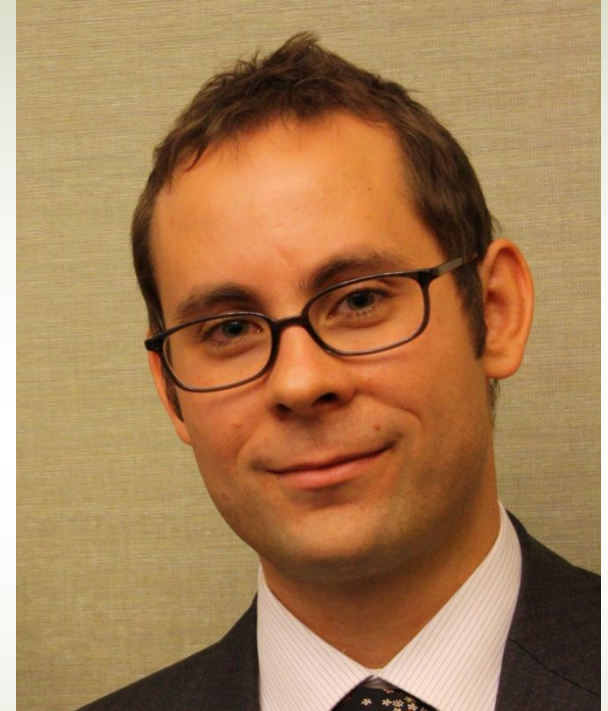


Smart Supermarkets:

**Saving Money by Reducing
Pollution in Food Sales Facilities**

Sonay Aykan

Research Associate
The Center for Building Knowledge
NJ Institute of Technology





Historic Preservation

READ MORE...

About Us



The Center for Building Knowledge (CBK) was established in 1988 with support from the State of New Jersey and was originally known as the Architecture and Building Science Group. Ezra Ehrenkrantz, FAIA, was the founding director. At its inception, the Group's research focused on building technology, educational facilities and housing. ional clients.

[Read More](#)

Center News

CBK Executive Director participates in "Beyond Green" awards ceremony on Capitol Hill

Posted On: 13 Mar 2011

CBK Executive Director Deane Evans, second from right, served on the jury for the Sustainable Buildings Industry Council's 2011 "Beyond Green – High Performance Buildings Awards" program.

[Read More](#)

Christine Liaukus presented at the USGBC-NJ Chapter Meeting about Passive House

Posted On: 25 Feb 2011

On February 17th, Christine Liaukus presented at the NJ Chapter Meeting in Morristown.

[Read More](#)

CBK will be exhibiting at Globalcon 2011

Posted On: 25 Feb 2011

CBK will be exhibiting at [Globalcon 2011](#). Please email us if you would like a complementary expo ticket and come visit our booth!

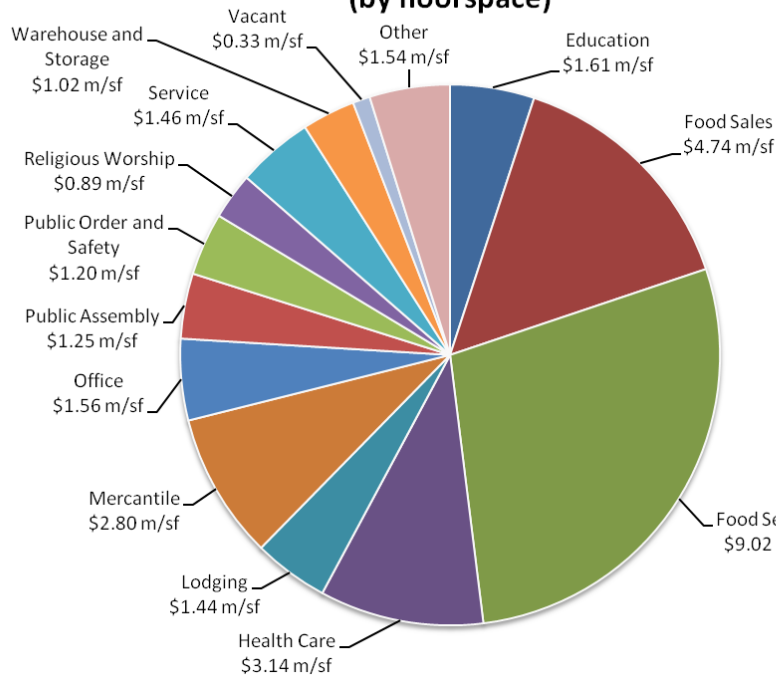
[Read More](#)

Why Specifically Address the Food Sales Market Segment?

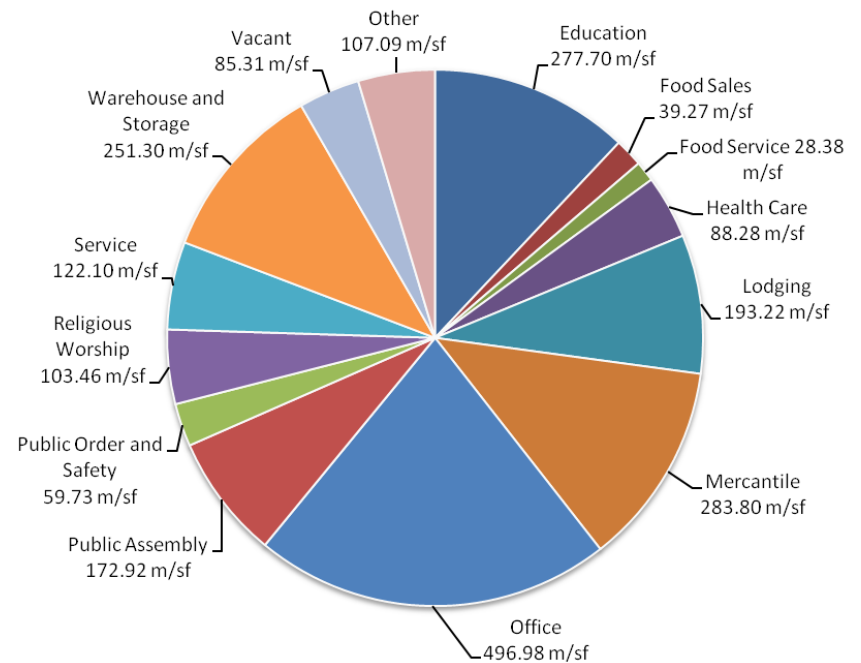
- Food industry have impacts on the environment through four major fields.
- Managing these fields can help food related industries save money and protect environment
- There is niché in programs developed to help food industries manage their resources

SAVE / REDUCE	SAVE
Energy	\$
Water	
Refrigerant	
Waste	

Energy Expenditure in New Jersey (by floorspace)

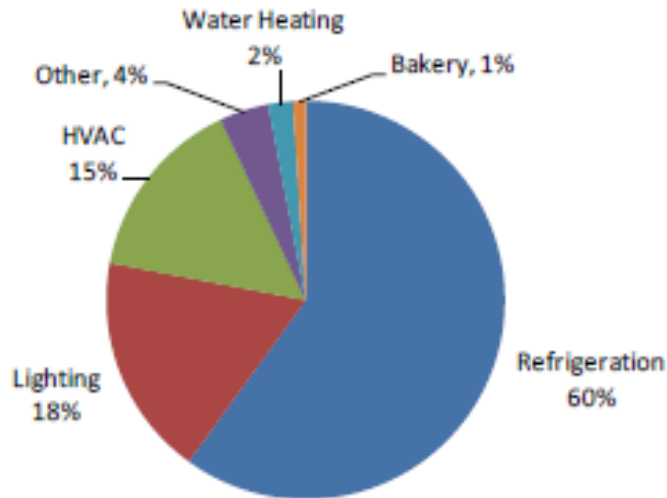


Floorspace in New Jersey (by building type)



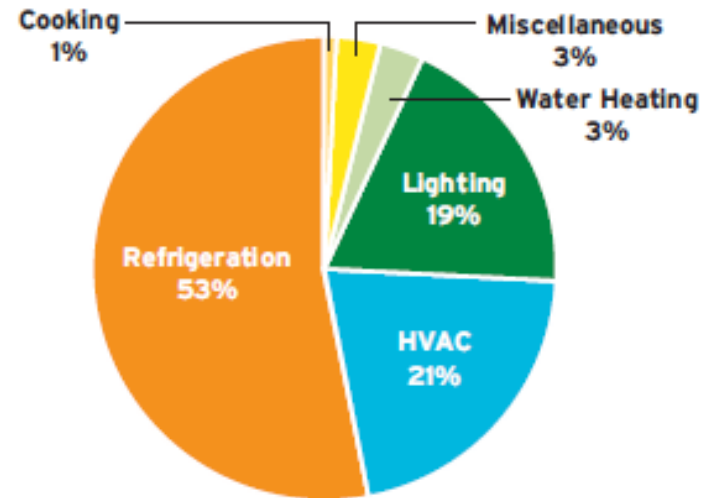
Energy Intensity \neq Size

Supermarket Energy Use



Total Annual Electricity Consumption = ~ 3,000,000 kWh (Site Energy)
or ~ 31,215 Million Btu (Primary Energy)²

Energy Consumption by End Use in Supermarkets



Source: U.S. Energy Information Administration

[Energy Savings Potential and R&D Opportunities for Commercial Refrigeration](#), Navigant Consulting, U.S. DOE, September 2009

[Green Grocer, Efficiency Vermont's Guide to Saving Money & Energy in Grocery Stores](#).

Why Specifically Address the Food Sales Market Segment?

The US EPA estimates that \$1 in energy savings is equivalent to increasing sales by \$59.



Supermarket Water Use

The annual cost of water for an average food store is approximately \$40,000

Annual Water Use	Cost
3500 kGal (Total)	\$40,000
1500 kGal (Cooling)	\$17,000

Aquacraft (2004), *Demonstration of Water Conservation Opportunities in Urban Supermarkets, Metropolitan Water District of Southern California*, Boulder, CO

Alliance for Water Efficiency (2013), from http://www.allianceforwaterefficiency.org/Supermarket_Introduction.aspx, Chicago, Illinois

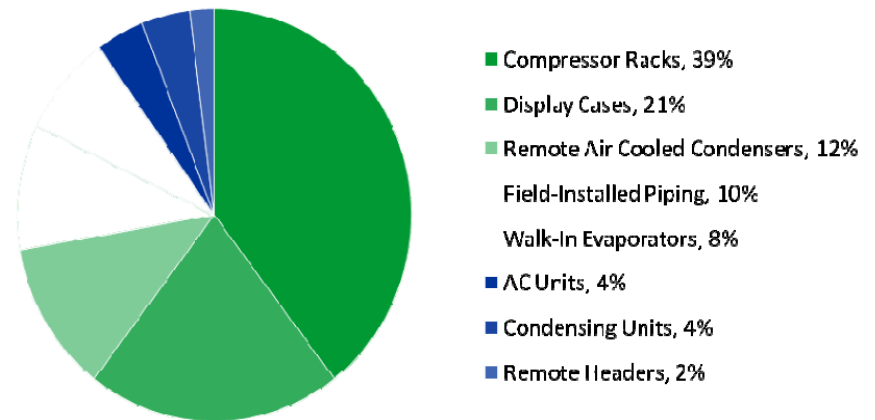
Supermarket Refrigerant Use

- EPA estimates that a centralized DX system can emit as much as 25% of its refrigerant charge annually, approximately 1000 lbs
- Loss of ¢25 for every \$1 spent on refrigerant.
- A typical store has to sell 19,000 gallons of milk to compensate the cost of a 100 lbs leak

EPA (2005), Greenchill Preventative Maintenance

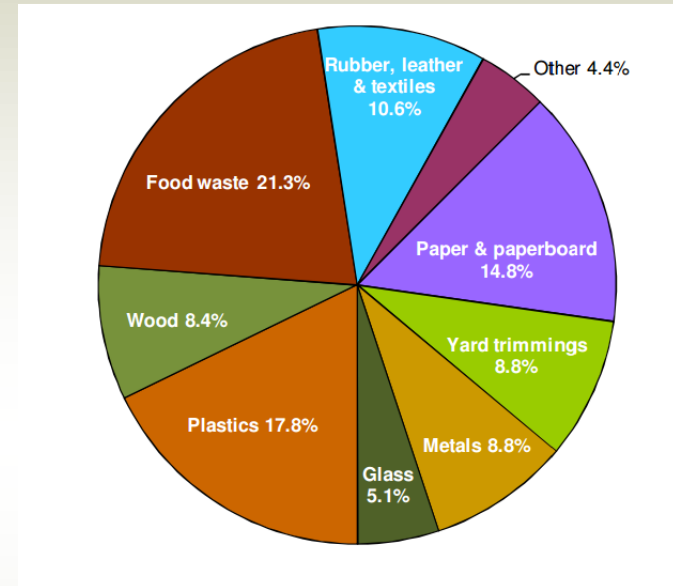
EPA (2011), GreenChill Best Practices Guideline Commercial Refrigeration Leak Prevention & Repairs

Figure 1: Leak Sources for a Regional Supermarket Chain



Food Waste

- In 2011, 36 million tons of food waste was generated
- The average U.S. food store sends to the landfill more than 1,300 pounds of food waste per employee, per year
- Reducing food waste can lead to significant savings:
 - In 2010, SUPERVALU, Inc. donated 61 Mlbs = 48M meals, saved \$2.6M
 - In 2011, New Seasons Markets composted 2,400 tons, saved \$27,000



EPA (2013), Food Recovery Resources for Service Providers, from <http://www.epa.gov/foodrecovery/fd-service.htm#grocery>

CASCADIA, (2006), Waste Disposal and Diversion Findings for Selected Industry Groups, Sacramento, CA

Resource savings through improved Operations & Maintenance (O&M) practices and no and/or low cost retrofit measures specific supermarkets.



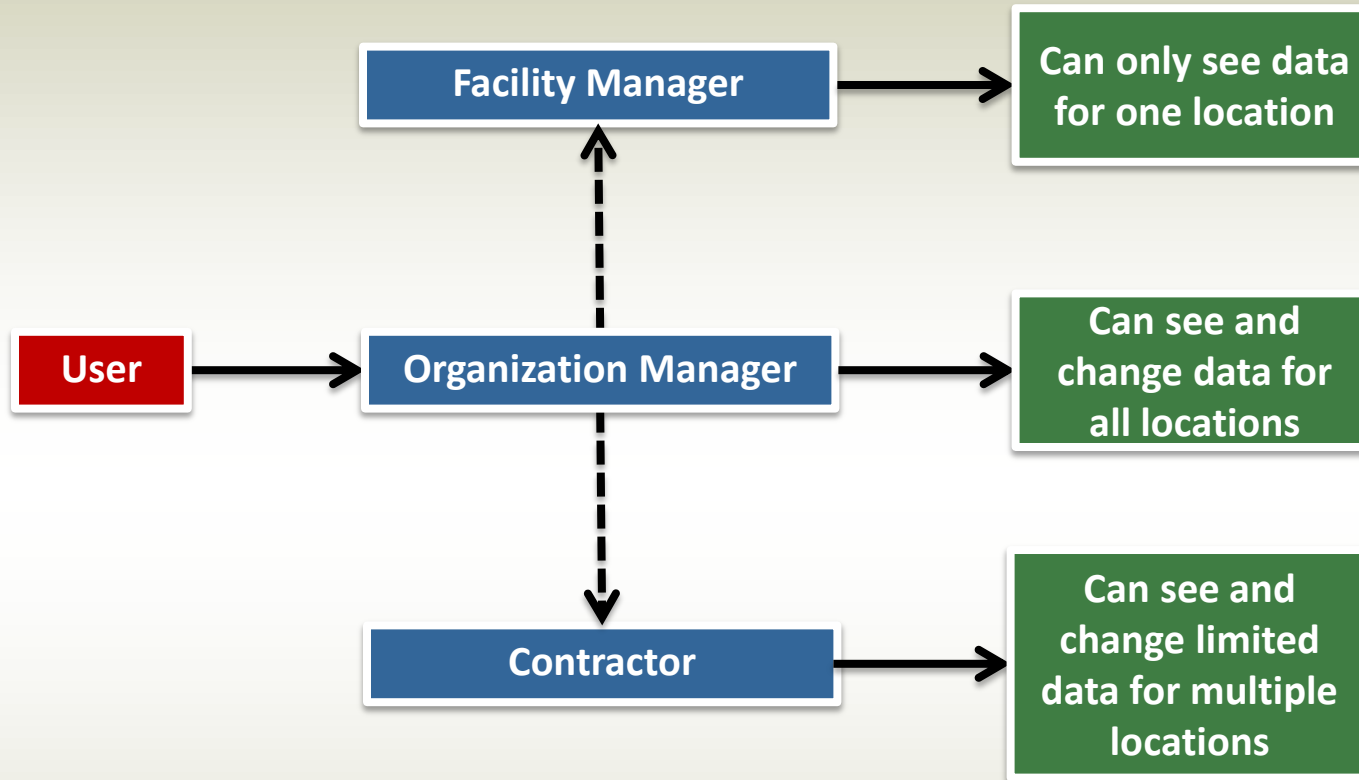
Objectives:

- Document Baseline
- Optimize System Performance
- Recommend Low-Cost ECM
- Identify O&M Best Practices
- Develop Documentation of O&M
- Provide Training

Managing Your Resources

Smart Supermarkets

Smart Supermarkets Toolkit



Smart Supermarkets:

- ❑ **Reporting tools:** Organization managers can see detailed information about each location and can do comparisons.
- ❑ **Summary tools:** Organization managers can see consolidated data and trends for each location through graphics
- ❑ **User friendly:** Users will be provided with suggestions of no/low cost actions and retrofit options that will improve their performance.
- ❑ **O&M scheduling:** System will also serve as an O&M suggestion and scheduling tool, where users can keep a record of O&M activities

Smart Supermarkets Toolkit



Smart Supermarkets

Improve Performance, Increase Profits

Username *

Password *

[Create new account](#) [Reset new password](#)

Log in

Dashboard

Benchmarking

ECMs

ECOs

Maintenance

Benefits

- Energy Efficiency?
- Increased Profitability
- Reduced vulnerability
- Increased sales
- Reduced spoilage
- Enhanced public image

Video #9 Walk-In Freezers-Coolers Equipment .mov



Main Page

Smart Supermarkets Toolkit

Smart Supermarkets
Improve Performance, Increase Profits

Mr. account
Log out

Dashboard ▾ Benchmarking ▾ RCO ▾ RCM ▾ OMA ▾ Library ▾

Energy Benchmarking
Water Benchmarking
Refrigeration Benchmarking
Waste Benchmarking

Management of resources under four basic categoris.

Benefits

- Energy Efficiency?
- Increased Profitability
- Reduced vulnerability
- Increased sales
- Reduced spoilage
- Enhanced public image

Test Location
Test Location
123 Main Street
NewarkNJ, 07102

select location
- Choose - ▾
Go

Tools

- [Benchmarking](#)
- [Troubleshooting](#)
- [Maintenance Planning](#)
- [Library](#)

Smart Supermarkets Toolkit



Smart Supermarkets
Improve Performance, Increase Profits

My account
Logout

- Dashboard
- Benchmarking
- RCO
- RCM
- OMA
- Library

Your information

Test Location
Test Location
123 Main Street
NewarkNJ, 07102

select location

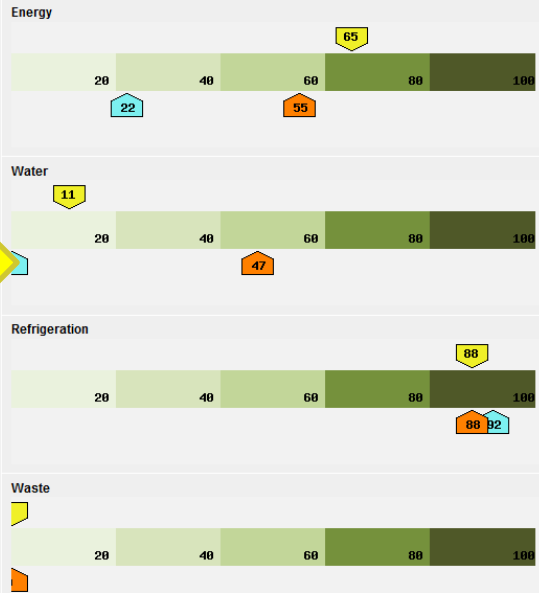
- Choose -

Go

New point system for your energy, water, refrigerant use and waste

- Add New Users
- List Organization Users
- Edit Organization

Dashboard



Location Performance

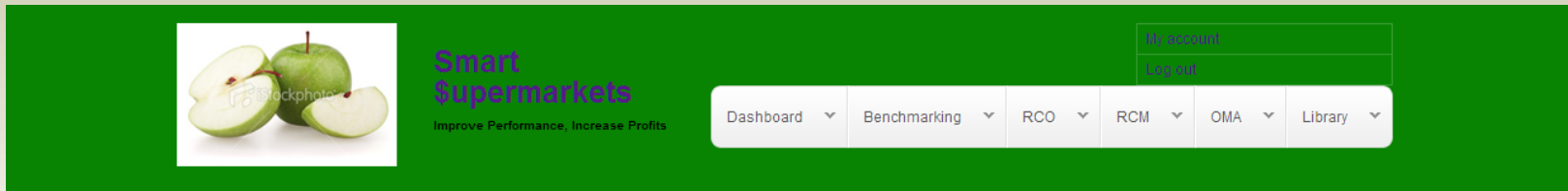
Energy Intensity (kBtu/sqft)	287
Initial Energy Intensity (kBtu/sqft)	9,270
Improvement	8,983
Industry Average (kBtu/sqft)	220
Water Intensity (gallons/sqft)	15
Initial Water Intensity (gallons/sqft)	0
Improvement	-15
Industry Average (gallons/sqft)	66
Annual GWP Leakage Intensity (GWP/SF)	176
Initial GWP Leakage Intensity (GWP/SF)	184
Improvement	8
Industry GWP Leakage Average (GWP/SF)	176
Waste Intensity (lbs/sqft)	0
Initial Waste Intensity (lbs/sqft)	0
Improvement	0
Industry Average (lbs/sqft)	0

Summary of your performance

Summary Dashboard is where you can see a summary of your points and your actual numbers related to your usage of energy, water, refrigerant and waste. Your points are located somewhere on a scale from 0 to 100. Calculations are based on the averages of all the other stores that are registered to the system.

Your Score	
Industry Average	
Initial Score	

Smart Supermarkets Toolkit



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Belleville Supermarket
Belleville Supermarket
123 Main Street
Pine LaneNJ, 123456
Greenpoint Supermarket
Chain

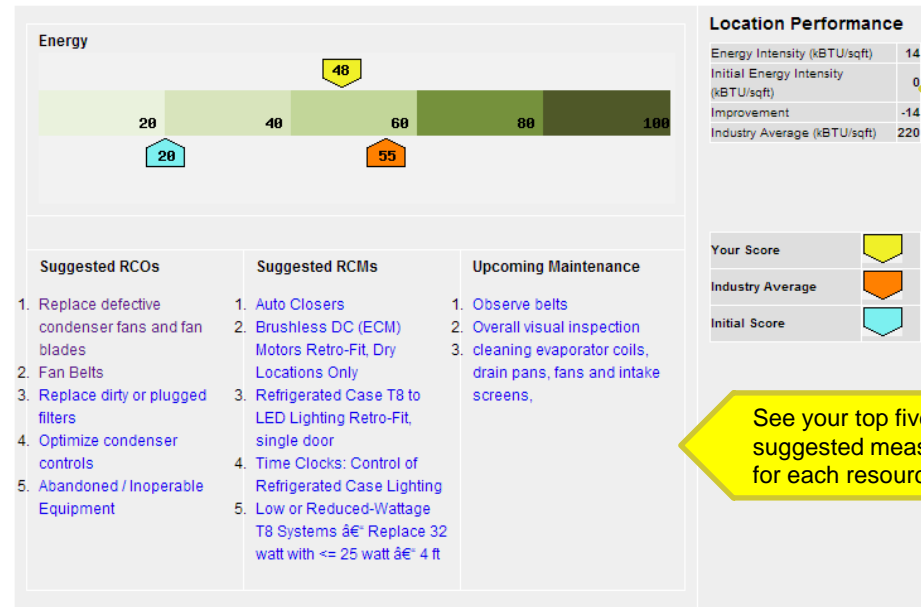
select location

- Choose - ▾

Go

- Organization Admin Links**
- [Add New Users](#)
 - [List Organization Users](#)
 - [Edit Organization](#)

Energy Dashboard



Energy

20 40 60 80 100

48

20 55

Location Performance

Energy Intensity (kBtu/sqft)	14
Initial Energy Intensity (kBtu/sqft)	0
Improvement	-14
Industry Average (kBtu/sqft)	220

Your Score: [Yellow Arrow Down]

Industry Average: [Orange Arrow Down]


Initial Score: [Light Blue Arrow Up]

Suggested RCOs	Suggested RCMs	Upcoming Maintenance
<ol style="list-style-type: none">1. Replace defective condenser fans and fan blades2. Fan Belts3. Replace dirty or plugged filters4. Optimize condenser controls5. Abandoned / Inoperable Equipment	<ol style="list-style-type: none">1. Auto Closers2. Brushless DC (ECM) Motors Retro-Fit, Dry Locations Only3. Refrigerated Case T8 to LED Lighting Retro-Fit, single door4. Time Clocks: Control of Refrigerated Case Lighting5. Low or Reduced-Wattage T8 Systems â€” Replace 32 watt with <= 25 watt â€” 4 ft	<ol style="list-style-type: none">1. Observe belts2. Overall visual inspection3. cleaning evaporator coils, drain pans, fans and intake screens,

Individual dashboards for each resource

See your top five suggested measures for each resource

Smart Supermarkets Toolkit


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Dashboard Benchmarking RCO RCM OMA Library

Belleville Supermarket
 Belleville Supermarket
 123 Main Street
 Pine LaneNJ, 123456
 Greenpoint Supermarket Chain

- [Enter Electricity Data](#)
- [Enter Gas Data](#)
- [Bill Templates](#)
- [Create Energy Billing Account](#)
- [Create Energy Meters](#)

select location

- Choose -
▼

Organization Admin Links

- [Add New Users](#)
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- [Edit Organization](#)

Energy Benchmarking

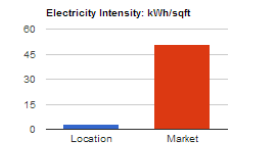
Location Performance

Energy Intensity (kBTU/sqft)	14
Initial Energy Intensity (kBTU/sqft)	0
Improvement	-14
Industry Average (kBTU/sqft)	220

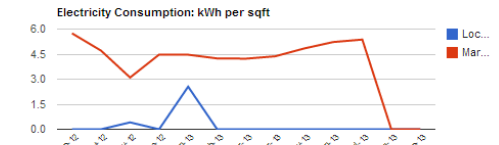
Location Statistics

	Belleville Supermarket	Market
Area (sqft)	30,000	41,410
Space Heated (%)	1.0	67.1
Space Cooled (%)	1.0	68.3
Total Energy Usage (kBTU)	307,500	6,227,760
Electricity Usage (kBTU)	303,486	4,092,880
Gas Usage (kBTU)	120,000	2,134,900
Energy Intensity (kBTU/sqft)	14.116	219.635

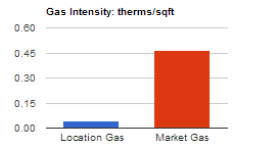
Electricity Intensity: kWh/sqft



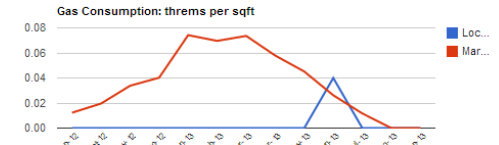
Electricity Consumption: kWh per sqft



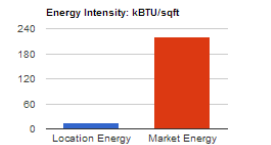
Gas Intensity: therms/sqft



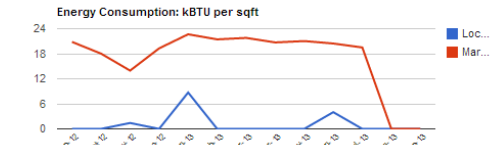
Gas Consumption: therms per sqft



Energy Intensity: kBTU/sqft



Energy Consumption: kBTU per sqft



See your energy performance in graphs, compare with the market averages.

Smart Supermarkets Toolkit

Energy Consumption

		Electricity Consumption													
Meters	Unit	Sep-12	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13	Jul-13	Aug-13	Sep-13	TOTAL
EM1	kWh	0	0	0	160	0	0	0	0	0	0	0	0	0	160
	kBTU	0	0	0	548	0	0	0	0	0	0	0	0	0	548
EM2	kWh	0	0	0	123	0	0	0	0	0	0	0	0	0	123
	kBTU	0	0	0	420	0	0	0	0	0	0	0	0	0	420
EM3	kWh	0	0	0	134	0	0	0	0	0	0	0	0	0	134
	kBTU	0	0	0	457	0	0	0	0	0	0	0	0	0	457
SM4	kWh	410,000	375,000	385,000	375,000	379,000	338,000	350,000	358,000	370,000	402,000	475,000	0	0	4,197,000
	kBTU	1,398,978	1,279,553	1,245,432	1,279,553	1,293,202	1,153,304	1,194,250	1,221,547	1,282,492	1,371,881	1,820,767	0	0	14,320,758
TOTAL	kWh	410,000	375,000	385,000	375,417	379,000	338,000	350,000	358,000	370,000	402,000	475,000	0	0	4,197,417
TOTAL	kBTU	1,398,978	1,279,553	1,245,432	1,280,978	1,293,202	1,153,304	1,194,250	1,221,547	1,282,492	1,371,881	1,820,767	0	0	14,322,181
Location Electricity Intensity	kWh/sqft	8.200	7.500	7.300	7.508	7.580	6.760	7.000	7.160	7.400	8.040	9.500	0.000	0.000	83.948
Market Electricity Intensity	kWh/sqft	5.745	4.708	3.099	4.472	4.465	4.242	4.229	4.371	4.840	5.224	5.371	0.000	0.000	50.785
		Gas Consumption													
GM1	Therms	0	0	0	350	0	0	0	0	0	0	0	0	0	350
	kBTU	0	0	0	35,000	0	0	0	0	0	0	0	0	0	35,000
GM2	Therms	0	0	0	100	0	0	0	0	0	0	0	0	0	100
	kBTU	0	0	0	10,000	0	0	0	0	0	0	0	0	0	10,000
GM3	Therms	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	kBTU	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	Therms	0	0	0	450	0	0	0	0	0	0	0	0	0	450
TOTAL	kBTU	0	0	0	45,000	0	0	0	0	0	0	0	0	0	45,000
Location Gas Intensity	therms/sqft	0.000	0.000	0.000	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.009
Market Gas Intensity	therms/sqft	0.012	0.020	0.034	0.040	0.074	0.070	0.074	0.058	0.045	0.028	0.012	0.000	0.000	0.464
		Total Energy Consumption													
TOTAL ENERGY	kBTU	1,398,978	1,279,553	1,245,432	1,325,978	1,293,202	1,153,304	1,194,250	1,221,547	1,282,492	1,371,881	1,820,767	0	0	14,387,181
Location Energy Intensity	kBTU/sqft	27.980	25.591	24.909	26.520	25.884	23.068	23.885	24.431	25.250	27.434	32.415	0.000	0.000	287.344
Market Energy Intensity	kBTU/sqft	20.827	18.021	13.953	19.280	22.654	21.438	21.788	20.703	21.031	20.445	19.495	0.000	0.000	219.635

See your monthly usage for all resources and for all locations

This information will be used to calculate your score.



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My account

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Dashboard | Benchmarking | RCO | RCM | OMA | Library

Test Location
Test Location
123 Main Street
NewarkNJ, 07102

- See Utility Data
- Enter Water Data

select location

- Choose -

Go

- Organization Admin Links**
- Add New Users
 - List Organization Users
 - Edit Organization

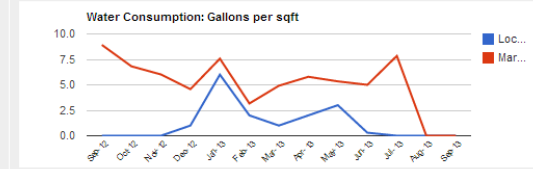
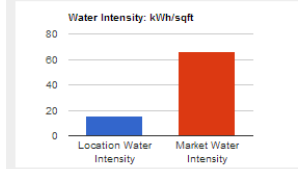
Water Benchmarking

Location Performance

Water Intensity (gallons/sqft)	15
Initial Water Intensity (gallons/sqft)	0
Improvement	-15
Industry Average (gallons/sqft)	65

Location Statistics

	Test Location	Market
Area (sqf)	50,000	42,308
Space Heated (%)	80.0	70.8
Space Cooled (%)	90.0	70.4
Total Water Usage (kGallons)	765	2,389
Water Intensity (Gallons/sqft)	15.300	55.950



See your water performance in graphs, compare with the market averages.

Water Consumption

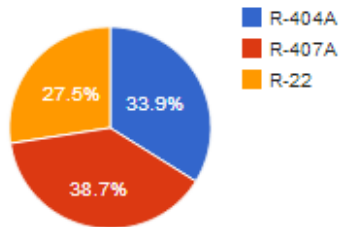
Meters	Unit	Water Consumption												TOTAL	
		Sep-12	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13	Jul-13	Aug-13		Sep-13
WM1	kGallons	0	0	0	0	0	100	0	0	150	0	0	0	0	250
WM2	kGallons	0	0	0	0	300	0	50	100	0	0	0	0	0	450
WM3	kGallons	0	0	0	50	0	0	0	0	0	15	0	0	0	65
TOTAL	kGallons	0	0	0	50	300	100	50	100	150	15	0	0	0	765
Location Water Intensity	Gallons/sqft	0.000	0.000	0.000	1.000	6.000	2.000	1.000	2.000	3.000	0.300	0.000	0.000	0.000	15.300
Market Water Intensity	Gallons/sqft	6.920	6.920	6.020	4.570	7.570	3.170	4.910	5.790	5.340	5.000	7.840	0.000	0.000	55.950

Smart Supermarkets Toolkit

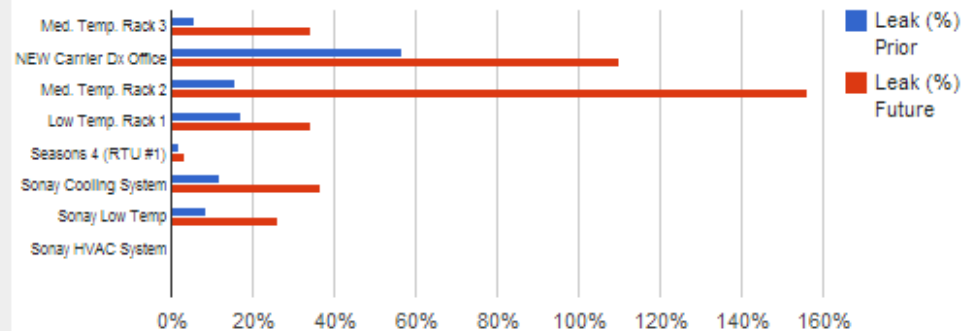
REFRIGERANT INVENTORY, Type

Refrigerant Type	Previous Inventory	This Year							Total Inventory
		Total Change	New System	Purchased	Recovered	Stored	Destroyed	Loss	
R-404A	9,500	3,700	0	1,700	6,800	-3,750	0	-1,050	13,200
R-407A	14,200	862	0	2,762	1,050	-1,500	0	-1,450	15,062
R-22	11,500	-800	0	750	3,250	-400	-3,500	-900	10,700

Total Refrigerant in %



Systems Leak Percent



See your refrigerant leak performance in graphs, compare with the market averages.

Smart Supermarkets Toolkit

Test Location
 Test Location
 123 Main Street
 NewarkNJ, 07102

Enter Refrigerant Data
 Define Refrigeration
 System
 See Refrigerant
 Transaction

select location

- Choose -

Go

Organization Admin Links

- Add New Users
- List Organization Users
- Edit Organization

Refrigeration Benchmarking

Location Performance	
Annual GWP Leakage Intensity (GWP/SF)	178
Initial GWP Leakage Intensity (GWP/SF)	184
Improvement	8
Industry GWP Leakage Average (GWP/SF)	178

REFRIGERANT USE, System (Annual Consumption)

Systems Name	Systems Type	Refrigerant Type	Charge Initial	Charge Replenish	Charge Recovered	Charge Shipped	Charge Stored	Leak (lbs) Estimated	Leak (%) Prior	Leak (Lbs) Future	Leak (%) Future	Leak (GWP) Prior	Leak (\$) Cost
Med. Temp. Rack 3	High Temp. Refrig.	R-404A	3,500	300	0	0	0	-200	6%	-1,197	34%	784,400	\$1,500
NEW Carrier Dx Office	HVAC, Split	R-407A	2,200	2,662	0	0	0	-1,250	57%	-2,417	110%	2,633,750	\$11,875
Med. Temp. Rack 2	High Temp. Refrig.	R-404A	3,500	500	50	0	0	-550	16%	-5,475	166%	2,157,100	\$4,125
Low Temp. Rack 1	Low Temp. Refrig.	R-22	3,500	100	0	0	0	-600	17%	-1,203	34%	1,086,000	\$4,500
Seasons 4 (RTU #1)	HVAC, Central	R-407A	12,000	100	0	0	-1,500	-200	2%	-397	3%	421,400	\$1,500
Inventory 3 (R-407A)	Inventory	R-407A	0	0	1,050	0	0	0	0%	0	0%	0	\$0
Inventory 1 (R-22)	Inventory	R-22	0	300	0	0	-200	0	0%	0	0%	0	\$0
Inventory 2 (R-404A)	Inventory	R-404A	0	0	6,550	0	-450	0	0%	0	0%	0	\$0
Sonay Cooling System	High Temp. Refrig.	R-404A	2,500	900	200	0	-3,300	-300	12%	-913	37%	1,176,600	\$1,225
Sonay Low Temp	Low Temp. Refrig.	R-22	3,500	350	3,250	0	-200	-300	9%	-913	26%	543,000	\$1,500
Sonay HVAC System	HVAC, Central	R-22	4,500	0	0	-3,500	0	0	0%	0	0%	0	\$0


REFRIGERANT LOSS, System (Monthly)

Unit	Sep-12	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13	Jul-13	Aug-13	Sep-13	Total
Med. Temp. Rack 3	0	-200	0	0	0	0	0	0	0	0	0	0	0	-200
NEW Carrier Dx Office	0	0	0	0	-200	-50	0	0	0	0	-1,000	0	0	-1,250
Med. Temp. Rack 2	0	0	0	0	0	-50	0	0	-200	-300	0	0	0	-550
Low Temp. Rack 1	0	0	0	0	0	0	-100	-200	0	0	-300	0	0	-600
Seasons 4 (RTU #1)	0	0	0	0	0	0	-100	0	0	-100	0	0	0	-200
Inventory 3 (R-407A)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Inventory 1 (R-22)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Inventory 2 (R-404A)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sonay Cooling System	0	0	0	0	0	-100	0	-50	0	-150	0	0	0	-300
Sonay Low Temp	0	0	0	0	-200	-100	0	0	0	0	0	0	0	-300
Sonay HVAC System	0	0	0	0	0	0	0	0	0	0	0	0	0	0

See your refrigerant leak data and monitor your previous and estimated future leaks by system.



Smart Supermarkets Toolkit


Log out

Dashboard Benchmarking RCO RCM OMA Library

Test Location
 Test Location
 123 Main Street
 NewarkNJ, 07102

- See Utility Data
- Enter Waste Data
- Create Waste/Recycle Billing Account
- Create Waste/Recycle Meters

See your waste production performance in graphs, compare with the market averages.

Organization Admin Links

- Add New Users
- List Organization Users
- Edit Organization

Waste Benchmarking

Location Performance

Waste Intensity (lbs/sqft)	0
Initial Waste Intensity (lbs/sqft)	0
Improvement	0
Industry Average (lbs/sqft)	0

Location Statistics

	Test Location	Market
Area (sqft)	50,000	0
Space Heated (%)	80.0	0.0
Space Cooled (%)	90.0	0.0
Total Waste Generated (lbs)	0	0
Waste Intensity (lbs/sqft)	0.000	0.000

Waste Intensity: kWh/sqft

Waste Consumption: Lbs per sqft

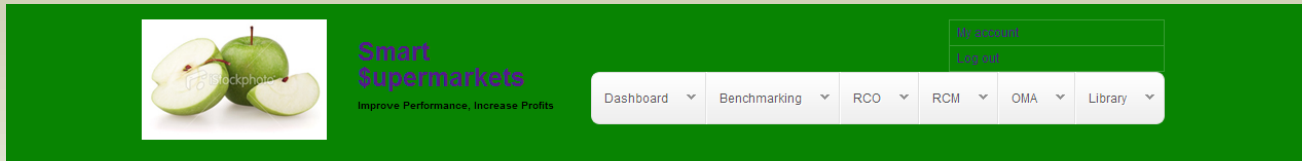
Waste Consumption

Meters	Unit	General Waste Generated												TOTAL		
		Sep-12	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13	Jul-13	Aug-13		Sep-13	
WMW01	lbs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	lbs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Location Waste Intensity	lbs/sqft	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Market Waste Intensity	lbs/sqft	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		Recyclable Generated														
		No Recycle Data for this Location														
		Total Waste Consumption														
Location Waste Intensity	lbs/sqft	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Market Waste Intensity	lbs/sqft	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

See your waste production performance in graphs, compare with the market averages.

Market averages will be updated as you enter data and get better in time.

Smart Supermarkets Toolkit



See your suggested measures for each resource (energy, water, refrigerant, waste)

on
07102

select location

- Choose -

Go

Organization Admin Links

- Add New Users
- List Organization Users
- Edit Organization

ENERGY RCOs

1. Inspect boiler for proper operation.
2. Replace defective condenser fans and fan blades
3. Verify EPR set points
4. Inspect defrost scheduling problems and fix if necessary
5. Disconnect and replace the motor.
6. Inspect the refrigerant and refill if necessary
7. Monitor ice buildup in coil and investigate the reason
8. Replace dirty or plugged filters
9. Program or replace the rack sensor
10. Correct any improper programming in rack compressor
11. Trouble shoot the subcooler and fix if necessary
12. Adjust the programming for minimized heater runtime while preventing condensation
13. Clean dirty evaporator coils
14. Abandoned / Inoperable Equipment
15. Adjust proper split mode condensers
16. Control Set Points
17. Correct low suction points
18. Implement floating suction head pressure control
19. Optimize condenser controls
20. Repair or replace defective control components
21. Fan Belts
22. Replace any defective case fans or fan blades
23. Correct any improper programming for the compressor
24. Fix the bypassed or offline VFD
25. Steam and hot water efficiency
26. Inspect and fix walk-in ice buildup
27. Fix or replace the multifunctioning sensors
28. Clean condenser coils
29. Check the tension and alignment of all belts and adjust as needed
30. Check the case temperatures, fix if necessary
31. Inspect and fix gaps, cracks, missing gaskets in casework, or damaged case panels
32. Periodically inspect the back (hidden) side of honeycomb air pattern controllers
33. Inspect case lighting controls, make sure they work properly
34. Repair Damaged seals, doors or panels
35. Reprogram the sensor offset or change the sensor
36. Evaporator Coils
37. Inspect and fix bypassed compressors
38. Fix missing or damaged piping insulation
39. Adjust case expansion valves and controls
40. Determine and fix the unsealed penetrations
41. Operate dishwashers only when full
42. Adjust oil charge and troubleshoot
43. Repair and replace oil leaking parts

System

All

Equipment

All

Priority

All

Maximum Cost

Maximum Payback Time

Skill Level

All

Submit

Create RCO Transaction

Smart Supermarkets Toolkit



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Improve Performance, Increase Profits

Welcome
Log out

- Dashboard
- Benchmarking
- RCO
- RCM
- OMA
- Library

Test Location
Test Location
123 Main Street
NewarkNJ, 07102

select location

- Choose -

Go

Organization Admin Links

- [Add New Users](#)
- [List Organization Users](#)
- [Edit Organization](#)

See your operation and maintenance suggestions, schedule them and record as you complete.

Energy OMAs

Equipment Name	Maintenance	Last Maintenance Date	Next Maintenance Date	
Air Conditioning, Rooftop Condensor, Air Cooled	System use/sequencing	12/27/2012	12/28/2012	✖
Daves test 4	Leak testing	02/26/2013	03/26/2013	✖
Air Conditioning, Rooftop Packaged Unit, Air Cooled	Inspect ductwork	02/26/2013	03/26/2013	✖
Multi-Rack / Parallel Refrigeration System - Med. Temp.	Compressor use/sequencing	07/02/2013	07/09/2013	✖

Maintenance yet to come

Daves test 4

Maintenance	Priority	Cost (\$)	Skill	Frequency	
Overall visual inspection	Energy	0	Low	1 Week	+
Check the Anode Rod	Maintenance	0	Medium	6 Months	+
Check the Dip Tub	Maintenance	0	High	6 Months	+
Check the Pilot Light	Maintenance	0	Medium	1 Month	+

Air Conditioning, Rooftop Condensor, Air Cooled

Maintenance	Priority	Cost (\$)	Skill	Frequency	
System use/sequencing	Energy	0	Medium	1 Day	+
Overall visual inspection	Energy	0	Low	1 Week	+
Check fan blades	Maintenance	250	High	1 Month	+
Filters	Maintenance	150	Medium	1 Month	+
Check for air quality anomalies	Maintenance	0	Low	1 Month	+



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My account

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Test Location

Test Location
123 Main Street
NewarkNJ, 07102

select location

- Choose - ▾

Go

Organization Admin Links

- [Add New Users](#)
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- [Edit Organization](#)

Organization Admin User List

Username	Full Name	Location	Roles	Sign-Up Date
TEDMAR1	TEDMAR Electric	Belleville Supermarket Mahwah Supermarket	Contractor	08/8/2013
mjones	Jones & Son Plumbing	Belleville Supermarket Mahwah Supermarket Linden Super Market	Contractor	11/11/2012
seddy	Sandra Eddy	Linden Super Market	Facility Admin	11/11/2012
mwall	Mark Wall	Edison Supermarket	Facility Admin	11/11/2012
deneme3	Deneme, Inc	Mahwah Supermarket Linden Super Market	Contractor	01/1/2013
jbell	John Bell	Belleville Supermarket	Facility Admin	
ifixit	I Fixit	Belleville Supermarket Edison Supermarket	Contractor	
nmorrisette	Nancy Morrisette	Belleville Supermarket	Facility Admin	08/8/2013
mgreenpoint	Michael Greenpoint	Belleville Supermarket Linden Super Market Test Location Market Trend Store	Organization Admin	11/11/2012

See the list of users that are entitled to your organization and their roles

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My account

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RCO ▾

RCM ▾

OMA ▾

Library ▾

Test Location

Test Location
123 Main Street
NewarkNJ, 07102

View Edit

My Profile

First Name:

Marsha

Last Name:

Jone

History

Member for

10 months 3 days

Contractor Profile

Contractor Name:

Jones & Son Plumbing

Contractor Contact:

Mark Jones

System Type:

Plumbing

Contractor Locations:

Belleville Supermarket

Mahwah Supermarket

Linden Super Market

select location

- Choose - ▾

Go

Organization Admin
Links

- [Add New Users](#)
- [List Organization Users](#)
- [Edit Organization](#)

You can get more detailed info by clicking on each user



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My account

Log out

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Benchmarking ▾

RCO ▾

RCM ▾

OMA ▾

Library ▾

Test Location

Test Location
123 Main Street
NewarkNJ, 07102

See your transactions for each piece of equipment

- Choose - ▾

Go

Organization Admin Links

- [Add New Users](#)
- [List Organization Users](#)
- [Edit Organization](#)

Equipment Transactions for Test Location

RCO Transactions

Date	RCO	Contractor	Eq. Cost	Contr. Cost	Total Cost	Notes
11/22/2012	Burner inspection (Electric)	market employee	0		0	took 2 hours
11/22/2012	Air Filters	44	44		44	44
11/26/2012	Check steam traps periodically for leaks (gas)	David Jackson	40		150	was an easy fix

RCM Transactions

Date	RCM	Contractor	Eq. Cost	Contr. Cost	Total Cost	Notes
No RCM transactions have been entered for this equipment!						

OMA Transactions

Date	OMA	Contractor	Eq. Cost	Contr. Cost	Total Cost	Notes
No OMA transactions have been entered for this equipment!						

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My account

Log out

Dashboard ▾

Benchmarking ▾

RCO ▾

RCM ▾

OMA ▾

Library ▾

Test Location

Test Location
123 Main Street
NewarkNJ, 07102

select location

- Choose - ▾

Go

Organization Admin Links

- Add New Users
- List Organization Users
- Edit Organization

Username *

Spaces are allowed; punctuation is not allowed except for periods, hyphens, apostrophes, and underscores.

E-mail address *

A valid e-mail address. All e-mails from the system will be sent to this address. The e-mail address is not made public and will only be used if you wish to receive a new password or wish to receive certain news or notifications by e-mail.

Password *

Password strength: _____

Confirm password *

Provide a password for the new account in both fields.

Status

- Blocked
- Active

Notify user of new account

User Profile

First Name

Last Name

Assigned Locations

- None - ▲
- Belleville Supermarket
- Mahwah Supermarket
- Linden Super Market ▼

Email Address

You can add users for your locations (Location Manager, Contractor)

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My account

Log out

Dashboard ▾

Benchmarking ▾

RCO ▾

RCM ▾

OMA ▾

Library ▾

Test Location

Test Location
123 Main Street
NewarkNJ, 07102

select location

- Choose - ▾

Go

Organization Admin
Links

• [Add New Users](#)

Address: 123 Main Street

City: Pine Lane

State: New Jersey

Zip: 123456

Phone: 1 234-567-8912

Email: greenpoint_supermarket_chain@test.com

Associated User:

[mgreenpoint](#)

Organization Update:

1

	City	Phone
Belleville Supermarket	Pine Lane	(234) 567-8912
Edison Supermarket	Pine Lane	(234) 567-8912
Linden Super Market	Pine Lane	(234) 567-8912
Mahwah Supermarket	Pine Lane	(234) 567-8912

Location Managers can only see their own location. Only Organization Managers can see them all.

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OMA ▾

Library ▾

✓ Equipment Updates Complete

Test Location

Test Location
123 Main Street
NewarkNJ, 07102

select location

- Choose - ▾

Go

Organization Admin
Links

Type	Age	Meter(elec.)	Meter(gas)	Meter(water)	Meter(waste)	Cost	Manufactu
---		---	---	---	---		
---		---	---	---	---		
---		---	---	---	---		
---		---	---	---	---		
---		---	---	---	---		
---		---	---	---	---		
---		---	---	---	---		
---		---	---	---	---		
---		---	---	---	---		
---		---	---	---	---		
---		---	---	---	---		

Submit Add Equipment

Cancel Add

Enter your equipment information. This will help track your resource use by equipment and prepare reports.

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No account
Log out

Dashboard ▾ Benchmarking ▾ RCO ▾ RCM ▾ OMA ▾ Library ▾

Test Location
Test Location
123 Main Street
NewarkNJ, 07102

select location

- Choose - ▾

Go

Organization Admin Links

- [Add New Users](#)
- [List Organization Users](#)
- [Edit Organization](#)

Average Consumption Unit: Water
Average Consumption (Gallon/yr): 156 585
Unit (Installed) Price (\$): 3 000.00
Service Life (yrs): 15
Image:

Shown with Optional Front Panel

Resources:
[Energy](#)
[Water](#)
System Type:
[Plumbing](#)

See each of your piece of equipment in detail. Check their photos and see a related video if available.

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My Account

Log out

Dashboard ▾

Benchmarking ▾

RCO ▾

RCM ▾

OMA ▾

Library ▾

Test Location

Test Location
123 Main Street
NewarkNJ, 07102

- Enter Electricity Data
- Enter Gas Data
- Bill Templates
- Create Energy Billing Account
- Create Energy Meters

select location

- Choose - ▾

Go

Organization Admin Links

- Add New Users
- List Organization Users
- Edit Organization

Add Electric Meter Readings

NID	Meter	Reading Date	Energy Use (kWh)	Cost(\$)	Demand(kW)	Comment	
	SM4 ▾	7/01/2013	475000	54435	430		✕
	SM4 ▾	6/01/2013	402000	46069	410		✕
	SM4 ▾	5/01/2013	370000	42402	390		✕
	SM4 ▾	4/01/2013	358000	41027	420		
	SM4 ▾	3/01/2013	350000	40110	370		
	SM4 ▾	2/01/2013	338000	38735	350		
	SM4 ▾	1/01/2013	379000	43433	400		✕
	EM1 ▾	12/19/2012	50	50	50		✕
	EM1 ▾	12/19/2012	20	20	20		✕
	EM1 ▾	12/19/2012	70	70	70		✕
	EM1 ▾	12/19/2012	20	20	20		✕
	EM2 ▾	12/19/2012	123	123	123		✕
	EM3 ▾	12/19/2012	134	134	134		✕

Enter your energy data by resource and by meter. This will help you get your energy reports.

Smart Supermarkets Toolkit



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My account

Logout

Dashboard

Benchmarking

RCO

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Library

Test Location

Test Location
123 Main Street
NewarkNJ, 07102

[Enter Refrigerant Data](#)
[Define Refrigeration System](#)
[See Refrigerant Transaction](#)

select location

- Choose -

Go

Organization Admin Links

- [Add New Users](#)
- [List Organization Users](#)
- [Edit Organization](#)

Refrigerant System *

- Select a value -

Defined Refrigerant System

Trans Amount

lbs

Always enter as Positive value.

Refrigerant Value

\$

Always enter as Positive value.

Transaction Type

- None -

- None -

Purchased (+)

Recovered (+)

Loss (-)

Destroyed (-)

Stored (-)

09/04/2013

E.g., 09/05/2013

Date transaction took place.

Related Docs

Add a new file

No file chosen

Files must be less than **8 MB**.

Allowed file types: **txt pdf xls xlsx doc docx ppt pptx jpg jpeg png gif**.

Enter your refrigerant data by resource and by meter. This will help calculating the refrigerant leak. This data is required by many regulations.

Smart Supermarkets Toolkit



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Improve Performance. Increase Profits

My account
Log out

Dashboard ▾ Benchmarking ▾ RCO ▾ RCM ▾ OMA ▾ Library ▾

Test Location
Test Location
123 Main Street
NewarkNJ, 07102

select location

- Choose - ▾

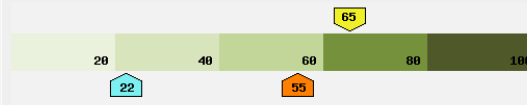
Go

Organization Admin Links

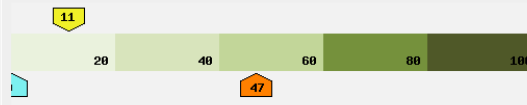
- [Add New Users](#)
- [List Organization Users](#)
- [Edit Organization](#)

Dashboard

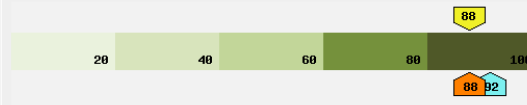
Energy



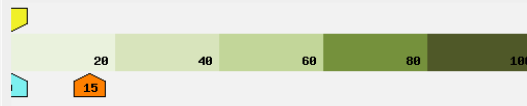
Water



Refrigeration



Waste



Summary Dashboard is where you can see a summary of your points and your actual numbers related to your usage of energy, water, refrigerant and waste. Your points are located somewhere on a scale from 0 to 100. Calculations are based on the averages of all the other stores that are registered to the system.

Location Performance

Energy Intensity (kBtu/sqft)	287
Initial Energy Intensity (kBtu/sqft)	9,270
Improvement	8,983
Industry Average (kBtu/sqft)	220

Water Intensity (gallons/sqft)	15
Initial Water Intensity (gallons/sqft)	0
Improvement	-15
Industry Average (gallons/sqft)	66

Annual GWP Leakage Intensity (GWP/SF)	176
Initial GWP Leakage Intensity (GWP/SF)	184
Improvement	8
Industry GWP Leakage Average (GWP/SF)	176

Waste Intensity (lbs/sqft)	0
Initial Waste Intensity (lbs/sqft)	0
Improvement	0
Industry Average (lbs/sqft)	3

Your Score	
Industry Average	
Initial Score	

Always check your progress and compare it with the other users in the system