



Viral Energy Efficiency: Setting Energy Efficiency Goals with Franchisees, Suppliers, and Tenants

May 17th, 2017

11.15am – 12.30pm

Panelists

- James McClendon, Walmart
- Tabetha McCartney, Jewish Community Housing for the Elderly
- Scott Moline, The Wendy's Company
- Holly Carr, U.S. Department of Energy, Moderator

James McClendon

Walmart

Our Emissions Journey

Walmart Stores Inc.



How we think about Targets?

Steps to Setting Climate/Emissions Targets

- Survey your stakeholders and industry peers
- Measure what our footprint is and tie it to costs
- Focus on the biggest opportunities that drive business value
- Develop a plan and achievable target – then stretch farther
- Be comfortable with the unknowns and things out of your control

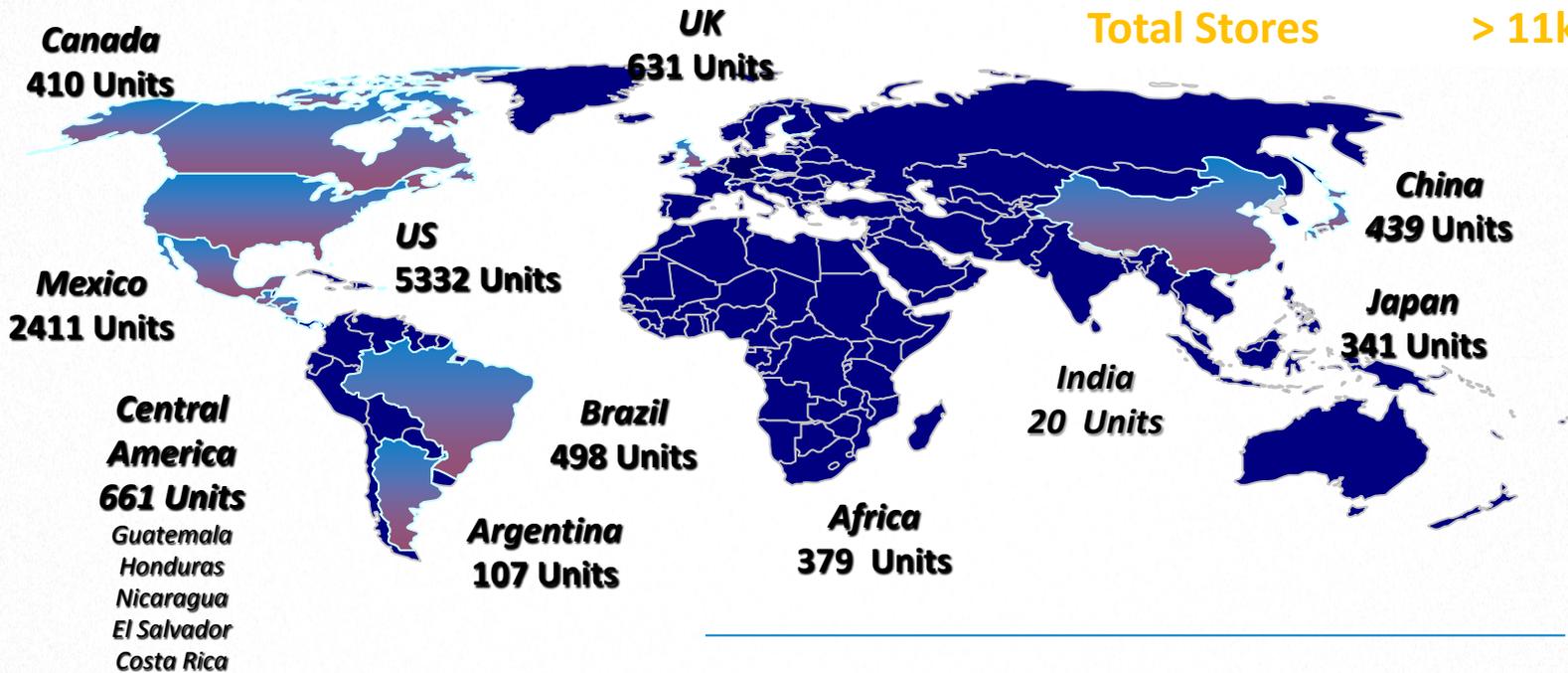
Starting with a bold ambition – for us it was 100% Renewable Energy

- Announced in **2005**
- Serves as our **TRUE NORTH**
- Leverages our strengths
- Good for the bottom line
- Inspires associates, customers, suppliers

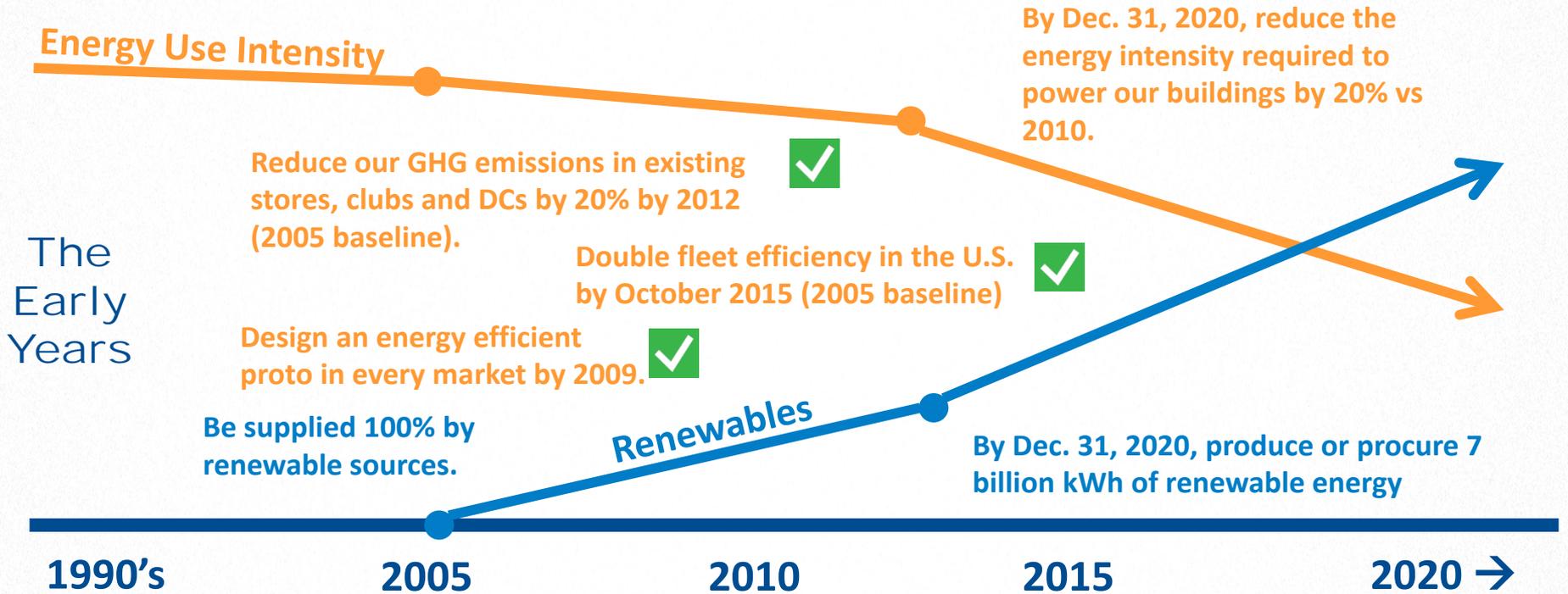


Global Footprint₂₀₁₆

Total Square Feet: > 1.1 B
Customers/Week: > 250 M
Associates: > 2.2 M
Suppliers > 100k
Total Stores > 11k

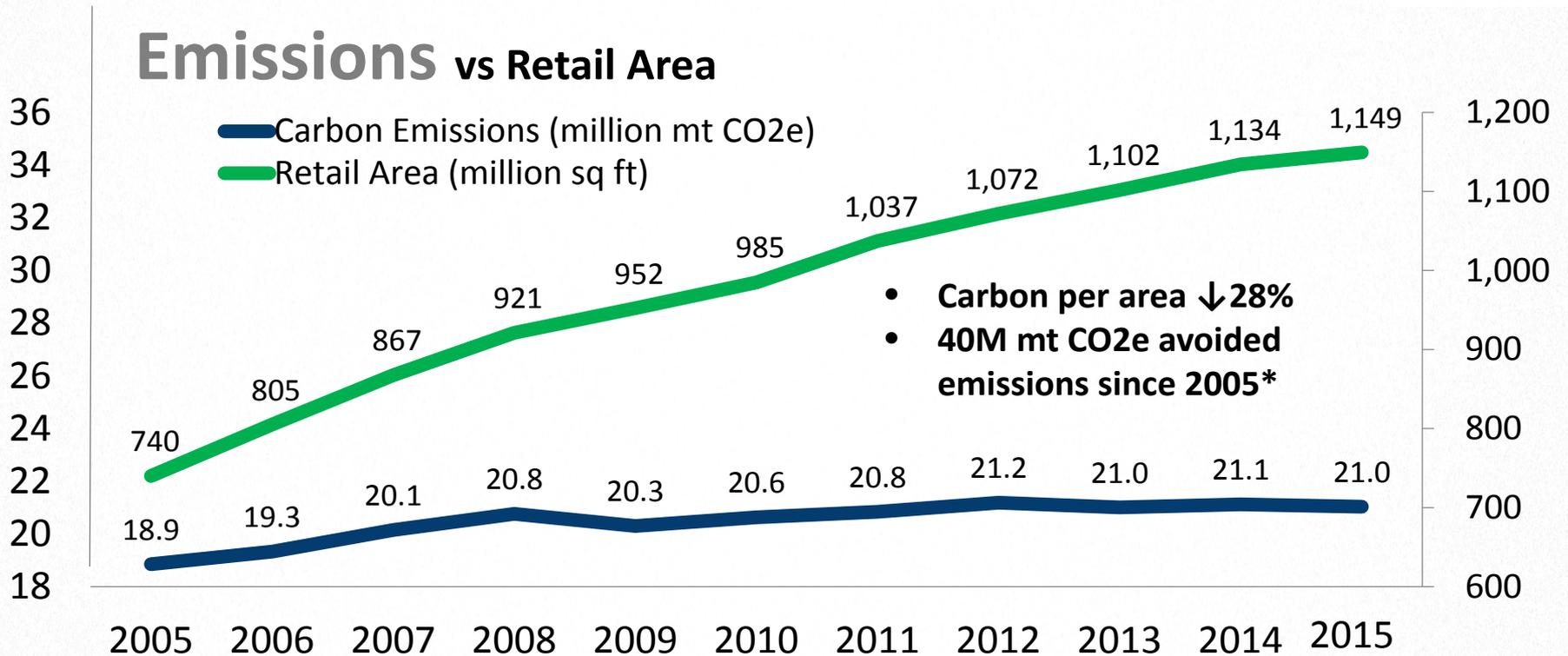


Interim targets along the way



The
Early
Years

Results - Decoupling our own growth from environmental impact and operating costs



*Cumulative avoided emissions. Compared to 2005 carbon intensity.

Energy Efficient Facilities

- Reducing the energy intensity of our operations is not only a cost-effective way to contribute to our renewable energy goal and reduce emissions, it also improves our bottom line by reducing our annual operating expenses and limiting our exposure to future increases in energy prices.
- Our investment in energy efficiency has reduced our energy use intensity per square foot by an estimated 12 percent since 2010.
- One Example: In 2015 we replaced 5,919 Rooftop Air Conditioning Units—resulting in an estimated savings of 50 million kWh and 35 million pounds of CO₂e, worth as much as \$5 million annually according to the U.S. Dept of Energy.



Onsite Renewables

- We have over **460** renewable energy systems installed at our stores, clubs and distribution centers worldwide.
- Combined, these onsite systems make up over **11 percent** of our total renewable portfolio.



Solar Parking Canopies

WMT has installed over 620,000 solar panels in the US since 2007, eq. to 190 football fields.



Rooftop Solar PV



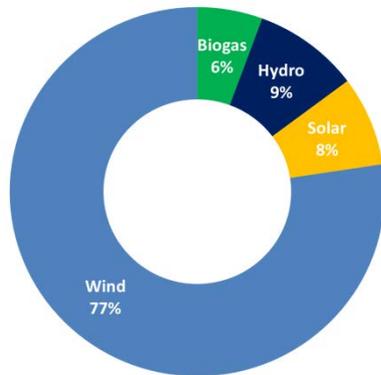
South Africa



Fuel Cells

Offsite Renewables

- As of 2016, we had **9 large agreements** supplying our operations in U.S., Mexico and the U.K. comprising **the majority** of our renewable portfolio.



Fleet Efficiency

- Achieved doubling the efficiency of our trucking fleet by 2015 vs 2005.
 - **\$1B USD** savings annually
 - **650,000** mt of CO2e avoided annually



Prototype



People & Process

Equipment

Fuels



Factory Energy Efficiency (FEE) Goal

In August 2014, Walmart committed to have **70% of our China-sourced business** participating in a factory energy efficiency program by 2017

Walmart Continues to Strengthen Global Supply Chain Sustainability; Announces New Commitment to Advance Factory Energy Efficiency in China
Walmart builds on ongoing commitment to boost energy efficiency and reduce environmental impact of China supply chain



SHENZHEN, China - August 27, 2014 – At today's Walmart Supplier Summit in Shenzhen, Walmart announced a new commitment to further strengthen the sustainability of its global supply chain by advancing the energy efficiency of its China-based manufacturers. The commitment states that suppliers representing 70 percent of Walmart's business sourced in China will be invited to participate in an energy efficiency program by the end of 2017. As a result, Walmart forecasts significant potential savings over the next 3 years. An improvement in energy efficiency by 10 percent would translate to lowering greenhouse gas (GHG) emissions by more than 1 million metric tons; that is the equivalent of taking over 200,000 cars off the road for 1 year.

"We hope that today's announcement will continue to pave the way for our operations to become more sustainable in China globally, as well as continue to set the tone for the industry as a whole," said Ignacio Lopez, Senior Vice President, who leads Walmart's Global Sourcing Operations.

To date, 40 factories in China have participated in a 2014 pilot program, and approximately 500 factories will be invited to participate in the program by the end of 2017. In order to reach the 2017 goal set forth for China-based manufacturers, Walmart will assist in providing tools and resources that will help suppliers identify energy efficient projects tailored for each facility, coordinating relevant training when needed to overcome barriers with implementation. Walmart will also track overall project performance and impact.



At the close of FY17* Global Sourcing was **54.6%** toward the **70%** target

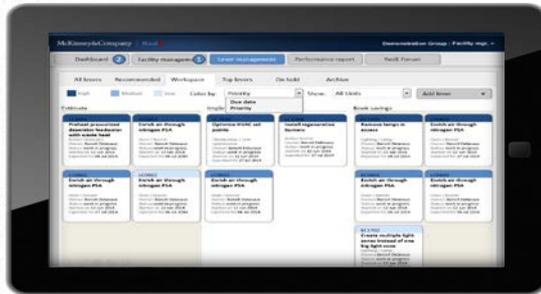
Factory energy efficiency program overview

The Goal

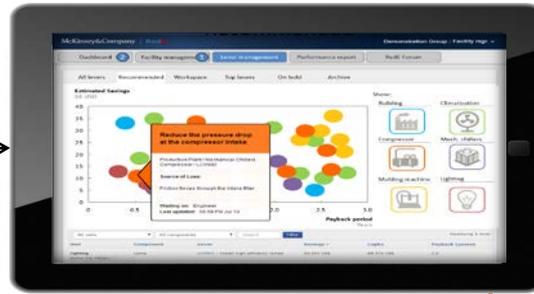
For factories that represent 70 percent of Walmart's Global Sourcing business in China to participate in an energy efficiency program by the end of 2017.

The Program

Walmart's Factory Energy Efficiency Program uses the McKinsey Resource Efficiency Deployment Engine (RedE), a web-based tool designed to help suppliers identify, prioritize, and implement energy efficiency projects in a simple, easy-to-use platform. Factories that use RedE are provided with project ideas to save energy costs and a platform to track progress and report energy metrics to Walmart (additional resources, e.g. water, may be added in the future). Data received by Walmart is aggregated and anonymized.



Customize their facility
Select language, equipment types, utility costs



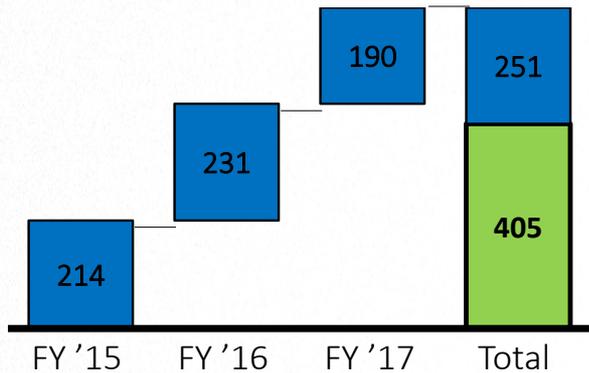
Review opportunities
Review detailed project profiles by ROI, CapEx, equipment, etc.



Monitor performance
Review energy trends, projects, cost and environmental impact

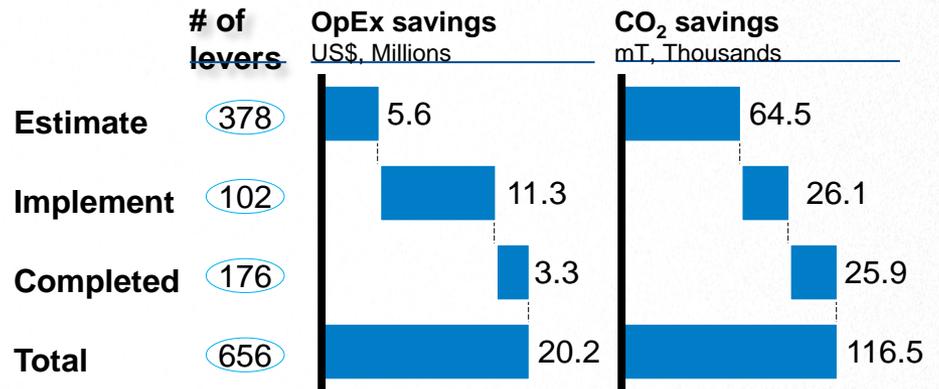
2016* was a pivotal year for the FEE program

The RedE platform expanded substantially in FY17...



- **190 new** factories joined the RedE platform; **126** factories joined through RedE Reporting, or “freemium”, which launched in July.
- **405** total factories have loaded energy efficiency levers and count toward our 70% target, including **61** RedE Reporting factories.

...projected annual savings for active factories** currently sits at \$20.2M and 117k mT in CO2e

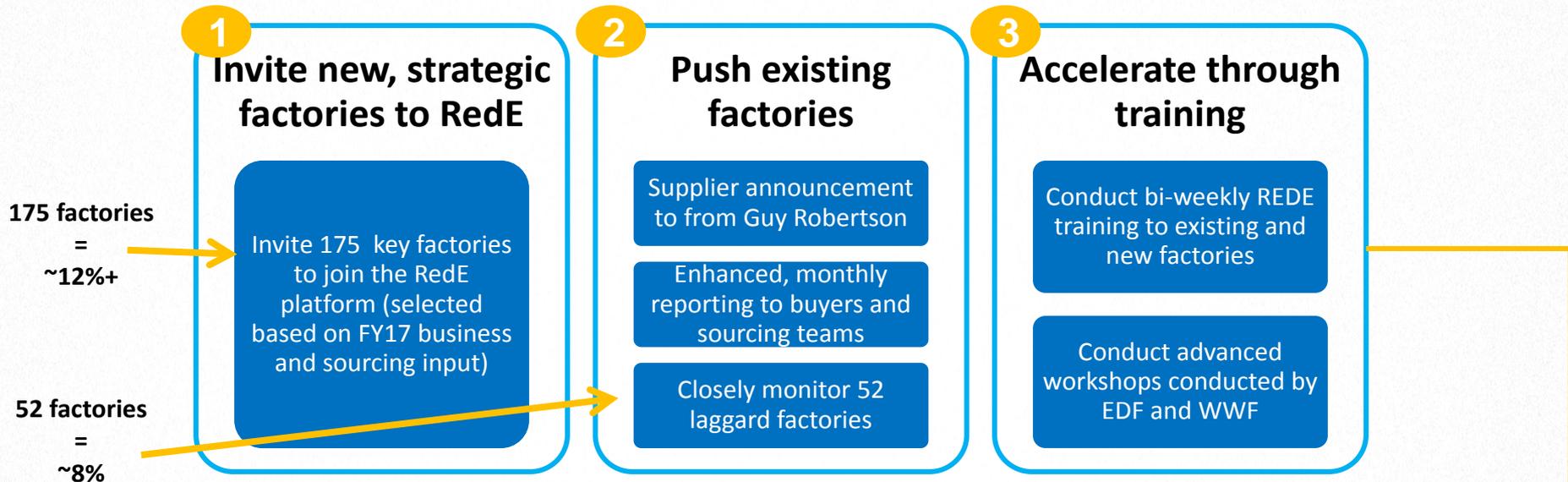


- Of the **405** factories that have loaded energy efficiency levers, **152** of them are “active”. Active factories log energy efficiency projects in the RedE platform.
- Average savings per active facility are **\$158,000 USD** in operational costs and **910 mT CO2e**.

*Results a/o February 21st 2017

**Projected savings calculated based on “active factories”, i.e. those that have moved levers into the workspace or completed levers (152 factories)

In 2017, we will close the 15.4% gap to deliver the 70% target



Training Date	Target Attendees	Training Content
Mar 2 (SH) & Mar 7 (SZ)	175 new factories	RedE Introduction
Mar 6	52 laggard factories on the system, but haven't loaded levers	RedE Enhanced training
Apr	Factories haven't loaded levers	RedE Refresher training
May	Factories haven't loaded levers, or do not report data in time	RedE Refresher training
June	Factories haven't loaded levers, or do not report data in time	RedE Refresher

Factory Energy Efficiency Program will be given the “Innovative Award” in Green Supply Chain 2017 Shanghai Summit

Shanghai Green Supply Chain Program

- Launched by Shanghai government by following the guidelines of CCICED (*China Council for International Cooperation on Environment and Development*).
- Program aims to encourage enterprises to use their leverage to get their suppliers in compliance with green supply chain standards.
- 100+ companies submitted proposals for this



Green Supply Chain 2017 Shanghai Summit is organized to recognize best practice in SH Green Supply Chain Program.



上海日报

ShanghaiDaily.com

Looking forward

- 2025 Agenda – Nov 2016
 - New ambition emissions targets
 - First retailer with an approved climate science-based target
 - WRI, WWF, CDP
- PROJECT GIGATON
 - Launching challenge to our suppliers to join us on this journey to reduce 1 gigaton (1 billion metric tons CO₂e)

SO WHAT IS WALMART'S PLAN, EXACTLY?

BY THE YEAR 2025
WE AIM TO REDUCE EMISSIONS IN OUR OWN OPERATIONS BY 18%

WE'LL DO THAT THROUGH:

- INSTALLING MORE EFFICIENT LIGHTING**
in our stores and parking lots 
- AIMING TO POWER HALF**
our operations with renewable energy by 2025 
- UPGRADING FACILITIES'**
heating and cooling systems 
- Continuing to improve **FLEET TECHNOLOGY** 

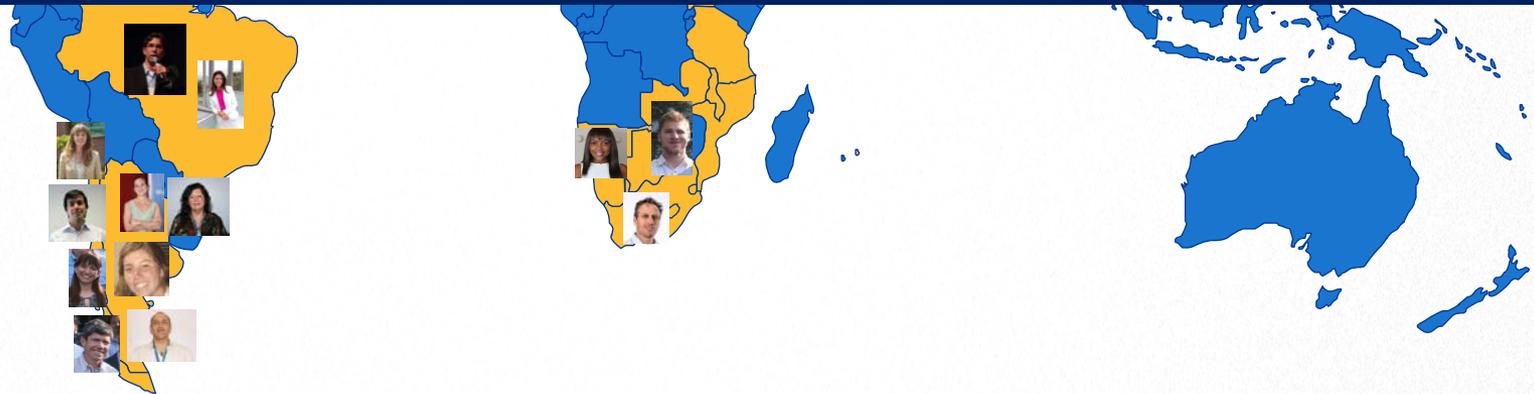
BY 2030, WE'LL WORK WITH OUR SUPPLIERS TO REDUCE CO₂ EMISSIONS IN OUR SUPPLY CHAIN BY 1 GIGATON.
That's equivalent to:

- EMISSIONS FROM 211 MILLION**
average passenger vehicles in a year, nearly all the vehicles in the U.S. 
- 100 MILLION HOMES'**
average energy use in 1 year 

Aligning the business, working together



Global Energy, Facilities and Zero Waste Sustainable Value Network

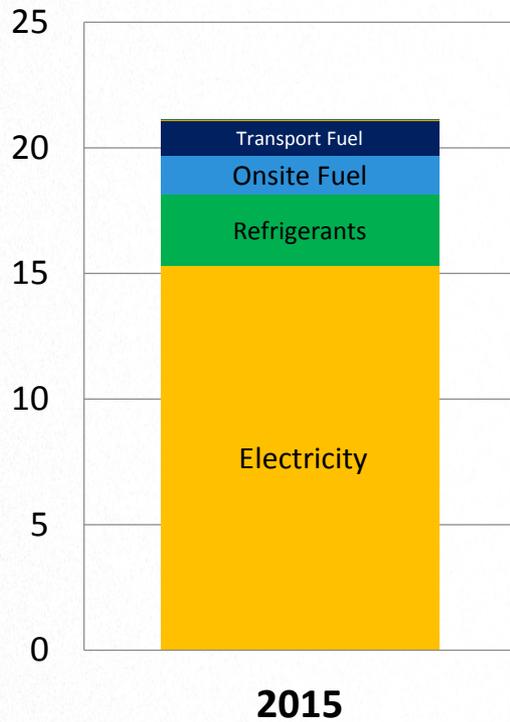


It Starts with Measurement

Key to the Business Case

Walmart Inc.'s Global Emissions

[metric tons CO2e]



Purchased Energy



Refrigerants



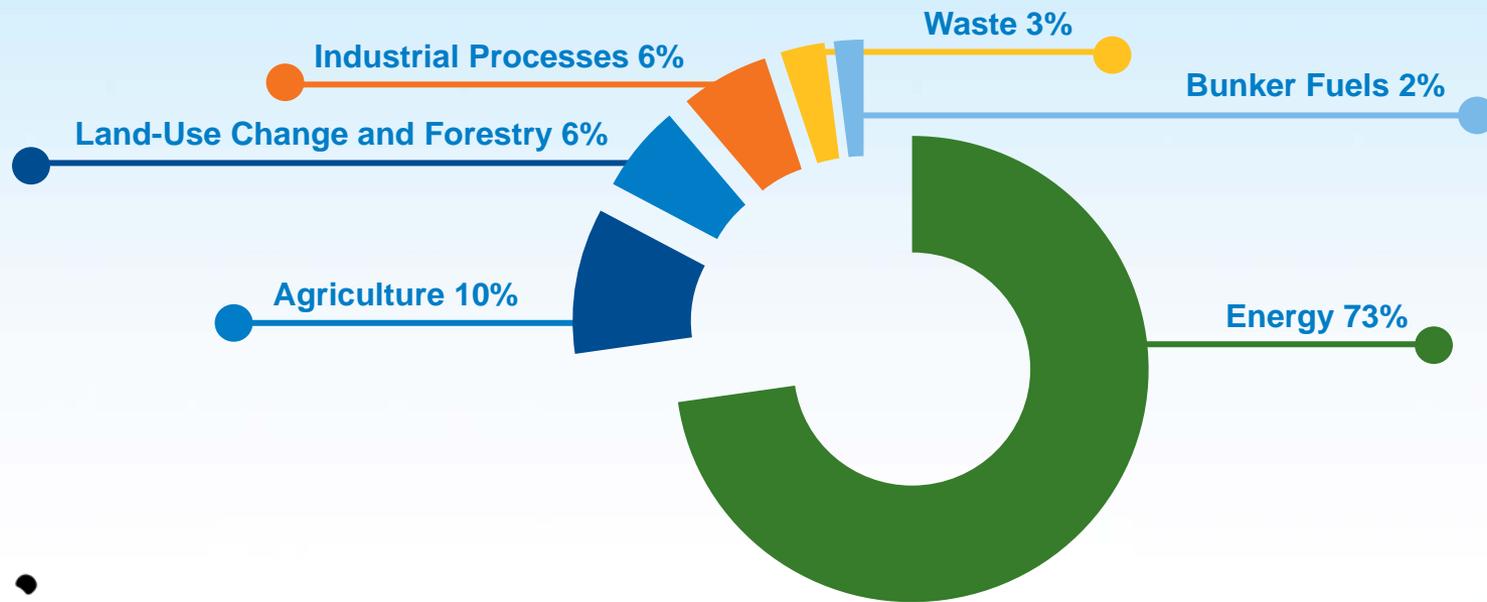
Stationary "Onsite" Fuels



Mobile "Transport" Fuels

	Purchased Energy	Refrigerants	Stationary "Onsite" Fuels	Mobile "Transport" Fuels
Description	Electricity, water or steam.	Heat transfer "working" fluid (e.g. R-404a, R-134a)	Natural gas, propane, diesel, gasoline	Diesel, gasoline
Uses	Lighting, refrigeration equipment, HVAC, plug loads (TVs)	Refrigeration and HVAC systems (stationary and mobile)	Air and water heating, ovens, generators.	Trucking fleet, passenger vehicles
Primary Drivers	Local utility grid fuel sources.	Leaks and global warming potential (GWP) of refrigerant used	Weather, demand for kitchen equipment, power outages.	Distance traveled,
Ways to reduce	Efficiency and Renewables	Fix leaks, transition to lower GWP refrigerants	Efficiency	Efficiency and alternative fuels
Key markets	US, Mex, UK, China	US, Mex, China, Brazil	All	US, CAN, UK
% of total emissions	73%	13%	7%	7%

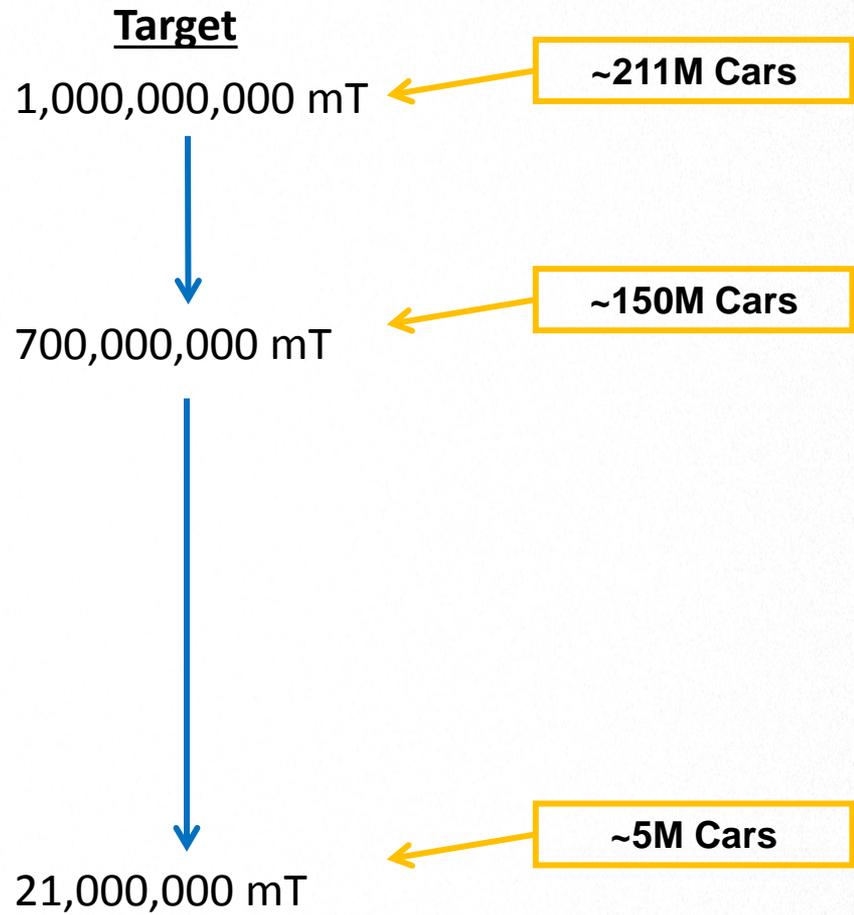
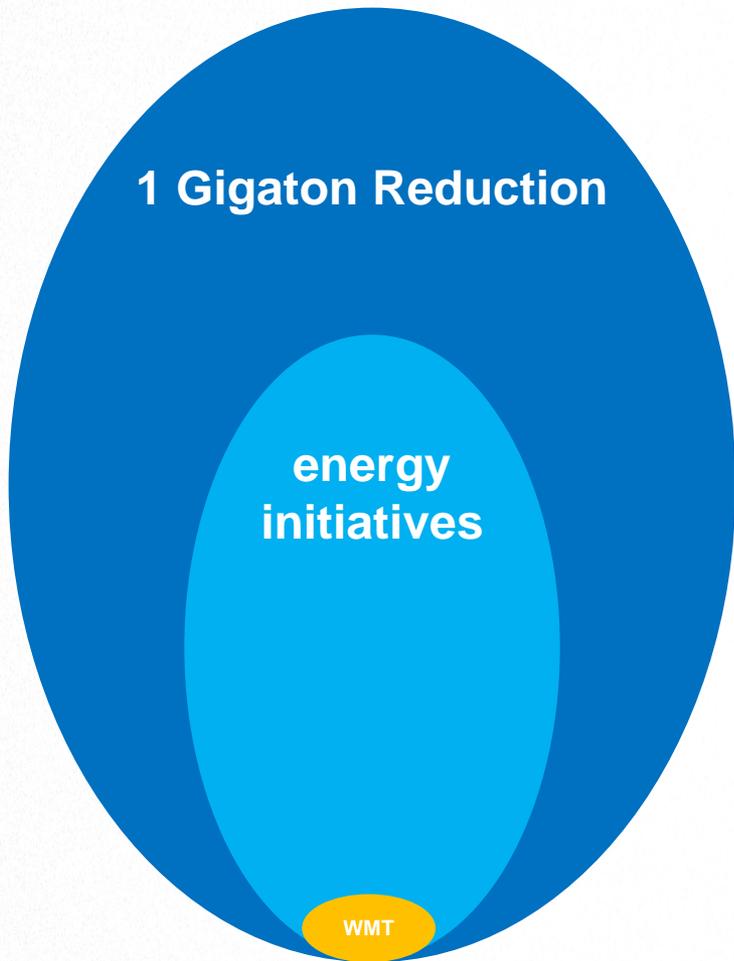
Energy is the Primary Source of Green House Emissions



Global Greenhouse Gas Emissions, 2013

Source: World Resources Institute, CAIT Climate Data Explorer, 2016





Project Gigaton™

Walmart * Sustainability Milestone Summit



Project Gigaton™

Six Pillars of the Program



Energy

Renewable Energy
Energy Efficiency
Fleet Efficiency



Agriculture

Fertilizer
Optimization
Animal Agriculture



Waste

Food and Solid
Waste Reduction



Packaging

Using Recycled
Content
Recycling



Deforestation

Avoid Deforestation



Product Use

More energy
efficient products

Strategic Contributors:

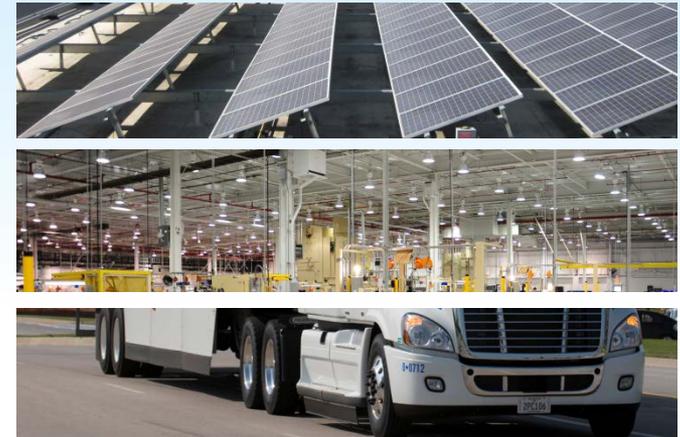


Who uses energy? Everyone.

Energy use is likely the biggest contributor to your company's emissions profile and one of your biggest operating costs. Money is on the table. Go and get it.

Join Project Gigaton by setting a goal to

- To **use less energy**
 - *Example: Reduce manufacturing energy intensity by 25%*
- To transition to **renewable energy sources**
 - *Example: Power 30% of operations with onsite solar*
- To drive **energy programs with your suppliers**
 - *Example: Aim to have more than 75% of our suppliers trained and implementing energy management programs.*



Strategies implemented to achieve targets

1



Scaling clean, affordable, renewable energy

2



Improving energy efficiency in our facilities

3



Improving refrigeration systems in our stores

4



Maximizing the efficiency and safety of our trucking fleet



Small changes can mean big impacts!

Sustainable packaging can have an impact on reducing GHG emissions



Priority Areas



Where to start?

Consider using the How2Recycle label

90% of Americans believe recycling is important

The How2Recycle label provides consistent and transparent on-package recycling information to consumers



Email How2Recycle@greenblue.org to get started
For more info: walmartsustainabilityhub.com



Is your business ready to reduce the excess waste across value chain?

The elimination of waste can reduce costs and GHG emissions



Join Project Gigaton by setting a **Waste Reduction goal** in your operations, supply chain or with customers.



Commit to General and Food waste reduction in your **Operations**



Work with your **Suppliers and Farmers** to prevent post-harvest losses



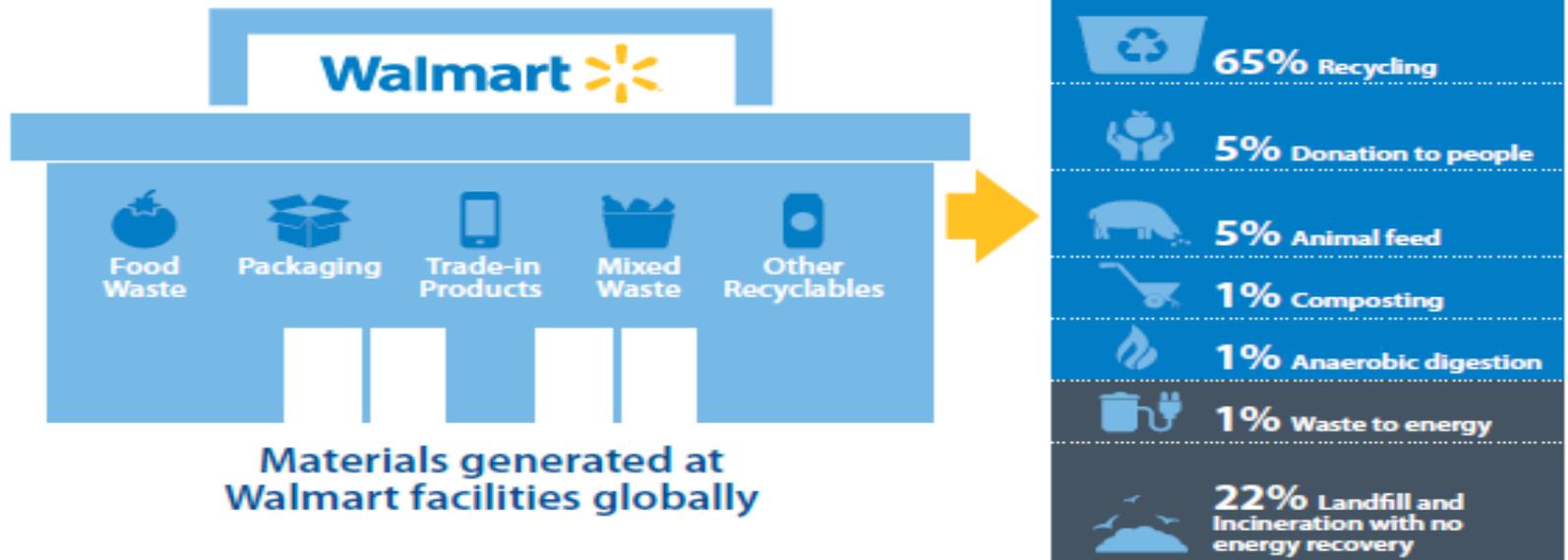
Use "Best if Used By" date labels and extend shelf life of food to prevent waste at **Customer level**

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Global waste flows





MADE IN U.S.A! CLOSED LOOP SOLUTION

Walmart cooler hardliners



ProjectGigaton[™]

Walmart Sustainability Milestone Summit





On Shoring Hardliners to U.S.

- Olivet collects post consumer resin from Walmart 6 return centers across the U.S.
- This resin is processed back to pellet form and injection molded into cooler liners for a closed loop solution.



1.7 million lbs

This program diverted a total of 1.7 million lbs from landfills.

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MADE IN U.S.A! CLOSED LOOP SOLUTION

Walmart cooler hardliners

This initiative created approximately
37,000 man hours



30 U.S. jobs.

This change eliminated approximately



31,264 gallons of oil saved.



Battery or plug? You can help.

Making the products our customers know and love more energy efficient can help our customers lower greenhouse gas emissions and save money.

Join Project Gigaton by setting a goal to improve the **in-use** energy efficiency of your product(s).

1 kWh electricity equals



.0007
metric tons
greenhouse gas
emissions

1 gallon gasoline equals



.009
metric tons
greenhouse gas
emissions

1 MCF natural gas equals



.055
metric tons
greenhouse gas
emissions

1 therm natural gas equals



.005
metric tons
greenhouse gas
emissions

Today's leaders



Meet the ENERGY STAR® certified HP DeskJet 3752 - it uses **30% less energy** than its predecessor

HP has a goal to **reduce the GHG emissions intensity** of our product portfolio **by 25%** by 2020

Overview

PRODUCTS

ProjectGigaton

Walmart Sustainability Milestone Summit

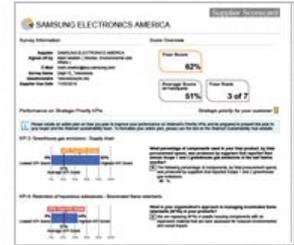
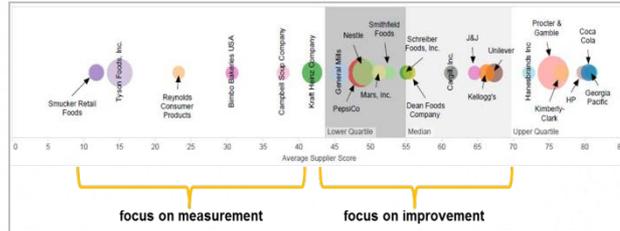
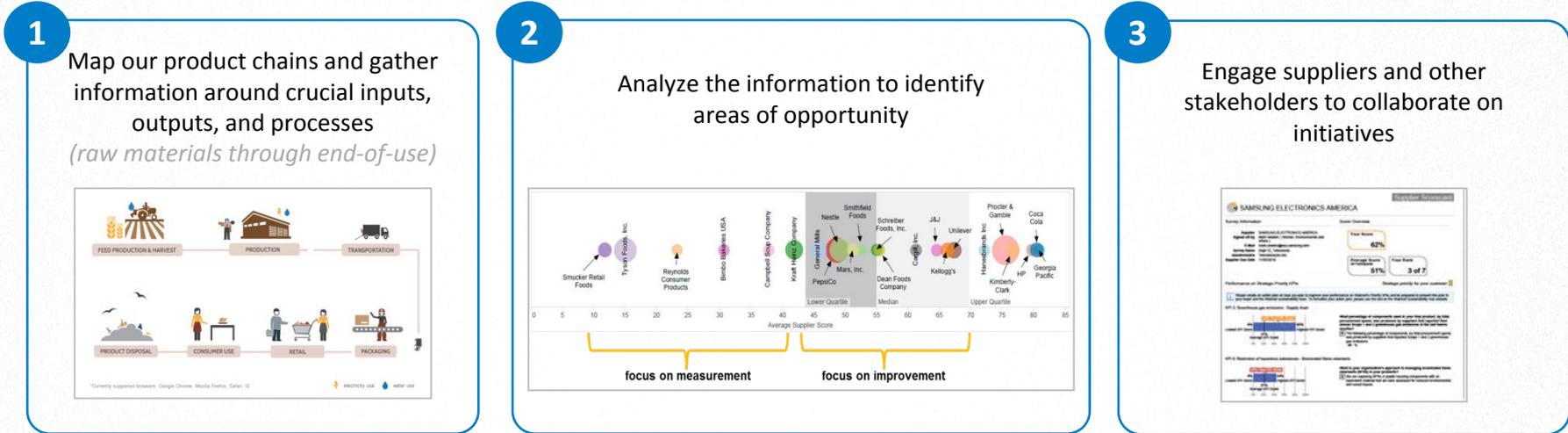


walmartsustainabilityhub.com

ProjectGigaton™
#WorkThatMatters



The Sustainability Index helps us understand and address sustainability issues and opportunities in our product supply chains



The Sustainability Index:

- Developed and managed by The Sustainability Consortium, a group of over 50 academic institutions, NGOs, retailers, and suppliers
- The Over 70% (\$204B) of US sales for Walmart and Sam's Club are now covered by the Index

+60% more suppliers responded year over year

Covering 58 Departments in Walmart US and 74 Categories at Sam's Club US

+2,000 Suppliers completing over 5,300 surveys

Over 300 buyers have access to sustainability information on their product chains

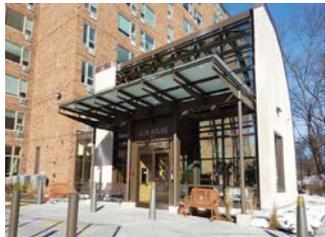
Thank you

Tabetha McCartney

**Jewish Community Housing for the
Elderly**

JEWISH COMMUNITY HOUSING FOR THE ELDERLY

- Opened first building in 1971
- 1197 Units on 4 sites in Brighton, Newton and Framingham Massachusetts
 - 899 Section 8
 - 170 PRAC
 - 40 LIHTC
 - 88 Market
- Average tenant over 80 years old
- 80% of Tenants have income less than \$19,850/Year
- 78% of Tenants are immigrants and not native English Speakers
- Built and opened first “**GREEN**” building in 2011
- Began renovating portfolio in 2007
- **Joined BBC in 2012 – Reached Goal in 2016!**



CHALLENGES

- JCHE pays for all utilities – electricity, gas and water
- Over 75% of our tenants are non-native English speakers and were not born and raised in the US
- Over 70% of our revenue comes from HUD in the form of rental subsidies resulting in very tight operating budgets
- The majority of our buildings were built prior to 1990 with no thought of energy efficiency

First Step

- Low Hanging Fruit
 - LED Light Bulbs
 - Low Flow Aerators
 - Low Flow Toilets



Second Step

- Energy Audits/ Benchmarking

Total energy use in Btu per square foot

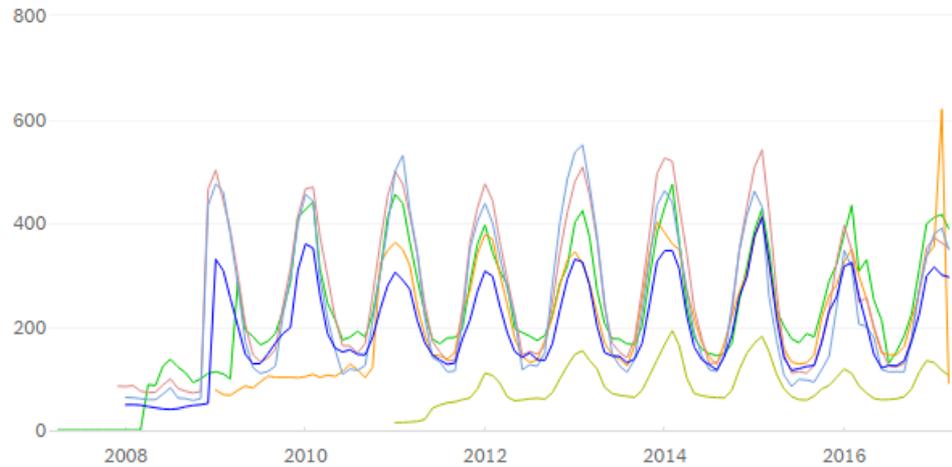
Graph Table



Name	Full-Year Sum	✓
Leventhal House	103k	✓
Golda Meir	94.5k	✓
Ulin House	87.1k	✓
Genesis House	82.8k	✓
Coleman House	74.6k	✓
Shillman House	32k	✓

Detailed data per month

Click & drag to zoom in



Third Step

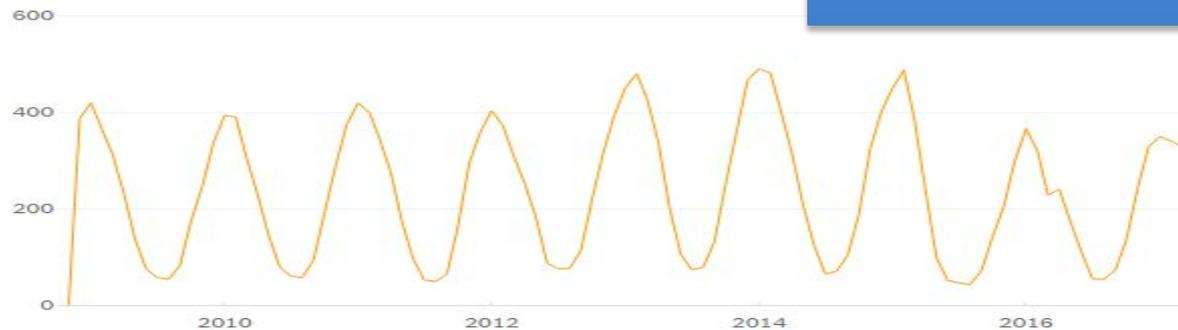
- Renovations and Retrofits

- Ulin House

- 239 units
- 10 story building
- Double Loaded corridors
- Half units face east half units face west
- One Thermostat for the entire building

Installing individual thermostats and control valves in each unit reduced gas consumption in the building by

36%



Currently under Renovation

➤ Golda Meir House

- Converted Baseboard heat and thru wall ACs to Bull Dog Heat pump Units
- Combined two Boiler rooms into one
- Insulated outer wall including new energy efficient windows
- Windows were designed with Switch that will prevent the AC from running if the window is open

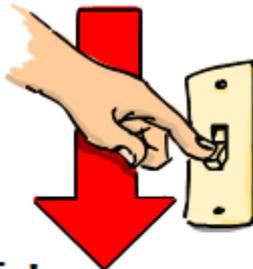
Fourth Step

- **Tenant Engagement**

- Meetings at each building to discuss ways tenants can help reduce costs

Turn it off!

Turn lights off when you don't need them and when you leave a room.



Let the sunshine in!

Open blinds and curtains to let natural light in your home.

Use only what you need...

Use a small task light instead of overhead lights when you can. But be safe. Make sure there is enough light to avoid obstacles in your apartment.



What's a Watt?

A watt tells you how much power a device uses.

Add it up!

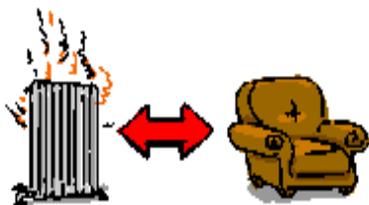
Just turning off three 60 watt bulbs and using daylight can save an average of \$70 per year!

Save Money!



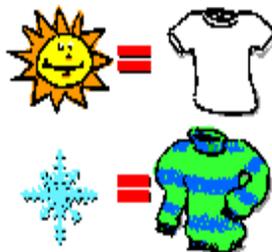
Adjust your thermostat when you are not at home, and at night.

If your heat (or AC) is on, your windows should be closed!



Move furniture away from the heater

Wear weather-appropriate clothing inside your home



Leaks = money down the drain!

If you see a leak, or hear dripping water, notify management to find and fix the leak!



Avoid toilet tabs

"In the tank" toilet bowl cleaning tabs may destroy gaskets and create leaks!

To thaw frozen foods don't run the water! Instead, use the defrost setting on your microwave



Turn water off when brushing teeth!

The Future

- Battery Storage to reduce Demand peaks



- Virtual Net Metering



Scott Moline

The Wendy's Company



Viral Energy Savings

Engaging Franchise Operators and Suppliers



- Strengthen Internal Focus
- Build Collaboration
- Foster Competition





1

Create Understanding

2

Demonstrate Value

3

Eliminate Barriers

4

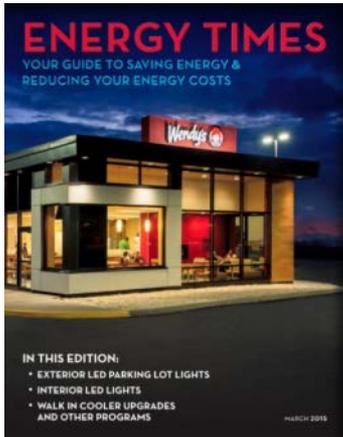
Share Success Stories



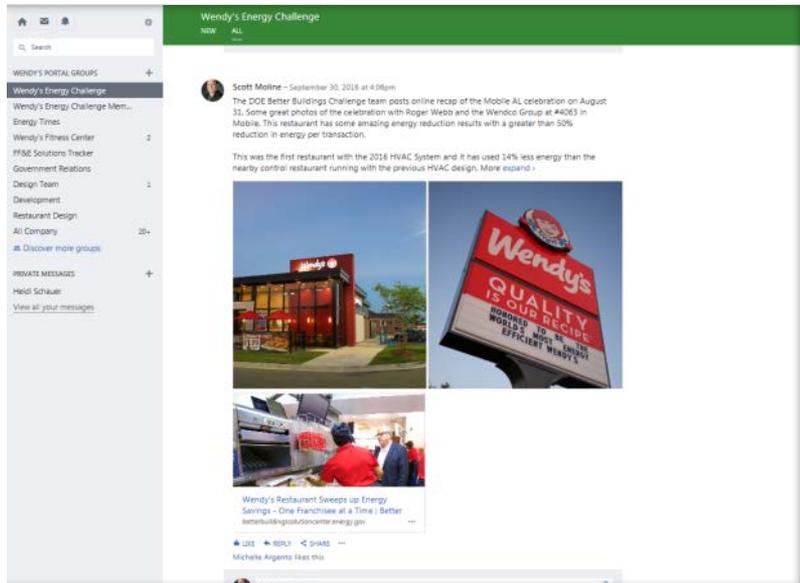


Create Understanding

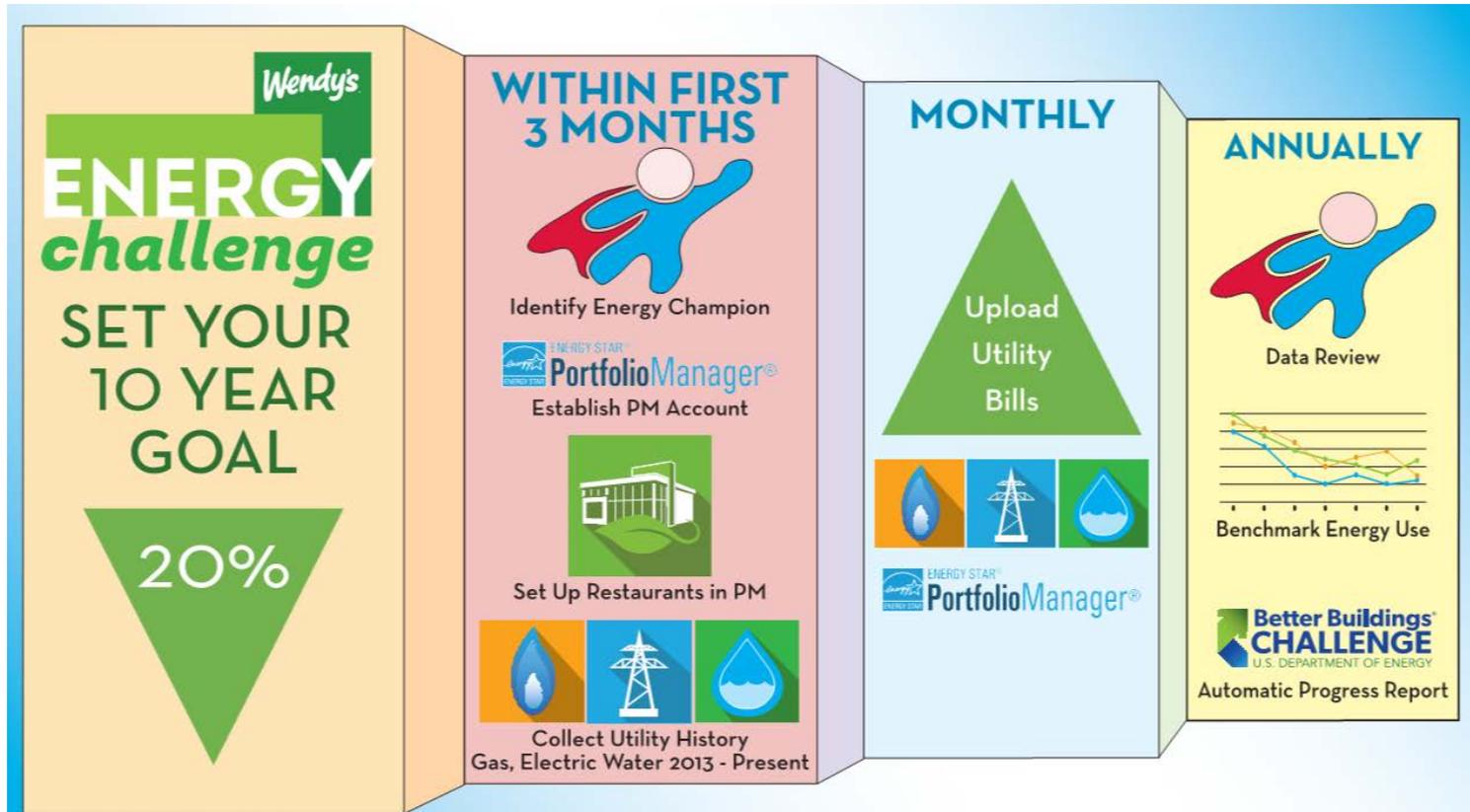




Create Understanding



Create Understanding



Create Understanding

#4063 Mobile, AL – Test Site

- **Electric Use: -28%**
- **Energy / Trans: 12.8 kBtu/Trans.**



#4418 Mobile, AL – Control Site

- **Electric Use: -10%**
- **Energy / Trans: 19.3 kBtu/Trans.**



Comparison of pre- and post reconstruction electric usage.

Demonstrate Value

Energy Use	Restaurant #	Rank	Percentile	kBtu/Transaction
	2638	1	97%	13.8
	2682	2	94%	14.6
	463	3	91%	15.2
	1498	4	88%	15.5
	1660	5	85%	15.8
	11184	6	82%	16.0
	9966	7	79%	16.6
	8226	8	76%	16.6
	9318	9	74%	16.9
	500	10	71%	17.3
	326	11	68%	17.5
	8229	12	65%	17.6
	11150	13	62%	18.7
	241	14	59%	18.7
	3832	15	56%	18.9
	9161	16	53%	19.8
	2677	17	50%	19.9
	10663	18	47%	20.1
	9769	19	44%	20.9
	11164	20	41%	21.1
	2006	21	38%	21.2
	117	22	35%	22.1
	11158	23	32%	22.1
	10935	24	29%	23.4
	548	25	26%	23.8
	11280	26	24%	23.9
	92	27	21%	24.0
	670	28	18%	25.3
	8490	29	15%	25.5
	1653	30	12%	25.5
	62	31	9%	26.2
	8538	32	6%	26.4
	388	33	3%	27.5
	9001	34	0%	28.7



#2006
21.2 kBtu/Transaction

50th Percentile in 2014



38th Percentile in 2015



Demonstrate Value

Energy Use	Restaurant #	Rank	Percentile	kBtu/Transaction
	2638	1	97%	13.8
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	463	3	91%	15.2
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	11150	14	59%	18.7
	241	15	56%	18.7
	3832	16	53%	18.9
	9161	17	50%	19.8
	2677	18	47%	19.9
	10663	19	44%	20.1
	9769	20	41%	20.9
	11164	21	38%	21.1
	117	22	35%	22.1
	11158	23	32%	22.1
	10935	24	29%	23.4
	548	25	26%	23.8
	11280	26	24%	23.9
	92	27	21%	24.0
	670	28	18%	25.3
	8490	29	15%	25.5
	1653	30	12%	25.5
	62	31	9%	26.2
	8538	32	6%	26.4
	388	33	3%	27.5
	9001	34	0%	28.7



#2006
17.9 kBtu/Transaction

50th Percentile in 2014

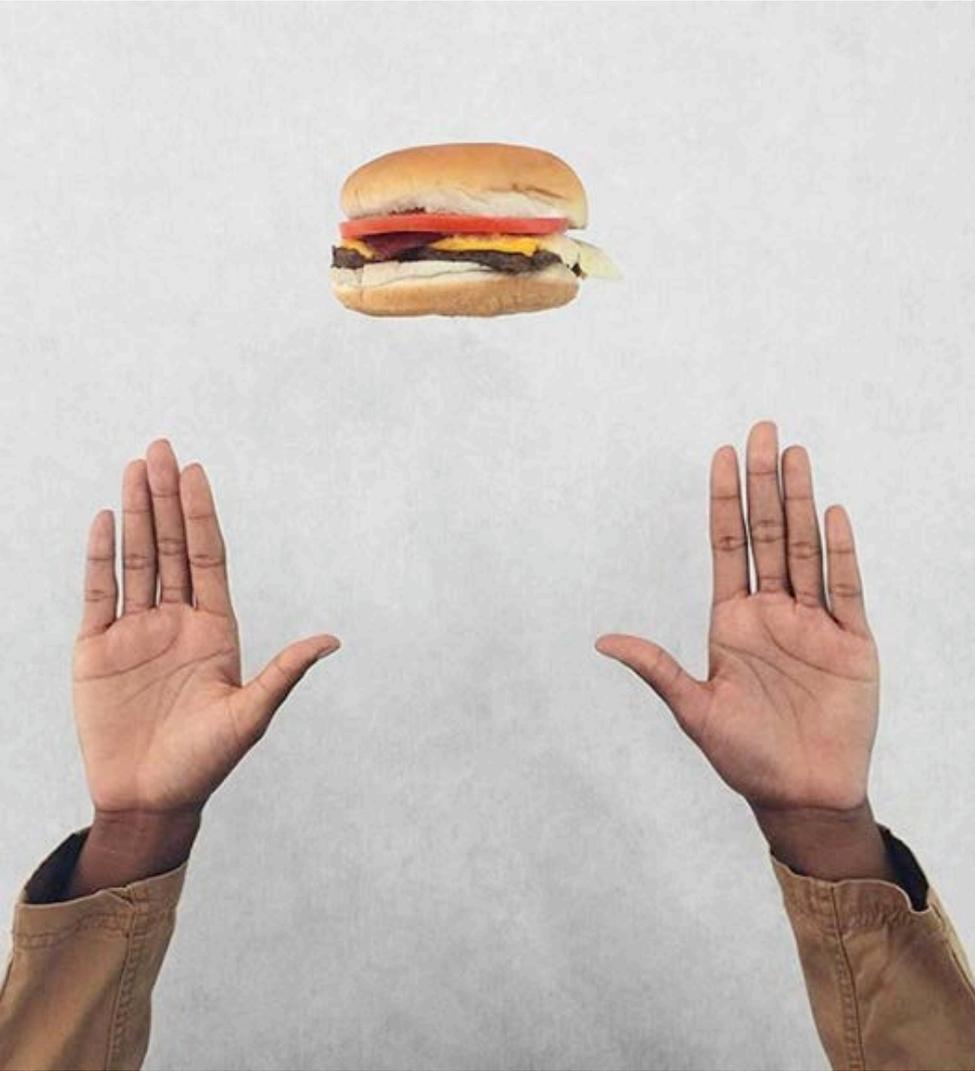


38th Percentile in 2015



62nd Percentile in 2016





Eliminate Barriers

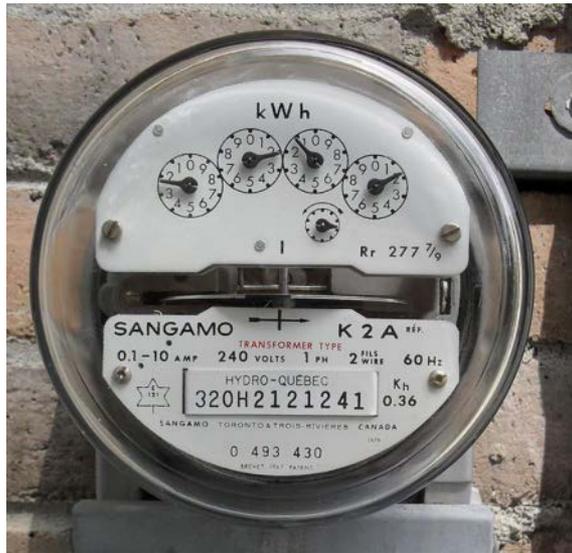


Where's My Data?

How much time will it take to find 3 years of electric and natural gas data?



Where's My Data?



Enlist Outside Resources

- Utility Companies
- ENERGY STAR® team
- Third Party Consultants



Where's My Data?

ENERGY STAR Portfolio Manager

Energy Summary Data viewed online and available in reports

Metrics Summary		Change Time Period	
Metric	Dec 2013 (Energy Baseline)	Sep 2016 (Energy Current)	Change
ENERGY STAR score (1-100)	Not Available	Not Available	N/A
Source EUI (kBtu/ft ²)	1,519.7	1,115.5	-404.2 (-26.6%)
Site EUI (kBtu/ft ²)	563.7	384.6	-179.1 (-31.8%)
Energy Cost (\$)	52,357.39	47,474.03	-4883.36 (-9.3%)
Total GHG Emissions (Metric Tons CO ₂ e)	250.4	183.5	-66.9 (-26.7%)
Water Use (All Water Sources) (kgal)	Not Available	Not Available	N/A
Total Waste (Disposed and Diverted) (Tons)	Not Available	Not Available	N/A

Quick View of 12 months of data:

- Energy Use per Square Foot (EUI) – Electric & Nat Gas
- Energy Cost (if input into system)
- Greenhouse Gas Emission Change

Metrics Comparison for Your Property & Your Target Change Time Period

Metric	Dec 2013 (Energy Baseline)	Sep 2016 (Energy Current)	Target*	Median Property*
ENERGY STAR score (1-100)	Not Available	Not Available	Not Available	50
Source EUI (kBtu/ft ²)	1,519.7	1,115.5	1,215.7	1,015.3
Site EUI (kBtu/ft ²)	563.7	384.6	451.0	350.1
Source Energy Use (kBtu)	5,109,165.4	3,750,151.3	4,087,332.3	3,413,563.6
Site Energy Use (kBtu)	1,895,267.7	1,293,139.9	1,516,214.1	1,177,076.6
Energy Cost (\$)	52,357.39	47,474.03	41,885.91	43,213.09
Total GHG Emissions (Metric Tons CO ₂ e)	250.4	183.5	200.3	167.1

* To compute the metrics at the target and median levels of performance, we will use the fuel mix associated with your property's current energy use.

20% Reduction Target Goal displayed

This restaurant has exceeded the 20% reduction goal!

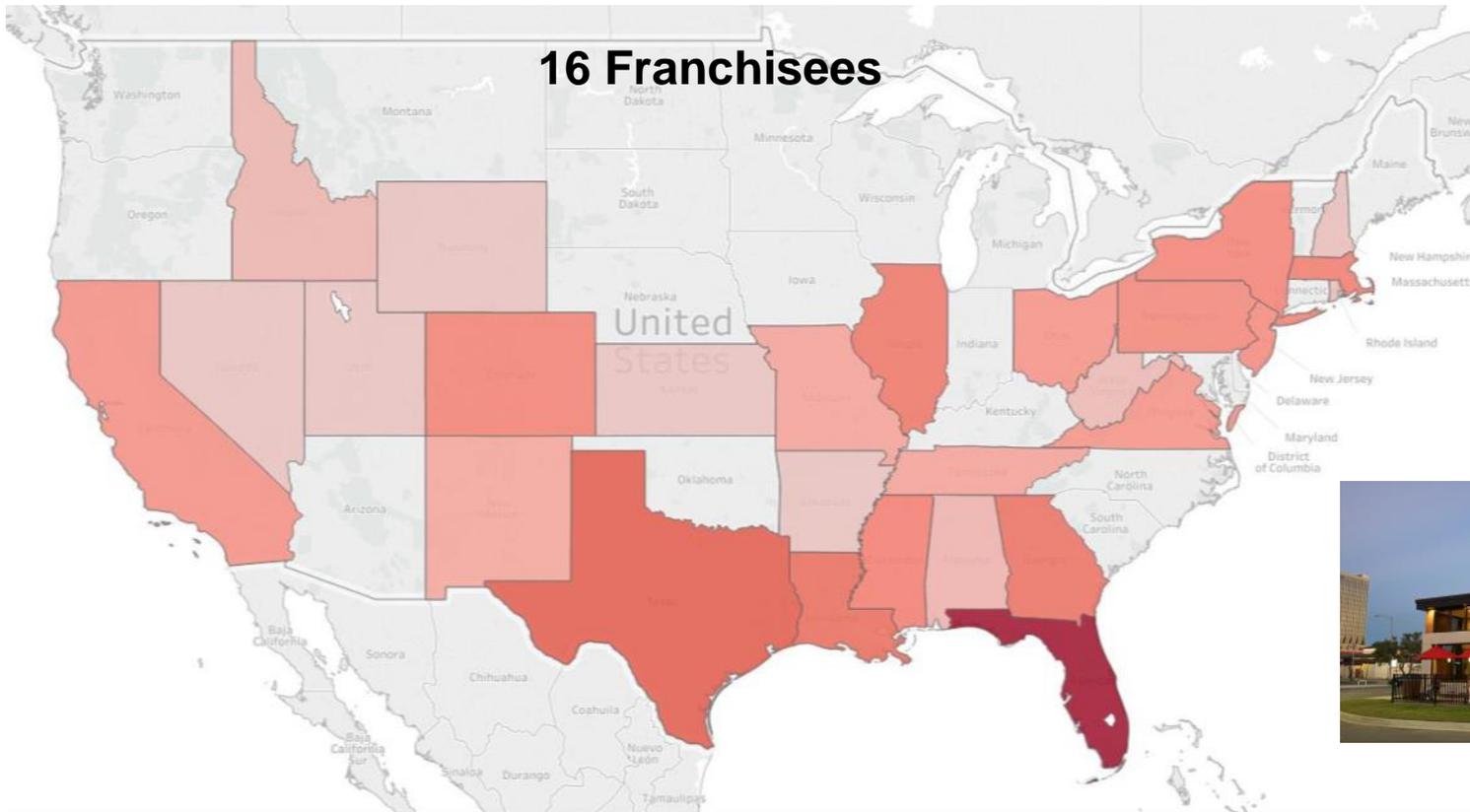




Results



1,300+ Restaurants as of 3/1/17



Celebrate Success

August 31, 2016

Better Buildings Challenge Showcase Event
Mobile, AL

Better Buildings
U.S. DEPARTMENT OF ENERGY

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Home > Solutions > Showcase Projects > Wendco Group - Wendy's - Mobile, Ala.

Showcase Project: Wendco Group - Wendy's - Mobile, Ala.

SECTOR TYPE
Commercial

LOCATION
Mobile, Alabama

PROJECT SIZE
3,360 square feet

FINANCIAL OVERVIEW
Incremental \$3,000 in HVAC costs over previous HVAC design

Energy Savings Per Transaction | **Energy Savings Per Sq. Ft.**

Per Transaction Energy Use

Category	Value
Baseline (2013)	32.1 kBtu/Transaction
Actual (2015-2016)	12.6 kBtu/Transaction

Wendy's





Celebrate Successes





Wendco Group
Wendy's
Trane
Alabama Power (Southern Company)

Celebrate Success

Find ways to include Suppliers

August 31, 2016
Better Buildings Challenge Showcase Event
Mobile, AL





- 1 Create Understanding**
- 2 Demonstrate Value**
- 3 Eliminate Barriers**
- 4 Share Success Stories**





Thank You!



Thank You

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