



20% BY 2020

PHASE ONE PARTICIPANTS



- 20 Georgia Tech Research Institute
- 19 Georgia Power
- 18 Cousins Properties
- 17 Morehouse School of Medicine
- 16 Spelman College
- 15 Lincoln Property Company
- 14 Fulton County Government
- 13 Hartsfield Jackson Int'l Airport
- 12 Luckie Street Properties
- 11 CNN Center and Omni Hotel
- 10 330 Marietta Street
- 9 Jamestown Properties
- 8 Epsten Group
- 7 Legacy Property Group
- 6 AmericasMart
- 5 Georgia Institute of Technology
- 4 Georgia State University
- 3 Philips Arena
- 2 Georgia Dome & World Congress Center
- 1 US General Services Administration

Flagship Project: Atlanta Civic Center

In November 2011, the Atlanta BBC launched its **Phase One** with **20 building owners** committing **27 buildings**, covering **over 21 million sq. ft.** – more than **10x** our initial target of **2 million sq. ft.**

ABBC: Data

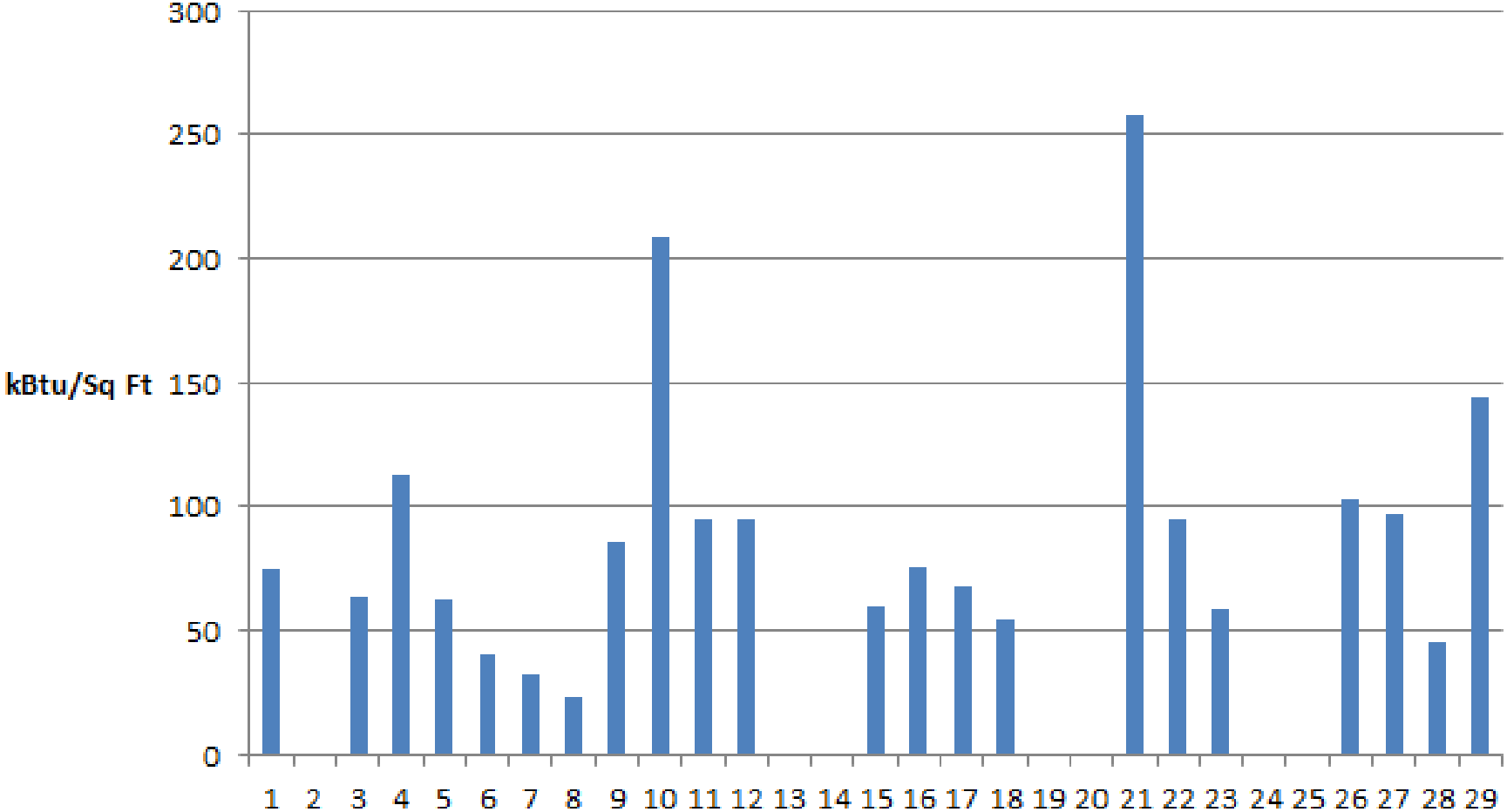
Two Types of Data

- Utility Data
 - Energy, Water, Natural Gas
 - Monthly Data
- Building Data
 - Summary Data (type, sq ft, operating hours)
 - Specific Data
 - Envelope information
 - Detailed equipment data
 - Building Performance data



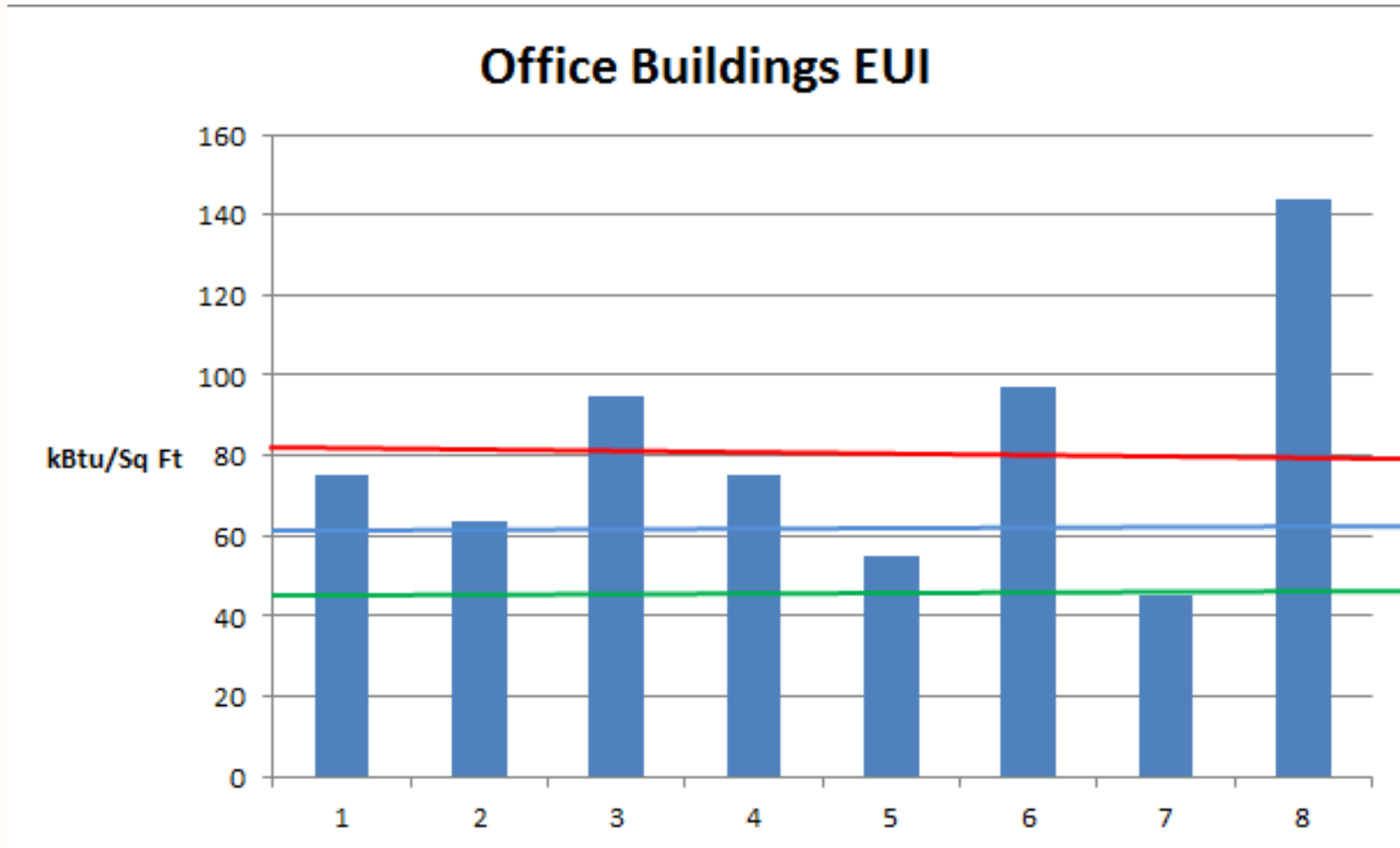
Phase 1 Building EUI

Energy Use/Sq Ft (EUI)



Phase 1 Building EUI

ES: Red = Average, Blue = 75, Green = 90



Phase 1 Totals

- Representing ~21 million sq ft
- Total Energy Cost: \$30,601,317
- Total Water: 144 million gallons
- Reduction since 2009, ~\$1.8 million
 - Average Savings, 7%
 - Maximum Savings, 21%



Phase 1 Audit Statistics

Representing 4 of 21 million sq ft in Phase 1

- 68,350 Pieces of Equipment/Fixtures
- 31,331 T8 light fixtures
- 815 toilets
- 326, 2.5 GPM shower heads
- 25,878 tons cooling capacity



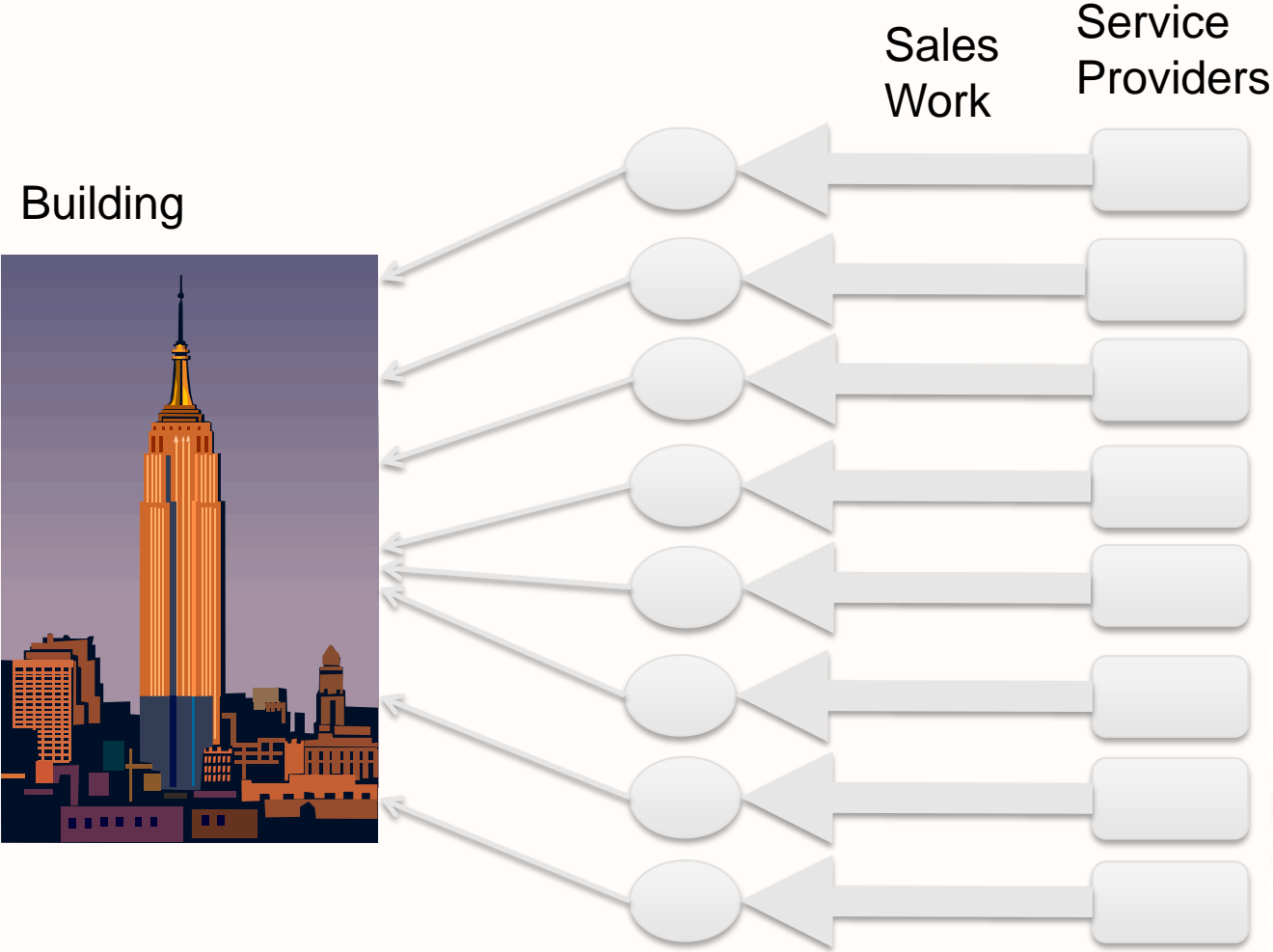
ABBC Model: Building Data

Why Centralize Data?

- Encourage competition between buildings
- Leverage outside firms for more in-depth analysis
- Build aggregate demand for improvements
- Easier to track results
- Reduce transaction costs for product/service industry

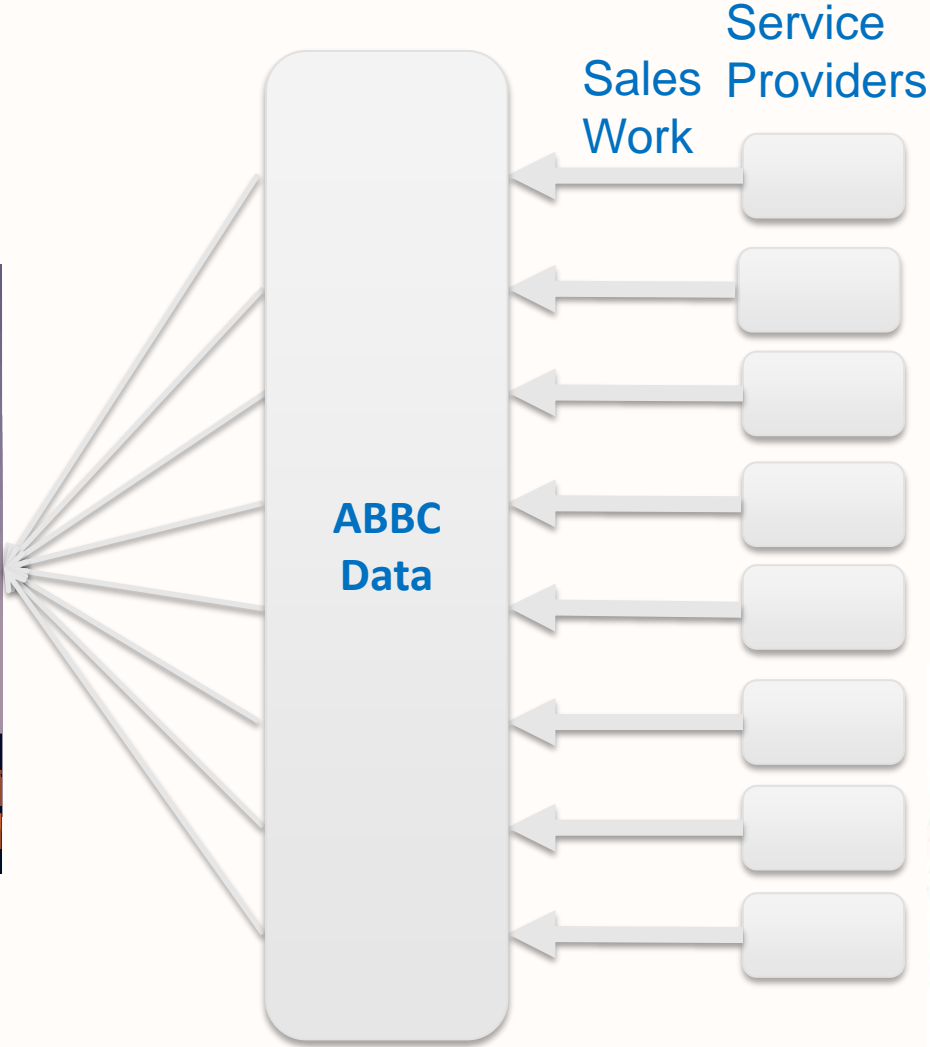
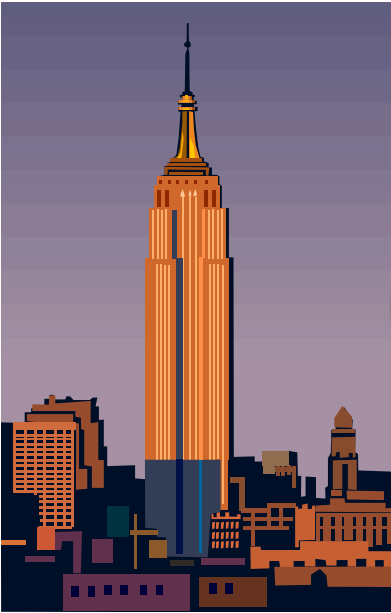


ABBC Model: Building Data

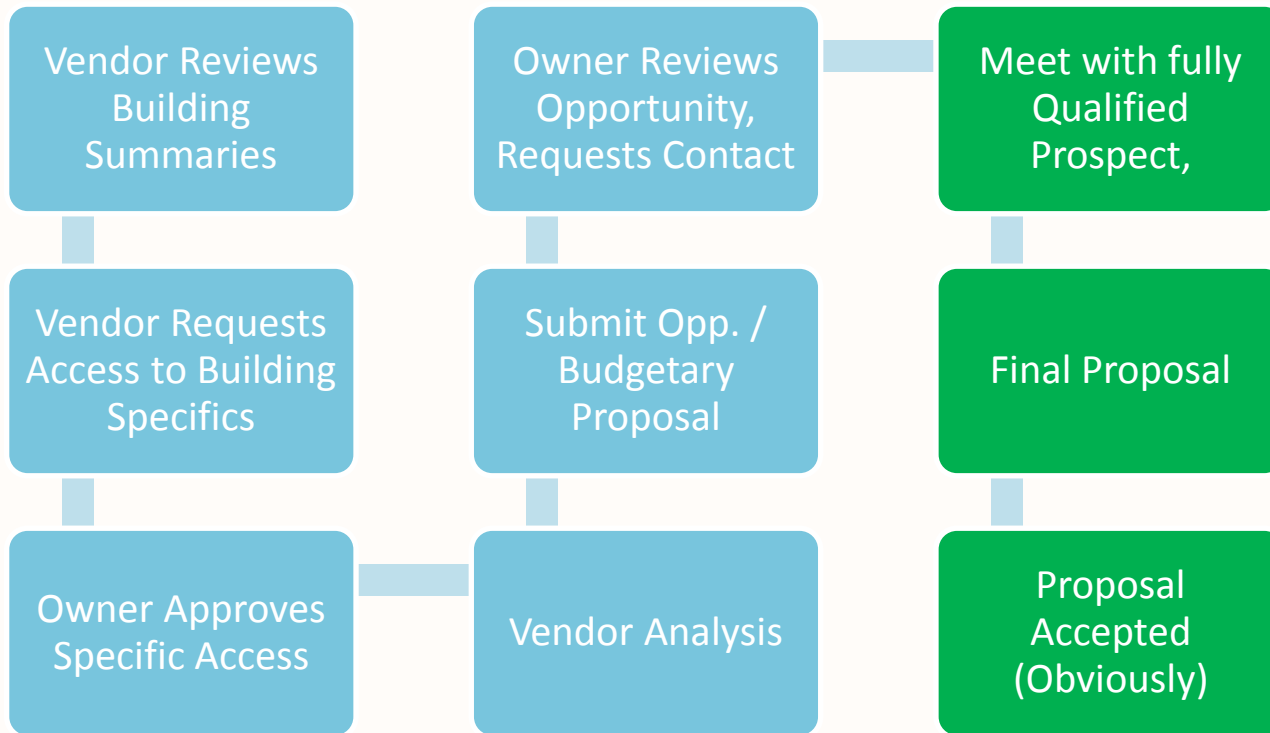


ABBC Model: Building Data

Building



Skye Connect Process



Quick Walkthrough



skye energy

Sign in to Skye Solutions

Email:

Password:

Forgot your Password? [Click Here...](#)

Skye Connect



Welcome: Joe Vendor

- [Home](#)
- [Billing v](#)
- [Facility v](#)
- [Reports v](#)
- [Need Help?](#)
- [Logout](#)

[Southface](#) > [Better Buildings Challenge](#) > Client List

Client	Description	Facility Count	Square Feet
BBC-G1		11	2,820,008
BBC-G2		0	0
BBC-G3		2	750,149
BBC-G4		1	77,972
BBC-G5		1	200,459
BBC-G6		2	229,190
BBC-G7		3	7,053,322
BBC-G8		2	154,000
BBC-G9		1	0

[Southface](#) > [Better Buildings Challenge](#) > [Client: BBC-G6](#) > Facility List

Facility Name	City - State	Last 12 month Cost	Square Feet
BBC-12	Atlanta - GA	\$74,951 -View Bills-	33,030
BBC-18	Atlanta - GA	\$720,372 -View Bills-	196,160
Total		\$795,323	229,190

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[Home](#) > [Facility List](#) > BBC-18

Facility Information	Square Feet	Billing	Schedules	Utility Meters
View	196,160	-View Bills-	8 - View	4 - View

Area	Square Feet	Annual Elec \$	Annual Gas \$
1st Floor	23,642	\$10,355	\$17,142
1st Floor Computer Rooms	1,259	\$29,827	
1st Floor Mechanical	4,573	\$51,138	\$29,164
2nd Floor	32,148	\$17,421	\$17,142
3rd Floor	30,569	\$37,542	\$17,142
3rd Floor Computer Rooms	2,793	\$68,182	
4th Floor	32,519	\$22,269	\$17,142
4th Floor Computer Room	944	\$23,640	
5th Floor	30,284	\$21,659	\$17,142
5th Floor Computer Room	1,792	\$45,013	
6th Floor	30,420	\$15,399	\$17,142
6th Floor Computer Room	1,538	\$37,726	
Exterior	3,679	\$2,755	
Total	196,160		
Facility Analysis		-Electric Analysis-	-Gas Analysis-

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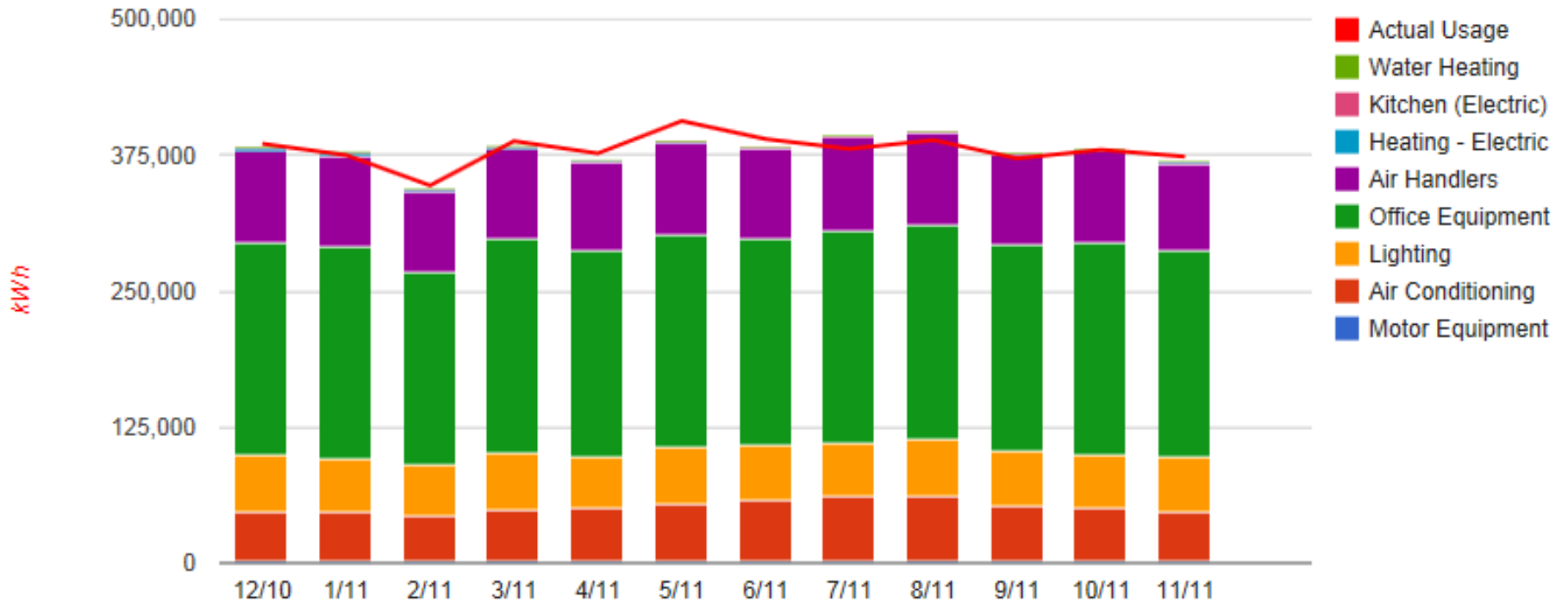
Type	Average Fix. Wattage	Total kW	Annual kWh	Annual Cost
T5 Lamp - Std - 28w	28	0.39	114,232	\$8,447
T8 - 2 x 32w Lamp, 2x4 Parabolic Fixture	60	0.72	101,687	\$7,519
T8 - 2 x 32w Lamp, 2x4 Lensed Fixture	60	0.12	99,765	\$7,377
T5 - 2 x 28w Fix, Std. Ballast	49	0.15	91,748	\$6,784
T12 - 2 x 34w Lamp, 2x4 Lensed Fixture	73	1.31	70,788	\$5,234
HID - Metal Halide	92	2.3	42,224	\$3,122
T8 - 3 x 32w Lamp, 2x4 Parabolic Fixture	90	0.18	27,518	\$2,035
T8 - 3 x 32w Lamp, 2x4 Lensed Fixture	90	0.72	17,035	\$1,260
HID - High Pressure Sodium	100	1.4	12,230	\$904
T8 Lamp - Std - 32w	256	3.58	10,437	\$772
Halogen Light	65	0.72	8,387	\$620
T12 Lamp - 4ft bulb - 34w	56	1.92	7,679	\$568
LED - 36w, 2x4 Fixture	36	0.07	6,919	\$512
T8 - 4 x 32w Lamp, 2x4 Lensed Fixture	119	0.95	6,584	\$487
T8 - 4 x 32w Lamp Fix, 2x4 Parabolic Fixture	119	0.48	6,238	\$461
T12 - 3 x 34w Lamp, 2x4 Lensed Fixture	115	0.46	5,023	\$371
T12 - 4 x 34w Lamp, 2x4 Lensed Fixture	147	1.18	4,281	\$317

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AC Unit	Quantity	Capacity (tons)	Total Capacity (tons)	Power (kW)	Total Power (kW)	Equipment Age	Efficiency Rating	Notes
Area: 1st Floor Computer Rooms								
1st - Split System	2	5	10	5.1	10.2	12 yrs (2000)	9.0 EER	Air Handler kW: 0.9, Capacity: 2000 CFM
Area: 1st Floor Mechanical								
Virtual Chiller	1	390	390	320	320	12 yrs (2000)	16.0 EER	Notes
Area: 3rd Floor Computer Rooms								
3rd - Rooftop Split	2	14	28	15.9	31.8	8 yrs (2004)	9.0 EER	Notes
Area: 4th Floor Computer Room								
4th - Rooftop Split	2	5	10	6	12	8 yrs (2004)	9.0 EER	Air Handler kW: 0.9, Capacity: 2000 CFM
Area: 5th Floor Computer Room								
5th - Rooftop Split	2	14	28	15.9	31.8	8 yrs (2004)	9.0 EER	Air Handler kW: 2.48, Capacity: 5500 CFM
Total	10	480 tons		422 kW				

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Energy Model vs Actual



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Heating, Cooling, Ventilation

Opportunity	Saving %	Est. Annual Savings
Replace 9-11 SEER AC with 15+ SEER	28%	\$11,977
Replace 8-10 EER AC with 12+ EER	25%	\$10,693
Static Pressure & Supply Air Temperature Reset	15%	\$9,426
Install/Program Programmable Thermostats	12%	\$5,133
Seal HVAC duct leakage	12%	\$5,133
Variable Frequency Drives on Air Handlers	30%	\$2,574
Replace insulation on HVAC refrigerant lines	3%	\$1,283
Adjust HVAC systems for appropriate ventilation	12%	\$247

Lighting

Opportunity	Saving %	Est. Annual Savings
Use Motion Sensors to Reduce Stairwell Lighting	85%	\$34,293
Install light tubes to bring in daylight	40%	\$17,405
Add Motion Sensors to appropriate areas	20%	\$16,138
Install photocell control to reduce lighting use	30%	\$10,391
Delamp to reduce lighting power to energy code levels	15%	\$5,243
Reduced Wattage T8 Lighting	12%	\$2,360
High Performance T8 Lighting Retrofit	40%	\$1,743
Retrofit HID Lights with CFL	55%	\$1,687
High Performance T8 to T8 Lighting Retrofit	30%	\$1,254
High Bay Fluorescents	40%	\$1,227
Replace Halogen lights with LED Lighting	80%	\$473
Retrofit T12 Fixtures with T8 Lighting Fixtures and Lamps	48%	\$124
Retrofit T12 lighting with T8 Lighting	38%	\$98

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Name	Est. Saving %
High Performance T8 Lighting Retrofit	40%

Description:

General Notes

T12 lighting, is an old technology and inefficient when compared to new T8 or T5 lighting systems. These newer systems can reduce the overall fixture wattage by 40%, and reduce the heat load in the building, allowing the air conditioning to run less. A rough estimate for this cooling savings would another 25% of the lighting energy savings.

Fluorescent Lamps:

Standard T8 lamps use 32 watts per bulb, and their electronic ballasts use substantially less energy than T12 ballasts. Newer T8 lamps can now use 28 watts with similar light levels, or 25 watts with slightly reduced lighting levels. The additional costs for the 28w lamps typically pay for themselves in the first year.

How Do I

The suggested fixtures below are for a one-for-one fixture swap. When a fixture is swapped out for a new fixture, delivery option is to get a lighting consultant to review the current lighting layout and recommend an efficient lighting layout. This would incur a cost for a lighting consultant recommended where the current lighting layout is inefficient.

When upgrading lights, it is important to evaluate the current lighting layout against current energy code (ASHRAE 90.1) and evaluate the spaces can be found in the appendix of this report.

More information available at:

[Add to Active List](#)

Select	Applicable Equipment	Equipment Type	Annual Savings	Cost	Payback Years
<input checked="" type="checkbox"/>	5th - Office - T12 -	T12 - 2 x 34w Lamp, 2x4 Lensed Fixture	\$183	\$4,930	26.9
<input checked="" type="checkbox"/>	2nd - Chase - T12 -	T12 - 2 x 34w Lamp, 2x4 Lensed Fixture	\$145	\$3,910	26.9
<input checked="" type="checkbox"/>	4th - Chase - T12 -	T12 - 2 x 34w Lamp, 2x4 Lensed Fixture	\$126	\$3,400	26.9
<input type="checkbox"/>	3rd - Chase - T12 -	T12 - 2 x 34w Lamp, 2x4 Lensed Fixture	\$120	\$3,230	26.9

Skype Connect

[BBC-18](#) > [Opportunity Review](#) > [Opportunity Ideas](#) > [High Performance T8 Lighting Retrofit](#) > Add to Active List

Name	Est. Saving %
High Performance T8 Lighting Retrofit	40%

Description:

The inputs below show the changes the opportunity will assume. Default values typically can be kept.

Existing Fixtures	Qty		New Fixtures	Fixture Watts		Total Watts	Fixture Lumens		Total Lumen
	Exist.	New		Exist.	New		Exist.	New	
5th - Office - T12 (5th Floor) T12 - 2 x 34w Lamp, 2x4 Lensed Fixture	29	<input type="text" value="29"/>	T8 - 3 x 28w Lamp, 2x4 Lensed Fixture ▾	73 Watts	<input type="text" value="80"/>	10%	3,261	<input type="text" value="5,586"/>	71%
Cost per Fixture: \$ <input type="text" value="170"/>				Total Cost: \$ <input type="text" value="4930"/>		Annual Savings: (\$44)			
2nd - Chase - T12 (2nd Floor) T12 - 2 x 34w Lamp, 2x4 Lensed Fixture	23	<input type="text" value="23"/>	T8 - 3 x 28w Lamp, 2x4 Lensed Fixture ▾	73 Watts	<input type="text" value="80"/>	10%	3,261	<input type="text" value="5,586"/>	71%
Cost per Fixture: \$ <input type="text" value="170"/>				Total Cost: \$ <input type="text" value="3910"/>		Annual Savings: (\$35)			
4th - Chase - T12 (4th Floor) T12 - 2 x 34w Lamp, 2x4 Lensed Fixture	20	<input type="text" value="20"/>	T8 - 3 x 28w Lamp, 2x4 Lensed Fixture ▾	73 Watts	<input type="text" value="80"/>	10%	3,261	<input type="text" value="5,586"/>	71%
Cost per Fixture: \$ <input type="text" value="170"/>				Total Cost: \$ <input type="text" value="3400"/>		Annual Savings: (\$30)			

Total Project Cost: \$12,240

[Save to Opportunity List](#)

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Upgrade Insulation above the Roof Deck	\$4,398	\$48,885	5/17/2012
Upgrade Loading Dock to T8	\$501	\$3,185	5/15/2012
Use Motion Sensors to Reduce Stairwell Lighting	\$496	\$1,650	5/15/2012
Verify Outside Air Level	(\$1,914)	\$1,000	
Total	\$181,465	\$341,766	

Reference Opportunities

Opportunity	Annual Savings	Cost	D
Add Motion Sensors to Restrooms, Breakrooms, and Mechanical Rooms	\$334	\$6,400	5/
Total	\$334	\$6,400	

Vendor Opportunities

Opportunity	Annual Savings	Cost	Date Identified
High Performance T8 Lighting Retrofit	(\$93)	\$12,240	6/7/2012
Total	(\$93)	\$12,240	

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BBC-18 > [Opportunity Review](#) > High Performance T8 Lighting Retrofit

Name

High Performance T8 Lighting Retrofit

Cost	Utility	Cost Savings	Consumption Savings
\$12,240	Electric	(\$118)	-1,683
	Natural Gas	\$25	8

Identification Date	Start Date	Progress	Con
6/7/2012		0%	

Opportunity Category - Specific

T12 lighting, is an old technology and inefficient when compared to new T8 or T5 lighting systems. These newer systems can reduce the overall fixture wattage by 40%, and reduce the heat load in the building, allowing the air conditioning to run less. A rough estimate for this cooling savings would another 25% of the lighting energy savings.

Fluorescent Lamps:

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Additionally, there are "high performance" T8 lamps, that produce ~12% more light than a standard lamp, for the same wattage (32w). This gives the option in some cases to use high performance lamps to reduce the fixture lamp count, saving energy.

Savings Detail

Equipment Type	Baseline Consumption	New Consumption	Savings	Savings %
Gas Heat/Furnace	5,837	5,829	8	0.1%
Air Conditioning	631,061	631,284	-223	-0.0%
Air Handlers	993,669	993,657	12	0.0%
Lighting	599,372	600,845	-1,473	-0.2%
Air Conditioning	610,361	610,361	0	0.0%

Next Steps

- Meet your Match Event – Announce!
- July – Building Owner Lunch and Learn
- July – Open to Vendors (get logins)
 - Will have prior vendor training



What We Need From You

- Feedback
- Likes, dislikes, concerns
- Contact John Bracey
 - 404-869-1875
 - jbracey@skyeenergy.com

