Look for the icons at the top of each profile to find out whether the winners were recognized for energy improvements, water improvements, or both.

Energy profile

Water profile

Energy and water profile

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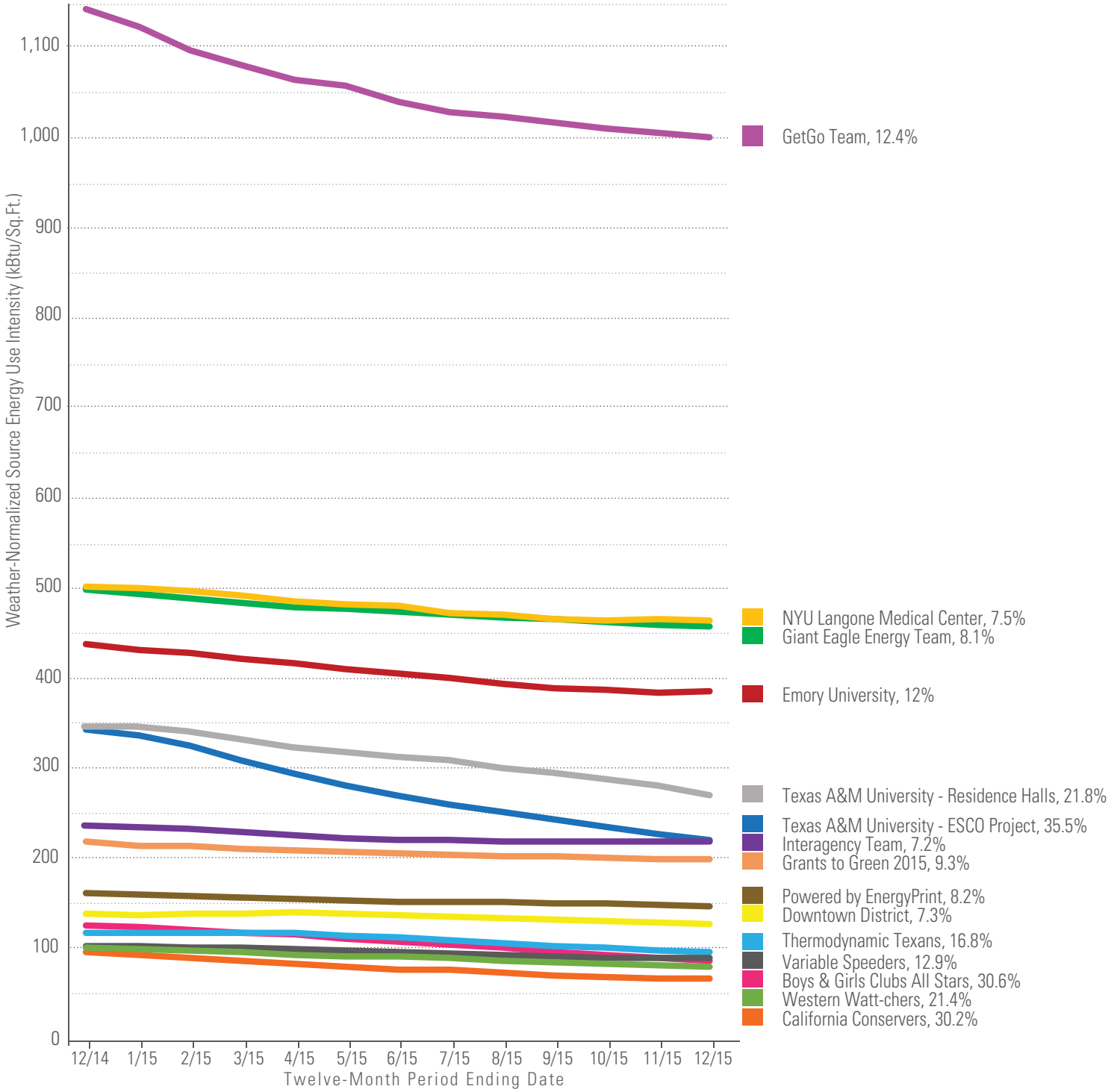
BATTLE TO THE FINISH

The 12-month path to energy savings for the competition's top teams.



How were competitors judged?

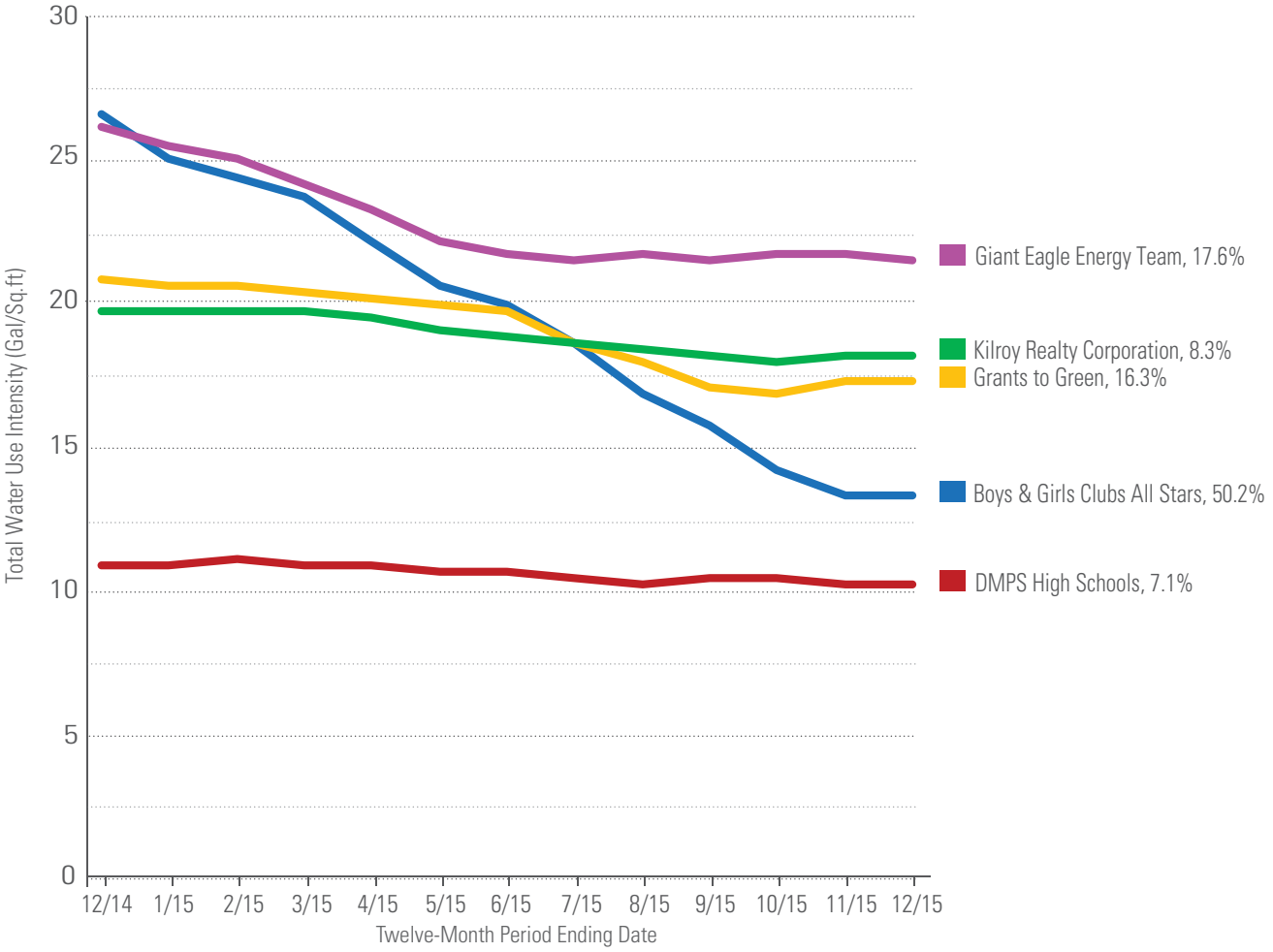
Competitors were judged on their percentage-based reduction in weather-normalized source energy use intensity. The competition period ran from January 1, 2015 – December 31, 2015.

What is energy use intensity?

EUI is calculated as annual kBtu/square footage. Generally, a low EUI signifies good energy performance, although certain building types will always use more energy than others.

BATTLE TO THE FINISH

The 12-month path to water savings for the competition's top teams.



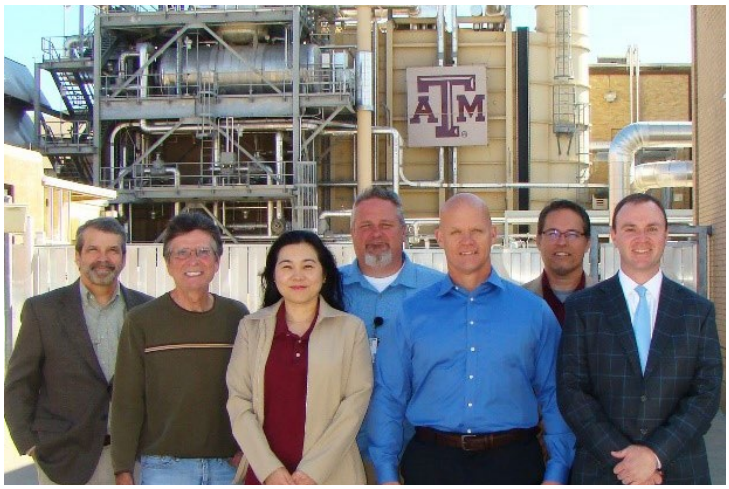
How were competitors judged?
Competitors were judged on their percentage-based reduction in water use intensity. The competition period ran from January 1, 2015 – December 31, 2015.

What is water use intensity?
WUI is calculated as annual gallons/square footage. Generally, a low WUI signifies good energy performance, although certain building types will always use more water than others.

THE WINNING TEAM IS…

Texas A&M University - ESCO Project

College Station, Texas



Pictured: Texas A&M University ESCO Project Team

RECOGNITION:

#1 Team Energy Reduction

20% Energy Reduction

SAVINGS:

35.5% Energy Savings

1,726 MtCO2e Greenhouse Gas Emissions Prevented

TOP TEAM ENERGY REDUCTION

These teams were verified to have reduced their collective energy "weight" the most, on a percentage basis, over the course of the year-long competition.

Rank	Team Name	Organization	Energy Reduction	Estimated Cost Savings	GHG Reduction ($MtCO_2e$)	See page # for profile
1	Texas A&M University - ESCO Project	Texas A&M University	35.5%	$548,900	1,726	17
2	Boys & Girls Clubs All Stars	Southface Energy Institute	30.6%	$86,500	431	18
3	California Conservers	Sears Holdings Corporation	30.2%	$184,800	726	19
4	Texas A&M University - Residence Halls	Texas A&M University	21.8%	$363,700	1,141	17
5	Western Watt-chers	Sears Holdings Corporation	21.4%	$227,000	1,039	19
6	Thermodynamic Texans	Sears Holdings Corporation	16.8%	$86,800	630	19
7	Variable Speeders	Sears Holdings Corporation	12.9%	$93,900	629	19
8	GetGo Team	Giant Eagle	12.4%	$44,400	287	20
9	Emory University	Emory University	12.0%	$1,152,900	4,460	21
10	Grants to Green 2015	Southface Energy Institute	9.3%	$119,000	933	22
11	Powered by EnergyPrint	EnergyPrint	8.2%	$479,500	2,011	23
12	Giant Eagle Energy Team	Giant Eagle	8.1%	$286,100	1,869	20
13	NYU Langone Medical Center	NYU Langone Medical Center	7.5%	$907,100	2,011	24
14	Downtown District	Manatee County	7.3%	$34,600	272	25
15	Interagency Team	State of Washington	7.2%	$327,700	936	—

THE WINNING BUILDING IS…

Woodville Chapel

Woodville, Ala.

Pictured: Woodville Chapel

RECOGNITION:

#1 Building Energy Reduction

#1 Building Energy Reduction, Worship Facility Category

20% Energy Reduction

SAVINGS:

89.4% Energy Savings

1 $MtCO_2e$ Greenhouse Gas Emissions Prevented

TOP BUILDING ENERGY REDUCTION

These individual buildings were verified to have reduced their own energy "weight" the most, on a percentage basis, over the course of the year-long competition.

Rank	Building Name	Location	Building Type	Energy Reduction	Estimated Cost Savings	GHG Reduction ($MtCO_2e$)	See page # for profile
1	Woodville Chapel	Woodville, Ala.	Worship facility	89.4%	$100	1	28
2	Salvation Army Fuqua Boys & Girls Club	Atlanta, Ga.	Recreation	53.5%	$11,300	92	29
3	AG Gaston Boys & Girls Club - Kirkwood Balton Unit	Birmingham, Ala.	Recreation	49.0%	$39,700	124	30
4	Texas A&M University - Teague Research Center	College Station, Texas	College/ university	46.2%	$165,000	477	31
5	Boys & Girls Clubs of the TN Valley - Lenoir City	Lenoir City, Tenn.	Recreation	41.8%	$4,900	33	29
6	Texas A&M University - Munnerlyn Astronomy & Space Engineering	College Station, Texas	College/ university	41.6%	$34,000	109	31
7	Medina County Central Processing Facility	Seville, Ohio	Other	41.6%	$33,200	321	—
8	The Salvation Army Boys & Girls Clubs of Davidson County	Thomasville, N.C.	Recreation	40.0%	$2,900	20	29
9	Manatee County Administration Building	Bradenton, Fla.	Office	39.7%	$80,200	616	32
10	Texas A&M University - Appelt Residence Hall	College Station, Texas	Residence hall/ dormitory	38.2%	$229,500	692	31
11	Texas A&M University - Heldenfels Hall	College Station, Texas	College/ university	37.2%	$238,000	779	31
12	School at St. George Place, Houston ISD	Houston, Texas	K-12 school	36.5%	$118,500	314	32
13	Galaxy II Concord Corporation	Concord, Calif.	Office	36.3%	$123,900	387	—
14	MUFG Union Bank	San Clemente, Calif.	Bank branch	35.2%	$2,300	9	34
15	LT02185 - 800 Walnut Street	Philadelphia, Pa.	Office	34.7%	$136,100	876	35

THE WINNING TEAM IS…

Boys & Girls Clubs All Stars

Pictured: The Service and Product Provider Coaches at Southface Energy Institute

RECOGNITION:

#1 Team Water Reduction

20% Water Reduction
#2 Team Energy Reduction
20% Energy Reduction

SAVINGS:

50.2% Water Savings

30.6% Energy Savings

431 $MtCO_2e$ Greenhouse Gas Emissions Prevented

TOP TEAM WATER REDUCTION

These teams were verified to have reduced their collective water "weight" the most, on a percentage basis, over the course of the year-long competition.

Rank	Team Name	Organization	Water Reduction	Estimated Cost Savings	See page # for profile
1	Boys & Girls Clubs All Stars	Southface Energy Institute	50.2%	$15,900	18
2	Giant Eagle Water Team	Giant Eagle	17.6%	$19,100	26
3	Grants to Green 2015	Southface Energy Institute	16.3%	$15,800	22
4	Kilroy Realty Corporation	Kilroy Realty Corporation	8.3%	$32,200	—
5	DMPS High Schools	Des Moines Public Schools	7.1%	$13,000	45

THE WINNING BUILDING IS…

South Rome Boys & Girls Club

Pictured: South Rome Boys & Girls Club

RECOGNITION:

#1 Building Water Reduction

#1 Building Water Reduction, Recreation Category

20% Water Reduction

SAVINGS:

73.7% Water Savings

TOP BUILDING WATER REDUCTION

These individual buildings were verified to have reduced their own water "weight" the most, on a percentage basis, over the course of the year-long competition.

Rank	Building Name	Location	Building Type	Water Reduction	Estimated Cost Savings	See page # for profile
1	South Rome Boys & Girls Club	Rome, Ga.	Recreation	73.7%	$1,000	29
2	GM Customer Care & Aftersales, Pontiac Plant 75	Pontiac, Mich.	Warehouse	67.9%	$30,100	38
3	GM Customer Care & Aftersales, Burton	Burton, Mich.	Warehouse	64.9%	$4,900	38
4	AG Gaston Boys & Girls Club - Kirkwood Balton Unit	Birmingham, Ala.	Recreation	63.2%	$15,900	29
5	Thurston-Bowles Building	Chapel Hill, N.C.	Other	60.4%	$222,200	44
6	Dean - Operations Center	Des Moines, Iowa	Warehouse	59.5%	$2,000	45
7	Boys & Girls Club of Whitfield County GA	Dalton, Ga.	Recreation	56.3%	$900	29
8	Willie E. Brown	Mansfield, Texas	K-12 school	45.1%	$9,100	46
9	Brooks Wester	Mansfield, Texas	K-12 school	44.5%	$17,900	46
10	Greenwood	Des Moines, Iowa	K-12 school	41.1%	$2,000	45
11	Kenneth Davis Elementary School	Arlington, Texas	K-12 school	38.8%	$12,300	46
12	One Justice Square	Lawrenceville, Ga.	Office	35.4%	$2,600	47
13	United Food & Commercial Workers Union	Cypress, Calif.	Office	35.3%	$6,200	—
14	Cora Spencer	Grand Prairie, Texas	K-12 school	34.4%	$14,300	46
15	Asa Low	Mansfield, Texas	K-12 school	34.4%	$11,200	46

TOP IN CATEGORY

Pictured (clockwise from top left, in order of greatest energy savings): Student Opportunity Center, Texas A&M University ESCO Project Team, Midland Memorial Hospital, Pleasantdate Chateau, School at St. George Place (Houston ISD), Aspira Apartments

TOP ENERGY REDUCTION BY CATEGORY

These individual buildings were verified to have reduced their energy "weight" more than any other building in their category, on a percentage basis, over the course of the year-long competition. Recognition was given in any category that included 10 or more competing buildings of that type.

Building Type	Building Name	Location	Energy Reduction	Estimated Cost Savings	GHG Reduction ($MtCO_2e$)	See page # for profile
Adult education/training	Student Opportunity Center	Frisco, Texas	18.2%	$8,900	69	42
Bank branch	MUFG Union Bank	San Clemente, Calif.	35.2%	$2,300	9	34
College/ university	Texas A&M University - Teague Research Center	College Station, Texas	46.2%	$165,000	477	31
Courthouse	Carter M. Hickman District Court	Centerville, Md.	18.1%	$27,600	99	37
Hospital	Midland Memorial Hospital	Midland, Texas	18.0%	$775,300	3216	39
Hotel	Pleasantdale Chateau	West Orange	14.5%	$36,400	132	40
K-12 school	School at St. George Place, Houston ISD	Houston, Texas	36.5%	$118,500	314	33
Medical office	Memorial Hermann Greater Heights Medical Plaza 1	Houston, Texas	17.1%	$56,200	439	39
Multifamily housing	Aspira Apartments	Seattle, Wash	6.4%	$40,200	118	41
Office	Manatee County Administration Building	Bradenton, Fla.	39.7%	$80,200	616	25
Other	Medina County Central Processing Facility	Seville, Ohio	41.6%	$33,200	321	—
Public services	Woodville Co-op Building	Woodville, Ala.	32.0%	$100	1	28
Recreation	Salvation Army Fuqua Boys & Girls Club	Atlanta, Ga	53.5%	$11,300	92	29
Residence hall/dormitory	Texas A&M University - Appelt Residence Hall	College Station, Texas	38.2%	$229,500	692	31
Retail store	Sears - 1248	Hayward, Calif.	34.6%	$61,900	243	36
Supermarket	Giant Eagle 6504 - Upper Arlington	Columbus, Ohio	12.7%	$99,200	461	43
Treatment plant	Wastewater Treatment Plant	Woodville, Ala.	16.9%	$600	5	28
Warehouse	GM Customer Care & Aftersales, Burton	Burton, Mich.	32.1%	$137,300	902	38
Worship facility	Woodville Chapel	Woodville, Ala.	89.4%	$100	1	28

TOP IN CATEGORY

Pictured (clockwise from top left, in order of greatest water savings): Garland Training Center, Evergreen Credit Union, Rosenau Hall, Truman Medical Center - Hospital Hill, Hotel Pennsylvania Team, Willie E. Brown School, Lawrenceville Branch Library, 660 First Avenue

TOP WATER REDUCTION BY CATEGORY

These individual buildings were verified to have reduced their water "weight" more than any other building in their category, on a percentage basis, over the course of the year-long competition. Recognition was given in any category that included 10 or more competing buildings of that type.

Building Type	Building Name	Location	Water Reduction	Estimated Cost Savings	See page # for profile
Adult education/training	Garland Training Center	Garland, Texas	27.8%	$500	—
Bank branch	Evergreen Credit Union	Neenah, Wis	23.6%	$100	52
College/university	Rosenau Hall	Chapel Hill, N.C.	31.8%	$5,100	43
Hospital	Truman Medical Center - Hospital Hill	Kansas City, Mo.	7.6%	$2,800	51
Hotel	Hotel Pennsylvania	New York, N.Y.	9.8%	$99,600	49
K-12 school	Willie E. Brown School	Mansfield, Texas	45.1%	$9,100	46
Library	Lawrenceville Branch Library and Administration Offices	Lawrenceville, Ga.	19.8%	$400	47
Medical office	660 First Avenue	New York, N.Y.	23.4%	$11,500	50
Office	One Justice Square	Lawrenceville, Ga.	35.4%	$2,600	47
Other	Thurston-Bowles Building	Chapel Hill, N.C.	60.4%	$222,200	44
Recreation	South Rome Boys & Girls Club	Rome, Ga.	73.7%	$1,000	29
Supermarket	Giant Eagle Market District - 0047 Robinson	Pittsburgh, Pa.	31.2%	$16,000	48
Warehouse	GM Customer Care & Aftersales, Pontiac Plant 75	Pontiac, Mich.	67.9%	$30,100	38

BUILDING ENERGY REDUCTION OF 20 PERCENT OR MORE

These individual building competitors were verified to have reduced their energy "weight" by 20 percent or more over the course of the year-long competition.

Competitor	Location	Type	Energy Reduction	Estimated Cost Savings	GHG reduction ($MtCO_2e$)
Woodville Chapel	Woodville, Ala.	Worship Facility	89.4%	$100	1
Salvation Army Fuqua Boys & Girls Club	Atlanta, Ga.	Recreation	53.5%	$11,300	92
AG Gaston Boys & Girls Club - Kirkwood Balton Unit	Birmingham, Ala.	Recreation	49.0%	$39,700	124
Texas A&M University - Teague Research Center	College Station, Texas	College/University	46.2%	$165,000	477
Boys & Girls Clubs of the TN Valley - Lenoir City	Lenoir City, Tenn.	Recreation	41.8%	$4,900	33
Texas A&M University - Munnerlyn Astronomy & Space Engineering	College Station, Texas	College/University	41.6%	$34,000	109
Medina County Central Processing Facility	Seville, Ohio	Other	41.6%	$33,200	321
The Salvation Army Boys & Girls Clubs of David-son County	Thomasville, N.C.	Recreation	40.0%	$2,900	20
Manatee County Administration Building	BradentonFla.	Office	39.7%	$80,200	616
Texas A&M University - Appelt Residence Hall	College Station, Texas	Residence Hall/ Dormitory	38.2%	$229,500	692
Texas A&M University - Heldenfels Hall	College Station, Texas	College/University	37.2%	$238,000	779
School at St. George Place, Houston ISD	Houston, Texas	K-12 School	36.5%	$118,500	314
Galaxy II Concord Corporation	Concord, Calif.	Office	36.3%	$123,900	387
MUFG UB 048 San Clemente	San Clemente, Calif.	Bank Branch	35.2%	$2,300	9
LT02185 - 800 Walnut Street	Philadelphia, Pa.	Office	34.7%	$136,100	876
Sears - 1248	Hayward, Calif.	Retail Store	34.6%	$61,900	243
GM Customer Care & Aftersales, Burton	Burton, Mich.	Warehouse	32.1%	$137,300	902
Woodville Co-op Building	Woodville, Ala.	Public Services	32.0%	$100	1
Sears - 1838	Burbank, Calif.	Retail Store	31.9%	$29,200	114
Boys & Girls Clubs of the Mississippi Delta - Greenwood Club	Greenwood, Miss.	Recreation	31.8%	$3,800	16
Texas A&M - Vivarium III	College Station, Texas	College/University	31.7%	$52,200	155
Texas A&M University - Harrington Education Center	College Station, Texas	College/University	31.6%	$49,700	179
Manatee County Property Appraiser	Bradenton, Fla.	Office	31.1%	$7,900	61
Gregory-Lincoln Education Center, Houston ISD	Houston, Texas	K-12 School	29.7%	$75,000	552
Sears - 1678	Carlsbad, Calif	Retail Store	29.3%	$31,200	122
Athletic Administration	Frisco, Texas	Office	28.8%	$9,500	74
Boys & Girls Club of Whitfield County GA	Dalton, Ga.	Recreation	28.8%	$4,900	31
Sears - 2175	Greenville, N.C.	Retail Store	28.6%	$17,800	123

BUILDING ENERGY REDUCTION OF 20 PERCENT OR MORE (continued)

Competitor	Location	Type	Energy Reduction	Estimated Cost Savings	GHG reduction ($MtCO_2e$)
MUFG UB 158 Camden Park	San Jose, Calif.	Bank Branch	28.5%	$1,300	6
Sears - 1168	N Hollywood, Calif.	Retail Store	28.5%	$41,400	163
Crespo Elementary, Houston ISD	Houston, Texas	K-12 School	27.6%	$38,400	251
Sears - 1268	Buena Park, Calif.	Retail Store	27.6%	$53,600	210
Hartman Middle, Houston ISD	Houston, Texas	K-12 School	26.8%	$78,700	613
Mistral Early Childhood Center, Houston ISD	Houston, Texas	K-12 School	26.3%	$31,500	246
Sears - 1748	Montclair, Calif.	Retail Store	26.1%	$37,800	148
Sears - 2547	College Station, Texas	Retail Store	25.9%	$15,800	104
MUFG UB 169 San Ramon	San Ramon, Calif.	Bank Branch	25.7%	$26,200	90
Atlanta Neighborhood Charter School Middle Campus	Atlanta, Ga.	K-12 School	25.5%	$13,200	47
MUFG UB 106 West Fresno	Fresno, Calif.	Bank Branch	25.4%	$1,800	8
MUFG UB 062 Bayside	Newport Beach, Calif.	Bank Branch	24.9%	$1,400	5
Sears - 1478	San Bruno, Calif.	Retail Store	24.9%	$46,100	181
Henry Middle, Houston ISD	Houston, Texas	K-12 School	24.5%	$42,300	313
MUFG UB 022 DEL MAR	Del Mar, Calif.	Bank Branch	23.9%	$1,500	6
MUFG UB 137 Burlingame	Burlingame, Calif.	Bank Branch	23.5%	$3,500	13
Medina County Administration Building	Medina, Ohio	Other	23.4%	$28,400	161
Stowe Elementary	Des Moines, Iowa	K-12 School	23.3%	$14,900	147
Helms Elementary, Houston ISD	Houston, Texas	K-12 School	23.3%	$24,000	188
Laurenzo Early Childhood Center, Houston ISD	Houston, Texas	K-12 School	23.2%	$20,400	159
Sears - 1988	El Centro, Calif.	Retail Store	22.8%	$22,100	167
Sears - 2628	Eureka, Calif	Retail Store	22.6%	$8,900	37
Woodville Town Hall	Woodville, Ala.	Office	22.4%	$400	4
Boys & Girls Clubs of Central Alabama	Hueytown, Ala.	Recreation	22.2%	$9,100	47
Giant Eagle GetGo 3140 - Monroeville	Monroeville, Pa.	Other	22.0%	$5,000	49
Sears - 1327	Baytown, Texas	Retail Store	21.9%	$22,200	173
MUFG UB 545 Palmdale Office	Palmdale, Calif.	Bank Branch	21.8%	$1,000	4
Van Meter	Des Moines, Iowa	K-12 School	21.7%	$35,500	161
Medina County Human Services	Medina, Ohio	Other	21.6%	$16,700	97
HOM Furniture-Woodbury	Woodbury, Mich.	Retail Store	21.6%	$22,200	179

BUILDING ENERGY REDUCTION OF 20 PERCENT OR MORE (continued)

Competitor	Location	Type	Energy Reduction	Estimated Cost Savings	GHG reduction ($MtCO_2e$)
Farias Early Childhood Center, Houston ISD	Houston, Texas	K-12 School	21.5%	$34,400	269
MI-068 Stadium Pauline	Ann Arbor, Mich.	Office	21.3%	$23,500	76
428 Westlake	Seattle, Wash.	Office	21.2%	$26,300	142
Medina County Professional Building	Medina, Ohio	Other	20.9%	$13,300	65
Chaska Grandview	Chaska, Mich.	Office	20.8%	$6,100	29
Sears - 1378	Orange, Calif.	Retail Store	20.7%	$34,400	135
Elkhart Elementary, Aurora Public Schools	Aurora, Colo.	K-12 School	20.7%	$29,700	151
PPD Central Stores University of Florida	Gainesville, Fla.	bank branch	20.5%	$1,900	8
MUFG UB 042 Lakewood	Lakewood, Calif.	Bank Branch	20.5%	$1,200	5
B-413 Capital Warehouse	Kingsport, Tenn.	Warehouse	20.4%	$5,800	56
DVA Washington Soldiers Home and Colony-CAMPUS	Orting, Wash.	Other	20.1%	$216,800	554

BUILDING WATER REDUCTION OF 20 PERCENT OR MORE

These individual building competitors were verified to have reduced their water "weight" by 20 percent or more over the course of the year-long competition.

Building Name	Location	Building Type	Water Reduction	Estimated Cost Savings
South Rome Boys & Girls Club	Rome, Ga.	Recreation	73.7%	$1,000
GM Customer Care & Aftersales, Pontiac Plant 75	Pontiac, Mich.	Warehouse	67.9%	$30,100
GM Customer Care & Aftersales, Burton	Burton, Mich.	Warehouse	64.9%	$4,900
AG Gaston Boys & Girls Club - Kirkwood Balton Unit	Birmingham, Ala.	Recreation	63.2%	$15,900
Thurston-Bowles Building	Chapel Hill, N.C.	Other	60.4%	$222,200
Dean - Operations Center	Des Moines, Iowa	Warehouse	59.5%	$2,000
Boys & Girls Club of Whitfield County GA	Dalton, Ga.	Recreation	56.3%	$900
Willie E. Brown	Mansfield, Texas	K-12 School	45.1%	$9,100
Brooks Wester	Mansfield, Texas	K-12 School	44.5%	$17,900
Greenwood	Des Moines, Iowa	K-12 School	41.1%	$2,000
Kenneth Davis Elementary School	Arlington, Texas	K-12 School	38.8%	$12,300
One Justice Square	Lawrenceville, Ga.	Office	35.4%	$2,600
United Food & Commercial Workers Union	Cypress, Calif.	Office	35.3%	$6,200
Cora Spencer	Grand Prairie, Texas	K-12 School	34.4%	$14,300
Asa Low	Mansfield, Texas	K-12 School	34.4%	$11,200
MISD Administration Complex	Mansfield, Texas	Office	33.0%	$2,300
Thelma Jones	Mansfield, Texas	K-12 School	33.0%	$15,400
Rosenau Hall	Chapel Hill, N.C.	College/University	31.8%	$5,100
Giant Eagle Market District - 0047 Robinson	Pittsburgh, Pa.	Supermarket	31.2%	$16,000
Lake Ridge High School	Mansfield, Texas	K-12 School	30.3%	$57,800
Edmunds Elementary	Des Moines, Iowa	K-12 School	30.3%	$1,400
A Friend's House	McDonough, Ga.	Other	28.0%	$700
Garland Training Center	Garland, Texas	Adult Education/Training	27.8%	$500
13480 Evening Creek - Kilroy Sabre Springs - Bridgepoint Education	San Diego, Calif.	Office	27.3%	$14,800
Banner Los Robles Corporation	Pasadena, Calif.	Office	26.8%	$1,100
MISD Warehouse and Purchasing Offices	Mansfield, Texas	Office	25.3%	$1,200
Cross Timbers Intermediate School	Arlington, Texas	K-12 School	25.0%	$3,800
Van Meter	Des Moines, Iowa	K-12 School	24.6%	$2,200
Giant Eagle 6513 - Blacklick	Columbus, Ohio	Supermarket	24.6%	$3,500
Woodruff Arts Center Memorial Arts Building	Atlanta, Ga.	Other	24.2%	$10,400

BUILDING WATER REDUCTION OF 20 PERCENT OR MORE (continued)

Building Name	Location	Building Type	Water Reduction	Estimated Cost Savings
Findley	Des Moines, Iowa	K-12 School	24.1%	$1,300
Two Commerce Square	Philadelphia, Pa.	Office	23.8%	$42,500
Elizabeth Smith	Mansfield, Texas	K-12 School	23.6%	$7,500
Evergreen Credit Union	Neenah, Wis.	Bank Branch	23.6%	$100
660 First Avenue	New York City, N.Y.	Medical Office	23.4%	$11,500
Lincoln RAILS Academy	Des Moines, Iowa	K-12 School	23.4%	$4,600
Mary Lillard	Mansfield, Texas	K-12 School	21.6%	$7,200
Mansfield High School	Mansfield, Texas	K-12 School	21.6%	$27,300
Anna May Daulton	Grand Prairie, Texas	K-12 School	21.1%	$7,800
Tarver-Rendon Elementary	Burleson, Texas	K-12 School	20.5%	$7,500
51 Sleeper Street	Boston, Mass.	Office	20.1%	$2,600

STORIES BEHIND THE BATTLE: TEAMS

Pictured: The Texas A&M energy team

Texas A&M University

College Station, Texas

RECOGNITION:

See table.

SAVINGS:

See table.

TEAM STATS:

See table.

"First, you must get management 'buy-in' and support. Then, make sure you have good meters and access to data to support your efforts and to demonstrate results."

Installing new control systems leads to greater savings

With a campus of more than 20 million square feet, the Texas A&M University team had to focus on buildings that had the highest energy consumption and the greatest room for improvement. The team completed a full lighting retrofit, installed occupancy sensors and a pump variable frequency drive (VFD), and upgraded the Building Automation System (BAS) from pneumatic to direct digital control. The most important project included installing lighting occupancy sensors and connecting those sensors to the BAS to control the HVAC system, which maximized HVAC-related savings.

Communication is key

Although campus facility managers were already closely monitoring building energy use, the competition prompted closer scrutiny, leading to new discoveries and even more conservation! Texas A&M University's Utilities & Energy Services (UES) appointed a full-time team that worked closely with the building occupants to preserve comfort while conserving energy. UES Energy Stewards collaborated with facility occupants to follow campus temperature standards and raise awareness about the importance of sustainable practices. This focus on educating building occupants opened the door for new levels of collaboration, and the continuous loop of communication among the customer, the UES Energy Steward, and the BAS technician facilitated collective decisions that met everyone's objectives.

		Team Savings			Team Stats	
Recognition(s)	Team Name	Energy Savings	Estimated Cost Savings	Emissions Prevented ($MtCO_2e$)	No. of Buildings	Ending EUI (kBtu/ Sq.Ft.)
#1 Team 20% reduction	Texas A&M University - ESCO Project	35.5%	$548,900	1,726	6	222
#4 Team 20% reduction	Texas A&M University - Residence Halls	21.8%	$363,700	1,141	4	271

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STORIES BEHIND THE BATTLE: TEAMS

Pictured: Staff at Southface Energy Institute, technical assistance partner for Boys & Girls Clubs and Grants to Green.

Boys & Girls Clubs All Stars

Multiple locations

RECOGNITION:

#2 team energy reduction

#1 team water reduction

20% energy reduction

20% water reduction

ENERGY SAVINGS:

30.6% energy savings

$86,500 estimated cost savings

431 $MtCO_2e$ greenhouse gas emissions prevented

WATER SAVINGS:

50.2% water savings

$15,880 estimated cost savings

TEAM STATS:

Energy team represented by 12 buildings
Ending EUI: 89 kBtu/Sq. Ft.

Water team represented by 9 buildings
Ending WUI: 13 Gal/Sq. Ft.

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"Be sure to include transparency as an important program criterion so that information can be readily shared among your portfolio participants. The ability to compare efficiency metrics and data gives everyone the knowledge needed to establish reasonable goals and timelines."

Coaches know best

With support from their coaches at Southface, each of the Boys & Girls Clubs All Stars were able to significantly improve their energy performance, including by installing high-performance LED lighting and occupancy controls in each of the buildings. These highly visible projects resulted in improved lighting quality and significant cost savings that quickly increased interest in the economic benefits of energy efficiency and environmental sustainability.

Web-based thermostats with integral occupancy sensors and trending capabilities allowed team coaches to provide valuable feedback on how to optimize HVAC systems, which minimized energy waste during unoccupied periods and ensured comfort during occupied periods. They also provided the Club Directors with the ability to easily adjust the temperature as needed throughout the building.

On the water side, some of the biggest opportunities to save came from eliminating water leaks and replacing older plumbing fixtures with newer, more efficient fixtures. Securing faucets and replacing toilets and urinals with low-flow equipment significantly reduced water usage.

Leading by example

High-performing clubs set the pace and shared their energy-and water-saving best practices with the rest of the team. The whole team used Portfolio Manager to track its energy and water use and was therefore able to compare consumption across buildings to determine where efforts should be focused. This also led to the discovery of several leaks because the team could identify, and then investigate, buildings with relatively high rates of water consumption!

STORIES BEHIND THE BATTLE: TEAMS

Pictured: Sears Store #1168

Sears Holdings Corporation

Multiple locations

RECOGNITION:

See table.

SAVINGS:

See table.

TEAM STATS:

See table.

"By knowing the baseline use and energy costs, you're able to target improvements that result in positive action and generate interest by various stakeholders."

Region-wide energy-saving projects

Sears is receiving recognition for four teams: the California Conservers, Western Watt-chers, Thermodynamic Texans, and Variable Speeders. The California Conservers and the Western Watt-chers launched region-wide energy-saving projects, including an LED lighting retrofit in California stores and an energy management system upgrade with electronic controls. Energy-saving measures did not compromise customer comfort, and in some cases lowered indoor humidity and improved indoor air quality. In some stores, teams cut their energy use by more than 20%!

Names have power

The team competition resulted in increased participation in energy conservation. By coordinating with the District Facility Managers, teams were better able to provide oversight of individual building performance. In past competitions, the teams were named after an individual, but this year the teams were named after the company's planned energy projects. This put more emphasis on driving overall project results.

Getting social

Throughout the competition, Sears used its internal social media tool to encourage participants and share results. By posting updates on social media, teams from different stores communicated with each other about the competition. The teams worked toward monthly energy reduction targets, and their efforts were graded on an internal scorecard.

Through their participation, Sears was able to demonstrate the importance of cutting waste to achieve operational excellence, one of the company's mission objectives.

		Team Savings			Team Stats	
Recognition(s)	Team Name	Energy Savings	Estimated Cost Savings	Emissions Prevented ($MtCO_2e$)	No. of Buildings	Ending EUI (kBtu/ Sq.Ft.)
#3 Team 20% reduction	California Conservers	30.2%	$184,800	726	5	69
#5 Team 20% reduction	Western Watt-chers	21.4%	$227,000	1,039	7	82
#6 Team	Thermodynamic Texans	16.8%	$86,800	630	5	99
#7 Team	Variable Speeders	12.9%	$93,900	629	5	92

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STORIES BEHIND THE BATTLE: TEAMS

Giant Eagle

Multiple locations

RECOGNITION:

See table.

SAVINGS:

See table.

TEAM STATS:

See table.

"Making sure that your equipment is performing as designed is a worthwhile exercise to save energy."

Giant Eagle Energy Team optimizes for success

Giant Eagle Energy Team stores achieved significant energy savings by retro-commissioning, thermal imaging, and conducting energy audits. Each week-long retro-commissioning project optimized the performance of the stores' refrigeration, HVAC, and lighting systems while also extending the life of these assets. Thermal images of the stores' systems helped the team identify potential failures. Energy audits conducted during occupied and unoccupied hours allowed the team to identify additional opportunities to save energy. Store leadership then received recommendations to implement successful energy-saving strategies.

The team also performed an LED lighting upgrade that included frozen food cases, back room ceilings, back room walk-in coolers and freezers, service prep areas, pharmacy ceilings, and produce spotlight fixtures. Team Members were encouraged to reduce energy use through an online message posted to Giant Eagle's internal communication board mid-way through the competition

GetGo Team lights the way to savings

GetGo, the fuel and convenience banner of Giant Eagle, Inc., realized substantial energy savings through interior LED lighting upgrade projects in all ceiling fixtures, cases, and coolers. Additionally, select team stores received exterior LED lighting upgrades to their fuel canopies and backlit signage. GetGo Team leaders encouraged reporting problems with exterior lighting, which helped identify waste.

		Team Savings			Team Stats	
Recognition(s)	Team Name	Energy Savings	Estimated Cost Savings	Emissions Prevented ($MtCO_2e$)	No. of Buildings	Ending EUI (kBtu/ Sq.Ft.)
#8 team energy reduction	GetGo Team	12.4%	$44,400	287	9	1002
#12 team energy reduction	Giant Eagle Energy Team	8.1%	$286,100	1,869	8	460

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STORIES BEHIND THE BATTLE: TEAMS

Pictured: Emory University

Emory University

Atlanta, Ga.

RECOGNITION:

#9 team energy reduction

SAVINGS:

12% energy savings

$1,152,900 estimated cost savings

4460 $MtCO_2e$ greenhouse gas emissions prevented

TEAM STATS:

Team represented by 9 buildings

Ending EUI: 388 kBtu/Sq. Ft.

"Use the tools to point you to where your team can achieve the greatest savings."

Experts in energy management

Emory University has worked in recent years to actively recommission many of its existing campus buildings to boost sustainability and reduce utility costs. Participating in the ENERGY STAR National Building Competition put a spotlight on recent and ongoing retro-commissioning efforts, and helped the facility team gain additional momentum and recognition on campus for those efforts. Consistent energy performance tracking in Portfolio Manager informed the team's prioritization of efficiency upgrades and enabled them to identify and target underperforming buildings during the competition period.

Staying engaged and on track

Once Emory University began tracking the energy usage of its buildings, it was easy to see which buildings were operating as intended and which ones were consuming more than their fair share of energy. Armed with actionable information, the commissioning team was equipped to target the outliers for efficiency improvements and achieve a high return on investment. Their story goes to show that, in a very real sense, poor energy performance is good news—it means significant energy savings are ripe for the taking!

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STORIES BEHIND THE BATTLE: TEAMS

Pictured: Pictured: Kasim Reed, Mayor, City of Atlanta, with staff of Asbury Harris Epworth Towers, a Grants to Green 2015 team member

Grants to Green 2015

Multiple locations, Ga.

RECOGNITION:

#10 team energy reduction

#3 team water reduction

ENERGY SAVINGS:

9.3% energy savings

$119,000 estimated cost savings

933 $MtCO_2e$ greenhouse gas emissions prevented

WATER SAVINGS:

16.3% water savings

$15,800 estimated cost savings

TEAM STATS:

Energy team represented by 7 buildings
Ending EUI: 201 kBtu/Sq. Ft.

Water team represented by 6 buildings
Ending WUI: 17 Gal/Sq. Ft.

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"Ongoing communication and reporting on progress are essential to keeping everyone engaged."

Coming together for the common goal

The Grants to Green Team is made up of non-profits that received technical assistance and project implementation funding through the Grants to Green Program, and included a K-12 school, an office, and a museum, among other building types. The team installed LED lighting and occupancy and vacancy controls, and they upgraded facility heating and air conditioning systems, insulation, and air sealing. The replacement of existing appliances with ENERGY STAR certified appliances also boosted energy savings.

The team used the ENERGY STAR National Building Competition as a fun way to bring clients together to collaborate for the common goal of reducing utility costs—and redirecting the savings back into each organization's individual mission.

Engaging green champions

The Grants to Green Program facilitates education about best practices in energy and water efficiency. Throughout the competition, the Grants to Green program administrators provided each organization on the team with a regular status report, including individual and team energy and water consumption statistics and cost-saving figures. The reports helped inform each organization's executives about the environmental and economic benefits of energy and water efficiency.

STORIES BEHIND THE BATTLE: TEAMS

Pictured: 428 Westlake

Powered by EnergyPrint

Multiple locations

RECOGNITION:

#11 team energy reduction

SAVINGS:

8.2% energy savings

$479,500 estimated cost savings

2011 $MtCO_2e$ greenhouse gas emissions prevented

TEAM STATS:

Team represented by 38 buildings

Ending EUI: 150 kBtu/Sq. Ft.

"Monitor your energy consumption! Watching our energy usage decline while simultaneously seeing our cost savings grow was a great motivator for our staff. It allowed us to see actual results from our efforts and pushed us to achieve bigger energy goals."

Applying the utility dashboard

Team EnergyPrint entered the ENERGY STAR National Building Competition to reduce energy costs and motivate lasting change. EnergyPrint served as the team coach and provided all team member buildings with its utility dashboard, which gave each member valuable insight into its energy performance. Team EnergyPrint included a diverse range of building types, from schools to offices to churches. Because of this diversity, instead of implementing one large project across all buildings, Team EnergyPrint took a more nuanced approach. Each team member building made small tweaks specific to its respective usage patterns and occupancy needs. Altogether, those small individual changes added up to significant savings.

Small changes, big savings

Entering the ENERGY STAR National Building Competition sparked a new interest in saving energy across all the buildings on Team EnergyPrint. Efficiency improvement projects included installing new lights in the showroom of Dock 86-Little Canada and optimizing the fan pressure in LaBrea Schools. Even seemingly small adjustments yielded significant savings. For example, changing the occupation schedule for the air handling units at Peninsula Catholic by just two hours led to a huge drop in energy usage over the competition year.

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STORIES BEHIND THE BATTLE: TEAMS

Pictured: NYU Langone Medical Center

NYU Langone Medical Center

New York, N.Y.

RECOGNITION:

#13 team energy reduction

SAVINGS:

7.5% energy savings

$907,100 estimated cost savings

2944 $MtCO_2e$ greenhouse gas emissions prevented

TEAM STATS:

Team represented by 7 buildings

Ending EUI: 466 kBtu/Sq. Ft.

"We recommend approaching energy management holistically. Ensure that energy projects add value across many impact categories important to your organization."

Investing in energy efficiency pays off

The energy team for NYU Langone Medical Center decided to make some major investments in energy efficiency during the course of the competition. The team replaced an absorption chiller plant at the end of its life with a new, state-of-the-art, electric-centrifugal chiller plant. They also retro-commissioned all of the air handling units to ensure that valves and dampers were performing correctly, which resulted in repairing a number of outdoor air dampers and using more return air in place of outdoor air. Additionally, by reducing ventilation to unoccupied areas at night, the team saved both fan energy and energy for conditioning the spaces.

At the Ambulatory Care Center, the team rolled out an occupancy thermostat setback program called the "Smart Comfort Program." To ensure the success of this program, the energy management team conducted a large educational campaign targeting both end users in the spaces as well as the engineers and building managers.

Teaming up

By competing as a team rather than as individual buildings, the managers were able to think about the overall strategy and energy-saving programs that were universal and scalable across the entire portfolio. Competing as a team also helped NYU focus on the projects that have the best results based on building type. Competition is a natural driver of performance, and recognition helps grow commitment to the energy program at NYU Langone Medical Center!

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STORIES BEHIND THE BATTLE: TEAMS

Downtown District

Bradenton, Fla.

RECOGNITION:

#14 team energy reduction

SAVINGS:

7.3% energy savings

$34,600 estimated cost savings

272 $MtCO_2e$ greenhouse gas emissions prevented

TEAM STATS:

Team represented by 4 buildings

Ending EUI: 130 kBtu/Sq. Ft.

"Pick low-hanging fruit…and apply any cost savings to bigger projects."

Tracking leads to savings

Manatee County set out to cut energy waste and utility costs in government buildings. The team first established its baseline energy use in Portfolio Manager, with help from the local power company. The data and trends captured in Portfolio Manager helped the district prioritize upgrades and new efficiency measures. Through simple upgrades, the team managed to cut facility energy usage significantly. Contributing to the County's efficiency was the 2015 completion of its first standalone central energy plant (CEP), which generates energy for three of the Downtown District's buildings: County Administration, Property Appraisers, and the Central Library.

Upgrading for energy efficiency

Manatee County kicked off its energy efficiency improvement efforts with a series of straightforward upgrades, including county-wide lighting modifications and installation of motion sensors and solar window shades. The momentum continued with lighting surveys, which introduced thermal imagery and GIS technology for transparency and tracking purposes; HVAC upgrades featuring a new energy management system with Internet-controlled thermostats; and the construction of the new downtown CEP. Altogether, the CEP, HVAC upgrades, and lighting upgrades resulted in a significant reduction in energy usage.

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STORIES BEHIND THE BATTLE: TEAMS

"Investing in water-efficient equipment supports Giant Eagle's Sustainability Mission Statement of doing business in socially and environmentally responsible ways that are good for our Team Members, customers, communities, shareholders, and our planet."

Giant Eagle

Multiple locations

RECOGNITION:

#2 team water reduction

SAVINGS:

17.6% water savings

$19,100 estimated cost savings

TEAM STATS:

Team represented by 6 buildings

Ending WUI: 22 kGal/Sq. Ft.

Saving water and helping local businesses

The Giant Eagle Water Team achieved significant water savings by installing efficient, low-flow spray valves in food preparation areas and high-efficiency aerators on faucets throughout the stores. The six stores on the Water Team were also part of Giant Eagle's first corporate-wide initiative to reduce water use throughout the supermarket portfolio.

An interdepartmental corporate team of sustainability and facility team members selected fixtures that would maximize water savings without sacrificing performance, like those certified by WaterSense. Their construction teams worked with local plumbers to execute these projects.

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DMPS High Schools

Des Moines, Iowa

RECOGNITION:

#5 team water reduction

SAVINGS:

7.1% water savings

$13,000 estimated cost savings

TEAM STATS:

Team represented by 8 buildings

Ending WUI: 10 kGal/Sq. Ft.

"Communicate, collaborate, and commit."

Harness the power of competition

Des Moines Public Schools (DMPS) approached the ENERGY STAR National Building Competition as a team, and with a district-wide sense of responsibility for energy and water performance at all schools and buildings. Occupants at individual schools recognized that their efforts impacted the group's performance as a whole, which inspired them to take action to support the team. But their team mentality didn't get in the way of cultivating a spirit of healthy competition among the facilities!

Educate and communicate

DMPS carried its conservation efforts beyond facility management and into the classroom. Teachers across all grade levels routinely incorporated lessons and discussions about resource stewardship and conservation into their coursework planning activities. Additionally, the DMPS energy management team has sought to leverage social media to distribute information to staff members and students, by regularly sharing performance data and waste-reduction tips.

In addition to engaging the school community on water-saving strategies, the DMPS facility management department continued to place an emphasis on the importance of preventative maintenance and its impact on water conservation. Examples of these activities include repairing and replacing steam traps in facilities that utilize steam-generating mechanical systems; properly operating and maintaining all of DMPS' geothermal heating and cooling systems; and installing and repairing low-flow automated flush valves and faucets.

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STORIES BEHIND THE BATTLE: INDIVIDUAL BUILDINGS

Pictured (clockwise from top left): The Woodville Chapel, The Woodville Wastewater Treatment Plant, The Woodville Co-op Building

Town of Woodville

Woodville, Ala.

RECOGNITION:

See table.

SAVINGS:

See table.

BUILDING STATS:

See table.

"You need to know your baseline data, which is where you have been. Set a goal and shoot for the stars."

Woodville's continuing journey to efficiency

The Town of Woodville, Alabama was established in 1819, one day before Alabama became a state. Woodville registered to compete in the 2015 Battle of the Buildings with five buildings—the town chapel, town hall, wastewater treatment plant, co-op building, and community center. Woodville shared its energy-saving goals with the local utility company and invited the utility's advice and assistance in cutting energy waste, which proved to be valuable.

Lights out

It used to be that when buildings in the small town of Woodville went unused for extended periods of time, their energy-using systems would keep running. Now, when these buildings were not in use, the Town of Woodville energy team shut down all equipment in the buildings. The team made sure there was never any wasted power!

This winning strategy continues to result in big savings for the small town. Woodville also topped the rankings in the 2014 ENERGY STAR National Building Competition.

Recognition(s)	Building Name	Building Savings			Building Stats	
		Energy Savings	Estimated Cost Savings	Emissions Prevented ($MtCO_2e$)	Building Type	Ending EUI (kBtu/ Sq.Ft.)
#1 overall building energy reduction, #1 building energy reduction, worship facility category	Woodville Chapel	89.4%	$100	1	Worship facility	0.7
#1 building energy reduction, public services category	Woodville Co-op Building	32.0%	$100	1	Public services	26
#1 building energy reduction, treatment plant category	Wastewater Treatment Plant	16.9%	$600	5	Treatment plant	4334

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STORIES BEHIND THE BATTLE: INDIVIDUAL BUILDINGS

Pictured: (clockwise from top left): AG Gaston Boys & Girls Club - Kirkwood Balton Unit, Boys & Girls Club of Whitfield County - Carl Rollins Unit, South Rome Boys & Girls Club, Salvation Army's Fuqua Boys & Girls Club

Boys & Girls Club

Multiple locations

RECOGNITION:

See table.

SAVINGS:

See table.

BUILDING STATS:

See table.

"Leave it to the professionals. Partnering with a sustainable future consulting firm, such as Southface, is the best way to get started in a utility management program. The expertise provided will help determine the best solutions available to optimize cost savings and return on investment."

Using energy and water efficiency as teachable moments

With the help of their coaches at Southface Energy Institute, the Boys & Girls Clubs were able to implement significant energy and water improvements in 2015.

On the energy side, some buildings installed high-performance LED lighting and occupancy sensors, and clubs such as The Salvation Army Boys & Girls Clubs of Greater Atlanta – Fuqua Club installed web-based thermostats to help them keep track of the temperature.

To help save water, the Boys & Girls Clubs switched from potable water to rainwater for some of its educational projects. For example, when South Rome Boys & Girls Club started a garden to provide nutritious food to underprivileged kids, it originally used regular potable water for the plants. Today, the building features a new rainwater harvesting system that collects water from the roof of the facility, so the water used for the garden is free-of-charge! Not only has the project reduced water costs, it has also become a great educational opportunity about water conservation for hundreds of young people

Spending money on the mission instead of utility bills

These savings have allowed the Boys & Girls Club to put its resources toward hiring staff and purchasing program supplies, and fulfilling its mission: "Enabling all young people, especially those who need us most, to reach their full potential as productive, caring, responsible citizens."

Boys & Girls Club (continued)

Energy

Recognition(s)	Building Name	Building Savings			Building Stats	
		Energy Savings	Estimated Cost Savings	Emissions Prevented ($MtCO_2e$)	Building Type	Ending EUI (kBtu/Sq.Ft.)
#2 overall building energy reduction #1 building energy reduction, recreation category 20% energy reduction	Salvation Army Fuqua Boys & Girls Club	53.5%	$11,300	92	Recreation	78
#3 overall building energy reduction 20% energy reduction	AG Gaston Boys & Girls Club - Kirkwood Balton Unit	49.0%	$39,700	124	Recreation	86
#5 overall building energy reduction 20% energy reduction	Boys & Girls Clubs of the TN Valley - Lenoir City	41.8%	$4,900	33	Recreation	94
#8 overall building energy reduction 20% energy reduction	The Salvation Army Boys & Girls Clubs of Davidson County	40.0%	$2,900	20	Recreation	92

Water

Recognition(s)	Building Name	Building Savings		Building Stats	
		Water Savings	Estimated Cost Savings	Building Type	Ending WUI (Gal/Sq.Ft.)
#1 overall water energy reduction #1 building water reduction, recreation category 20% water reduction	South Rome Boys & Girls Club	73.7%	$1,000	Recreation	2
#4 overall water energy reduction 20% water reduction	AG Gaston Boys & Girls Club - Kirkwood Balton Unit	63.2%	$15,900	Recreation	38
#7 overall water energy reduction 20% water reduction	Boys & Girls Club of Whitfield County GA	56.3%	$900	Recreation	7

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STORIES BEHIND THE BATTLE: INDIVIDUAL BUILDINGS

Pictured: Appelt Residence Hall Team

Pictured: Teague Research Center Team

Texas A&M University

College Station, Texas

RECOGNITION:

See table.

SAVINGS:

See table.

BUILDING STATS:

See table.

For additional information, contact:

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"Data is necessary to convince budget managers and skeptics of the savings potential and the ROI… work smarter, not harder."

Taking a comprehensive approach

The energy management team at Teague Research Center upgraded the building automation system to direct digital controls, installed four pump VFDs, and updated the control program to reset discharge air temperature and static pressure set points for air handling units. They also initiated a lighting retrofit and occupancy sensor installation.

The Appelt Residence Hall energy team upgraded the chilled and hot water pump controls by adding a control panel, sensors, and valves. By dynamically controlling pump speed and building return valve position, the new equipment efficiently lowered chilled and hot water consumption

Engaging building occupants

The University created a full-time team that worked closely with building occupants to ensure that energy savings did not come at the expense of occupant comfort. This 'customer first' focus opened the door for collaboration between the energy team and the building occupants. These energy stewards collaborated with occupants to follow campus-wide temperature standards and raise awareness about the importance of sustainable practices.

These buildings were part of a winning Texas A&M University team. For more information about their work, check out the Texas A&M ESCO Team profile on page 17 in this report!

Recognition(s)	Building Name	Building Savings			
		Energy Savings	Estimated Cost Savings	Emissions Prevented ($MtCO_2e$)	Ending EUI (kBtu/ Sq.Ft.)
#4 overall building energy reduction, #1 building energy reduction, bank branch category 20% reduction	Teague Research Center	46.2%	$165,000	477	175
#6 overall building energy reduction 20% reduction	Munnerlyn Astronomy & Space Engineering	41.6%	$34,000	109	132
#10 overall building energy reduction #1 building energy reduction, residence hall/dormitory category 20% reduction	Appelt Residence Hall	38.2%	$229,500	692	251
#11 overall building energy reduction 20% reduction	Heldenfels Hall	37.2%	$238,000	779	258

STORIES BEHIND THE BATTLE: INDIVIDUAL BUILDINGS

Manatee County Administration Building

Bradenton, Fla.

RECOGNITION:

#9 overall building energy reduction

#1 building energy reduction, office category

20% energy reduction

SAVINGS:

39.7% energy savings

$80,200 estimated cost savings

616 $MtCO_2e$ greenhouse gas emissions prevented

BUILDING STATS:

Type: Office

Ending EUI: 125 kBtu/Sq. Ft.

"It is important to understand energy consumption and allocation through tracking and analysis in order to evaluate energy trends and troubleshoot inconsistencies."

Roll savings into new projects to save even more

The facility management team at Manatee County's Administration Building adopted a strategic and graduated approach to improving energy efficiency. Early on, no-cost and low-cost efficiency measures— or "low-hanging fruit"—yielded cost savings quickly with minimal investment. The team used those savings to help pay for more extensive upgrades with even greater savings potential.

A multi-pronged approach

The Manatee County team employed a variety of energy-saving measures. These ranged from installing solar window shades and lighting motion sensors, to upgrading the HVAC system to integrate internet-controlled thermostats, to upgrading all lighting fixtures to LEDs and efficient lighting models. The county also constructed a new central energy plant that uses alternative energy and now serves a number of county buildings. The facility management team used Portfolio Manager to track and verify the savings achieved through all these measures.

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STORIES BEHIND THE BATTLE: INDIVIDUAL BUILDINGS

Pictured: School at St. George Place, Houston ISD

School at St. George Place, Houston ISD

Houston, Texas

RECOGNITION:

#12 overall building energy reduction

#1 building energy reduction, K-12 school category

20% energy reduction

SAVINGS:

36.5% energy savings

$118,500 estimated cost savings

314 $MtCO_2e$ greenhouse gas emissions prevented

BUILDING STATS:

Type: K-12 school

Ending EUI: 214 kBtu/Sq. Ft.

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"Develop win-win solutions that improve occupant comfort and efficiency."

Reaching their potential

The School at St. George Place, part of Houston's Independent School District (ISD), tackled energy management as part of a district-wide energy-reduction initiative led by Houston ISD's Energy and Sustainability Department. Effective use of the building's direct digital controls (DDC) made the most significant contribution to energy savings. The DDC allows building managers to control the run times of the heating, ventilation, and air conditioning system. The reintroduction of this system in early 2015 allowed building managers to adjust the HVAC schedule to match the building's operating hours, a technique that immediately produced savings for the district.

Build relationships to ensure shared success

St. George's learned that energy management systems work best when all of the building occupants and managers are involved in the process. As a result, the energy management team built relationships with occupants and custodial staff alike to create an energy management strategy that fit the unique needs of the building. Moving forward, collaboration between building occupants and custodial staff should result in more efficient operation of the building.

STORIES BEHIND THE BATTLE: INDIVIDUAL BUILDINGS

Pictured: MUFG Union Bank 048 San Clemente

MUFG Union Bank

San Clemente, Calif.

RECOGNITION:

#14 overall building energy reduction

#1 building energy reduction, bank branch category

20% energy reduction

SAVINGS:

35.2% energy savings

$2,300 estimated cost savings

9 $MtCO_2e$ greenhouse gas emissions prevented

BUILDING STATS:

Type: Bank branch

Ending EUI: 137 kBtu/Sq. Ft.

"Work collaboratively and interdepartmentally within your organization to plan out ways to collectively improve your energy savings in all categories."

Upgrade and automate

To preserve occupant comfort while reducing energy use, this Union Bank in San Clemente, Calif., upgraded its HVAC system and installed an automated energy management system (EMS). The facility management team has already seen a reduction in energy costs and anticipates a four-year return on its investment for the new EMS and HVAC upgrade. The new EMS also helps the facility management team save energy by establishing standard temperature set points and managing both interior and exterior lighting more effectively. The management team has programmed the lighting controls so that interior lights shut off while the building is unoccupied, and exterior lights turn off automatically when photo-sensors detect sunlight.

Share the responsibilities

For Union Bank, pursuing energy efficiency is an interdepartmental priority championed by the Environmental Stewardship department, the Corporate Real Estate department, and branch employees. The Corporate Real Estate department invested in more efficient lighting and upgraded the majority of its exterior lights to high-efficiency LEDs. The department also performed an air balancing test to ensure that the HVAC system was cooling and heating efficiently. The Environmental Stewardship department launched bank-wide employee engagement campaigns to educate all staff members on no-cost and low-cost ways to save energy. Dedicated branch personnel implemented daily energy-saving techniques such as unplugging appliances and equipment when not in use, turning the break room TV off when not in use, turning off lights in unoccupied rooms, and shutting off all non-critical computers at the end of the day.

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STORIES BEHIND THE BATTLE: INDIVIDUAL BUILDINGS

Pictured: 800 Walnut Street

LT02185 - 800 Walnut Street

Philadelphia, Pa.

RECOGNITION:

#15 overall building energy reduction

20% energy reduction

SAVINGS:

34.7% energy savings

$136,100 estimated cost savings

876 $MtCO_2e$ greenhouse gas emissions prevented

BUILDING STATS:

Type: Office

Ending EUI: 252 kBtu/Sq. Ft.

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"A proactive approach to energy management is critical, and must begin with benchmarking. With a detailed baseline in place, you can then work with occupants to understand their needs and identify opportunities to reduce energy use."

Collaboration is key

By working directly with the building tenants to understand the unique needs of their operations, the energy team at 800 Walnut Street was able to achieve huge energy reductions. Through collaboration, it was possible to scale back the building system's operating hours without affecting occupant comfort. The team used Ecosave's Automated Logic system to monitor and maintain the very delicate balance needed in this world-class medical building.

Striking the right balance

800 Walnut Street had on-site engineers conduct a daily review of trend logs to review overnight system performance, and ensure set points were being met and static pressure and supply reset strategies were being maintained. The team worked side-by-side with the tenants, maintained open communication, and set common goals. Constant balance and maintenance of the tenant HVAC system was vital to achieving energy savings.

STORIES BEHIND THE BATTLE: INDIVIDUAL BUILDINGS

Pictured: Sears - 1248

Sears - 1248

Hayward, Calif.

RECOGNITION:

#1 building energy reduction, Retail store category

20% energy reduction

SAVINGS:

34.6% energy savings

$61,900 estimated cost savings

243 $MtCO_2e$ greenhouse gas emissions prevented

BUILDING STATS:

Type: Retail store

Ending EUI: 61 kBtu/Sq. Ft.

"Benchmarking your buildings is a crucial first step to understanding what the baseline energy consumption is."

Working off the waste with the California Conservers

This Sears store participated in the 2015 National Building Competition as a member of the California Conservers team. The team focused on executing high-yield, basic structural upgrades that had minimal upfront investment. The most effective of these upgrades was an LED lighting retrofit that required no rewiring and took less than three minutes per fixture to implement. This project realized immediate energy savings for this and other Sears buildings.

Control modifications played a large part in the store's energy management system. These modifications included the installation of variable speed drives on the store's air handling units to optimize the building's HVAC system for occupant comfort and building efficiency. The team paired control modifications with a management and verification system to optimize energy savings. A management system driven by regular benchmarking enabled the store to achieve significant savings and will inform better energy management for years to come.

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STORIES BEHIND THE BATTLE: INDIVIDUAL BUILDINGS

Pictured: Centreville Carter Hickman District Court

Carter M. Hickman District Court & Multi-Service Center

Centerville, MD

RECOGNITION:

#1 building energy reduction, Courthouse category

SAVINGS:

18.1% energy savings

$27,600 estimated cost savings

99 $MtCO_2e$ greenhouse gas emissions prevented

BUILDING STATS:

Type: Courthouse

Ending EUI: 161 kBtu/Sq. Ft.

"Upgrade your old buildings as best as you can. Do a thorough review of your current systems and how they're operating, and determine how you could adjust them for energy efficiency improvements."

Optimizing building schedules is key

The facility management team at Carter M. Hickman District Court and Multi-Service Center performed a thorough review of the existing energy system and used their findings to optimize the building's energy schedule. HVAC schedule adjustments ensured systems were only running when needed. The team identified evenings and weekends when courts were not in session and cut off systems during those times to save energy.

In addition to optimizing building schedules, the facility management team also implemented lighting upgrades, replacing all exterior lights with LED technology. In total, the team upgraded 45 fixtures from old mercury vapor and metal halide to more energy-efficient LED lights.

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General Motors Company

Burton, Mich.

RECOGNITION:

See table.

SAVINGS:

See table.

BUILDING STATS:

See table.

"Review your bills and compare the consumption for your specific site to other warehouses."

Not the same old boilerplate

The General Motors Customer Care & Aftersales team reached the Top 15 for savings in both energy and water during the 2015 National Building Competition. The General Motors energy management team reviewed the buildings' water bills and compared water usage intensity with other warehouses of a similar size and location. They identified the old steam boiler systems, and associated building heater units, as a major source of maintenance costs and both water and energy waste.

On both the Burton and Pontiac campuses, the energy management team replaced old steam boilers with more efficient direct-fired gas heaters. In addition to reducing maintenance costs, this replacement saved water by eliminating the leaky feedwater and condensate systems.

Rolling back energy usage

In conjunction with boiler replacement, the energy management team installed an energy management system that controls the schedules of the new gas-fired heaters. This system also functions as a catch-safe, meaning it has the ability to inform plant personnel of mechanical equipment failure or low temperatures. In addition to these measures, the team replaced the existing high intensity discharge fixtures with new motion sensor T8 fluorescents, which are far more efficient.

The General Motors energy management team recommends consistent self-evaluation of energy and water use to achieve savings.

Energy

Recognition(s)	Building Name	Building Savings			Building Stats	
		Energy Savings	Estimated Cost Savings	Emissions Prevented ($MtCO_2e$)	Building Type	Ending EUI (kBtu/Sq.Ft.)
#1 building energy reduction, warehouse category 20% energy reduction	GM Customer Care & Aftersales, Burton	32.1%	$137,300	902	Warehouse	67

Water

Recognition(s)	Building Name	Building Savings		Building Stats	
		Water Savings	Estimated Cost Savings	Building Type	Ending WUI (Gal/Sq.Ft.)
#2 overall water reduction #1 building water reduction, warehouse category 20% water reduction	GM Customer Care & Aftersales, Pontiac Plant 75	67.9%	$30,100	Warehouse	1
#3 overall water reduction 20% water reduction	GM Customer Care & Aftersales, Burton	64.9%	$4,900	Warehouse	1

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STORIES BEHIND THE BATTLE: INDIVIDUAL BUILDINGS

Pictured: Midland Memorial Hospital – Main Campus

Texas Association of Healthcare Facilities Management

Midland, Texas

RECOGNITION:

See table.

SAVINGS:

See table.

BUILDING STATS:

See table.

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"Educate and involve employees…the more involved they are, the more likely the savings will be sustained over the long term."

Ambition and technical know-how result in big savings

Midland Memorial Hospital credits its significant energy savings to an ambitious project that involved retro-commissioning the HVAC systems in their patient tower. The team captured new efficiencies by adjusting the building operation program to eliminate the simultaneous operation of the chilled water and preheat valves. The team also installed occupancy sensors in 15 operating rooms and used the resulting feedback to automatically reset variable air volume minimum airflow set-points during unoccupied periods.

At Memorial Hermann Greater Heights Medical Plaza 1, facility management kicked off improvements by making sure sensors and building systems were functioning properly. Facility management replaced the outdated HVAC system and began upgrading the building automation system as well. Throughout the process, management calculated the cost of delaying repairs, and used projected efficiency gains to justify implementation costs.

Make it a team effort

The team at Midland Memorial Hospital took care to engage the right people at all levels of the organization, from securing buy-in from senior managers, to utilizing the expertise of professional energy advisors, to training and engaging the building employees. Midland's results demonstrate the importance of getting everyone involved in energy savings.

Recognition(s)	Building Name	Building Savings			
		Energy Savings	Estimated Cost Savings	Emissions Prevented ($MtCO_2e$)	Ending EUI (kBtu/Sq.Ft.)
#1 overall building energy reduction, hospital category	Midland Memorial Hospital	18.0%	$775,300	3216	376
#1 overall building energy reduction, medical office category	Memorial Hermann Greater Heights Medical Plaza 1	17.1%	$56,200	439	352

STORIES BEHIND THE BATTLE: INDIVIDUAL BUILDINGS

Pictured: Pleasantdale Chateau

Pleasantdale Chateau

West Orange, N.J.

RECOGNITION:

#1 building energy reduction, hotel category

SAVINGS:

14.5% energy savings

$36,400 estimated cost savings

132 $MtCO_2e$ greenhouse gas emissions prevented

BUILDING STATS:

Type: Hotel

Ending EUI: 225 Btu/Sq. Ft.

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Robby Ross

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"Our strategy involved working off the energy waste without large expenditures, and funding improvement projects with energy savings."

Continuous recommissioning

Once the private home of an industrial magnate, Pleasantdale Chateau is situated on 40 acres of woodlands, meadows, manicured gardens, and ponds. The energy team implemented an iterative approach to energy efficiency, informed by continuous benchmarking and monitoring of energy performance. Close attention to performance over time continued to reveal new opportunities to improve efficiency, resulting in a persistent decline in energy use.

Tackling energy waste on multiple fronts

The Pleasantdale Chateau energy team engaged Easy Energy USA to install a control system to manage thermostat, equipment, and lighting schedules in a way that preserved comfort while reducing energy consumption. Other updates included air sealing and insulation installation, a comprehensive LED lighting upgrade, and a rebuilt steam infrastructure. Introducing a staggered mechanical schedule enabled older mechanical equipment to remain off during the "shoulder seasons," thus avoiding unnecessary wear and tear on those systems.

STORIES BEHIND THE BATTLE: INDIVIDUAL BUILDINGS

Pictured: Aspira Apartments

Aspira Apartments

Seattle, Wash.

RECOGNITION:

#1 building energy reduction, multifamily housing category

SAVINGS:

6.4% energy savings

$40,200 estimated cost savings

118 $MtCO_2e$ greenhouse gas emissions prevented

BUILDING STATS:

Type: Multifamily housing

Ending EUI: 80 kBtu/Sq. Ft.

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"Benchmarking is essential to understanding and improving performance."

A focus on lighting

To improve energy performance at Aspira, an apartment building in Seattle, Wash., the property management team focused on implementing lighting upgrades. The team replaced fluorescent lamps in the parking garage with 22W T8 LEDs. The team also installed 360-degree, fixture-mounted occupancy sensors on 50 percent of the garage lighting, and removed the unneeded fluorescent lamps in single-lamp fixtures near the garage perimeter.

Additionally, the team optimized operation of the boilers that serve the space heating hot water loop, which significantly lowered energy consumption.

STORIES BEHIND THE BATTLE: INDIVIDUAL BUILDINGS

Pictured: Student Opportunity Center

Student Opportunity Center

Frisco, Texas

RECOGNITION:

#1 building energy reduction, adult education/training

SAVINGS:

18.2% energy savings

$8,900 estimated cost savings

69 $MtCO_2e$ greenhouse gas emissions prevented

BUILDING STATS:

Type: Adult education/training

Ending EUI: 130 kBtu/Sq. Ft.

"Communicate your accomplishments to everyone in the organization and be as transparent as possible with your energy use."

Modernizing a historic building

Frisco Independent School District's Student Opportunity Center is housed in the district's oldest school building. Built in 1934 by the Works Progress Administration, it is still in use today and serves K-12 students from all across the Frisco Independent School District. To keep the historic building up-to-date, the roof top units and air handlers were replaced with more efficient models, and the metal halide lamps in the building's gym were updated with T5 HO fluorescent lamps.

Create a system that works for you

The Student Opportunity Center is used by a wide audience. Classes are held throughout the day, starting in the morning, and ending in the evening or at night. To accommodate this extended use, after-hours activities are scheduled through the central scheduling control system. The team made sure to get as many staff involved as possible in the energy-savings effort and sought top-down support from management to guide the process. This customized management system for the Student Opportunity Center has successfully reduced energy use.

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STORIES BEHIND THE BATTLE: INDIVIDUAL BUILDINGS

Pictured: Giant Eagle 6504 - Upper Arlington

Giant Eagle 6504 – Upper Arlington

Columbus, Ohio

RECOGNITION:

#1 building energy reduction, supermarket

SAVINGS:

12.7% energy savings

$99,200 estimated cost savings

461 $MtCO_2e$ greenhouse gas emissions prevented

BUILDING STATS:

Type: Supermarket

Ending EUI: 408 kBtu/Sq. Ft.

"Select capital projects to execute across your portfolio of buildings for more significant energy reductions."

Optimize your equipment

Giant Eagle conducted two energy reduction projects at its Upper Arlington supermarket. To reduce energy use, technicians spent a week retro-commissioning the store. Their efforts included optimizing the store's refrigeration, HVAC, and lighting systems and making adjustments to prevent premature failure of the equipment. Optimization included calibrating equipment, verifying set-points to meet established corporate standards, and adjusting superheat settings. The technicians also took thermal images of the store's refrigeration, HVAC and lighting systems to identify potential failure situations. Finally, an energy audit conducted during both occupied and un-occupied hours helped Giant Eagle find additional energy reduction opportunities. Managers were able to incorporate findings from the project into their store closing procedures to reduce overall energy use throughout the store.

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STORIES BEHIND THE BATTLE: INDIVIDUAL BUILDINGS

Pictured: Rosenau Hall (left), Thurston-Bowles Building (right)

University of North Carolina, Chapel Hill

Chapel Hill, NC

RECOGNITION:

See table.

SAVINGS:

See table.

BUILDING STATS:

See table.

"Don't forget to analyze the benefits and costs of individual measures before selecting the ones you will implement."

Reprogramming for greater efficiency

The team at UNC Chapel Hill achieved remarkable savings at two campus buildings through very different approaches. At Rosenau Hall, the facility staff made the most of available equipment by reprogramming the existing direct digital control building automation system for greater efficiency. This simple step to fine-tune existing equipment resulted in the greatest reduction in water consumption at the building. Nearby, at the Thurston-Bowles Building, the team executed a technology upgrade that reduced water waste. The team converted from using domestic water to cool the building to using chilled water that circulates in a closed loop instead of passing once through a heat exchanger and then being dumped. This change eliminated the need for domestic water for cooling.

The team also made significant progress in both buildings by training the building maintenance staff to identify and resolve problems that waste water.

One step at a time

The water conservation team cites five steps that are essential to kicking off a successful water conservation program: 1) create a plan that identifies water conservation measures, 2) analyze the benefits and costs of each measure, 3) educate water end users, 4) implement the strategies identified, and 5) verify your savings.

Recognition(s)	Building Name	Building Savings		Building Stats	
		Water Savings	Estimated Cost Savings	Building Type	Ending WUI (Gal/ Sq.Ft.)
#1 building water reduction, college/university category 20% water reduction	Rosenau Hall	31.8%	$5,100	College/ university	10
#5 overall building water reduction #1 building water reduction, other category 20% water reduction	Thurston-Bowles Building	60.4%	$222,200	Other	101

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BATTLE OF THE BUILDINGS TEAM CHALLENGE
EPA's NATIONAL BUILDING COMPETITION

Learn more about EPA's National Building Competition
at energystar.gov/BattleOfTheBuildings

ENERGY STAR

Pictured: Greenwood Elementary

Des Moines Public Schools

Des Moines, IA

RECOGNITION:

See table.

SAVINGS:

See table.

BUILDING STATS:

See table.

"Recognize that each building is going to have a unique water-consumption profile, and work to tailor a plan that is specific to each building's needs."

Engaging occupants is key

Saving water throughout Des Moines Public Schools (DMPS) required tapping into the district's most valuable resource: its people. DMPS management engaged and empowered all members of the community and communicated the importance of making conscientious choices about water consumption.

The Dean Avenue facility is the primary hub for DMPS facility management and custodial operations staff, the core team that led water conservation efforts in the school district. As part of its conservation strategy, DMPS management focused on empowering the core team to lead by example and model responsible water use throughout the school district. The Dean Avenue facility is also equipped with self-flushing, low-flow toilets; automatic hand-washing faucets; and low-flow water coolers. Staff members also limited water used for routine facility-management activities, such as turf irrigation and equipment cleaning.

At Greenwood Elementary, facility management reduced water use through a combination of preventative maintenance and behavioral changes. Staff members repaired slow leaks in water fixtures, which greatly reduced the amount of water wasted. Facility management also made repairs and upgrades to the building's geothermal loop system, which immediately reduced water consumption throughout the building.

In addition to these improvements, the district promoted a sustainable water ethic throughout its schools. Teachers gave lessons about the importance of environmental stewardship, and also modeled responsible water-use behaviors for their students, such as handwashing habits that minimize water waste

Recognition(s)	Building Name	Building Savings		Building Stats	
		Water Savings	Estimated Cost Savings	Building Type	Ending WUI (Gal/ Sq.Ft.)
#6 overall building water reduction 20% water reduction	Dean – Operations Center	59.5%	$2,000	Warehouse	2
#10 overall building water reduction 20% water reduction	Greenwood Elementary	41.1%	$2,000	K-12 school	5

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STORIES BEHIND THE BATTLE: INDIVIDUAL BUILDINGS

Pictured (clockwise from top left): Brooks Wester Middle School, Kenneth Davis Elementary School, Cora Spencer Elementary School, Willie Brown Elementary School

Mansfield ISD

Mansfield, Texas

Grand Prairie, Texas

RECOGNITION:

See table.

SAVINGS:

See table.

BUILDING STATS:

See table.

For additional information, contact:

Dwayne Tampkins, Cora Spencer Elementary School, Willie Brown Elementary School, and Brooks Wester Middle School
Kelly Campbell, Kenneth Davis Elementary School
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"Adjust your irrigation patterns seasonally. When the weather won't do it for you, conservatively water your green spaces. Also, actively monitor your bills. Sometimes small leaks go unnoticed, but they'll be reflected in your bills."

Commonsense measures

When it comes to saving water, the Mansfield team knows that commonsense tactics are the way to go. Continuously tracking water usage enabled the team to quickly identify outliers and resolve any problems. Knowing that landscaping was a major end-user of water on campus, the team invested in high-quality irrigation controls and trained the facility staff in their use.

Stop water waste before it happens

The Mansfield team decided to address water waste issues by anticipating and preventing problems before they arose. To do this, the team established a regular preventative maintenance schedule for checking every spigot, sprinkler, and restroom to avoid wasting water.

Recognition(s)	Building Name	Building Savings		Building Stats	
		Water Savings	Estimated Cost Savings	Building Type	Ending WUI (Gal/ Sq.Ft.)
#8 building water reduction #1 building energy reduction, K-12 school category 20% water reduction	Willie Brown Elementary School	45.1%	$9,100	K-12 school	19
#9 building water reduction 20% water reduction	Brooks Wester Middle School	44.5%	$17,900	K-12 school	12
#11 building water reduction 20% waterreduction	Kenneth Davis Elementary School	38.8%	$12,300	K-12 school	30
#14 building water reduction 20% water reduction	Cora Spencer Elementary School	34.4%	$14,300	K-12 school	39
#15 building water reduction 20% water reduction	Asa Low Intermediate School	34.4%	$11,200	K-12 school	18

Pictured: Lawrenceville Branch Library

Pictured: One Justice Square

Gwinnett County Government

Lawrenceville, Ga.

RECOGNITION:

See table.

SAVINGS:

See table.

BUILDING STATS:

See table.

"Celebrate the victories."

Look before you leap

Gwinnett County Government began its water-saving journey with a comprehensive water audit to evaluate baseline performance and identify opportunities for eliminating water waste. Informed by the results of the audit, the water team prioritized projects to address the greatest sources of water waste, which included leaks and inefficient fixtures in the bathrooms. With these priorities in mind, the team designed a comprehensive water use reduction plan that formally delegated responsibilities and clarified who would be responsible for which water efficiency measures.

Cut out the water waste

Guided by the new water use reduction plan, the team undertook an ambitious plumbing retrofit project to replace old fixtures with water-efficient ones throughout the building. Additionally, the team repaired leaks and strengthened internal lines of communication between building occupants and maintenance staff to ensure faster resolution of future leaks, and other sources of water waste, when they arise.

Recognition(s)	Building Name	Building Savings		Building Stats	
		Water Savings	Estimated Cost Savings	Building Type	Ending WUI (Gal/ Sq.Ft.)
#12 overall building water reduction #1 building water reduction, office category 20% water reduction	One Justice Square	35.4%	$2,600	Office	5
#1 building water reduction, library category 20% water reduction	Lawrenceville Branch Library	19.8%	$360	Library	6

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STORIES BEHIND THE BATTLE: INDIVIDUAL BUILDINGS

Pictured: Giant Eagle Market District - 0047 Robinson

Giant Eagle Market District - 0047 Robinson

Pittsburgh, Pa.

RECOGNITION:

#1 building water reduction, supermarket

20% water reduction

SAVINGS:

31.2% water savings

$16,000 estimated cost savings

BUILDING STATS:

Type: Supermarket

Ending WUI: 27 Gal/Sq. Ft.

"Look for opportunities to invest in new or upgraded equipment that will provide long-term water reductions."

Work together as a team

Giant Eagle's Robinson Market District facility management team achieved significant water reductions through a water conservation project that included the installation of water efficient low-flow spray valves in food preparation areas and high efficiency aerators on faucets throughout the store. This project was part of a corporate water reduction initiative to reduce water usage throughout Giant Eagle's supermarket portfolio. An interdepartmental corporate team of sustainability, facility, and construction team members selected fixtures that would maximize water savings without sacrificing performance for the store.

Giant Eagle analyzed historical water usage to identify high and low performers across its locations and analyzed the data to determine water usage patterns. This allowed management to implement corrections and replicate successes across the chain.

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STORIES BEHIND THE BATTLE: INDIVIDUAL BUILDINGS

Pictured: The energy team at Hotel Pennsylvania

Hotel Pennsylvania

New York, N.Y.

RECOGNITION:

#1 building water reduction, hotel category

SAVINGS:

9.8% water savings

$99,600 estimated cost savings

BUILDING STATS:

Type: Hotel

Ending WUI: 73 kGal/Sq. Ft.

"Considering that our building is very old and hasn't undergone any major renovation in the past 50 years, the key is to do repairs in a timely manner. We believe that every drop counts."

100 years young and still improving

Across the street from Madison Square Garden and Penn Station, Hotel Pennsylvania is a classic Midtown Manhattan hotel constructed in 1919. The building has not been renovated in 50 years, but some simple changes and replacements have made all the difference in reducing the building's water consumption. Hotel Pennsylvania demonstrates that it is very possible for an older building to operate efficiently.

Taking action to conserve every drop

Strategically replacing old fixtures and enacting a preventative maintenance program have yielded significant savings. The facility team began its water conservation journey years ago by replacing shower fixtures in guest bathrooms, and has since installed new efficient shower heads, toilets, and faucets. Initiating a preventative maintenance program for toilet flushometers has also contributed to savings. The team credits its water conservation to prompt repair of any leaks or water waste issues, and to living out the motto, "Every drop counts."

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STORIES BEHIND THE BATTLE: INDIVIDUAL BUILDINGS

Pictured: 660 First Avenue

660 First Avenue

New York City, N.Y.

RECOGNITION:

#1 building water reduction, medical office category

20% water reduction

SAVINGS:

23.4% water savings

$11,500 estimated cost savings

BUILDING STATS:

Type: Medical office

Ending WUI: 39 kGal/Sq. Ft.

"Competition is a natural driver of performance…the results from the Battle of the Buildings will help grow commitment to our energy program."

A systems makeover

The energy management team behind NYU Langone Medical Center's multi-practice medical office at 660 First Avenue drove savings throughout the competition by implementing structural changes with immediately identifiable effects on energy performance, which ultimately helps drive water reduction. The most effective project involved treating the condenser coils on three direct expansion air handlers and one air cooled chiller with thermally conductive paint. The rationale behind this method is that the thermally conductive paint enables more effective heat transfer from the coils to the atmosphere. This tactic was a small but effective part of the team's comprehensive air balancing work in the building .

Maintenance work was also done on the cooling towers, which were frequently overflowing. The building management team also took steps to prevent over-quenching the cooling tower steam condensate before it is discharged into the sewer.

Competition that drives collaboration

Most of the projects undertaken by the building energy management team were large-scale infrastructure and operational initiatives, but the competition also provided an avenue for more consistent participation from building managers and engineers at individual buildings across the real estate portfolio. In addition, it gave energy managers an occasion to communicate with end-users in the space about how to meet their needs while also saving energy and water.

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STORIES BEHIND THE BATTLE: INDIVIDUAL BUILDINGS

Pictured: Truman Medical Center

Truman Medical Center - Hospital Hill

Kansas City, Mont.

RECOGNITION:

#1 building water reduction, hospital category

SAVINGS:

7.6% water savings

$2,800 estimated cost savings

BUILDING STATS:

Type: Hospital

Ending WUI: 6 kGal/Sq. Ft.

"Keep staff on task to assess domestic water usage and stay focused on completing repairs."

Running hot and cold but not together

After some detective work, the Truman Medical Center team was able to improve the hot water usage in the building by replacing defective shower valves that were causing cold water to cross-connect into the hot water system. The facility management staff also repaired cooling tower leaks and improved the cooling tower operation. And the team decided to let nature do some of the irrigation work by reducing lawn watering schedules, anticipating that rainwater would be sufficient.

Turn to your team for advice

Assessing all of the water usage in the building through regular benchmarking turned out to be the key to water-saving success for Truman Medical Center. The team also worked closely with the local utility company, and often turned to staff members occupying the building for guidance. These occupants were in the best position to pinpoint where water waste was happening, and they were able to take ownership of implementing positive changes.

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STORIES BEHIND THE BATTLE: INDIVIDUAL BUILDINGS

Pictured: Evergreen Credit Union

Evergreen Credit Union

Neenah, Wis.

RECOGNITION:

#1 building water reduction, bank branch category

20% water reduction

SAVINGS:

23.6% water savings

$70 estimated cost savings

BUILDING STATS:

Type: Bank branch

Ending WUI: 5 kGal/Sq. Ft.

"The greatest opportunity for conservation is where usage is highest…but the most important thing is to get started somewhere."

The hardest step is the first one

Evergreen Credit Union made water conservation a high-priority goal in its sustainability plan. The facility team's advice to those who want to start a water conservation plan is to begin with an understanding of where and how water is consumed. The greatest potential for water use reduction lies where the most water is used. However, if it's too difficult to make changes in that area, the next best place to begin is with the easiest changes. The most important thing is to get started somewhere.

The biggest impact

The greatest water savings resulted from a restroom fixture upgrade. The team replaced several 1.6 gallon-per-flush toilets with ultra-high-efficiency, 1.0 gallon-per-flush units. This change is expected to greatly reduce annual water consumption in the building. Prompt resolution of faucet leaks also contributed to the success achieved by Evergreen Credit Union.

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