

# BUILDING EFFICIENCY 305 CHALLENGE

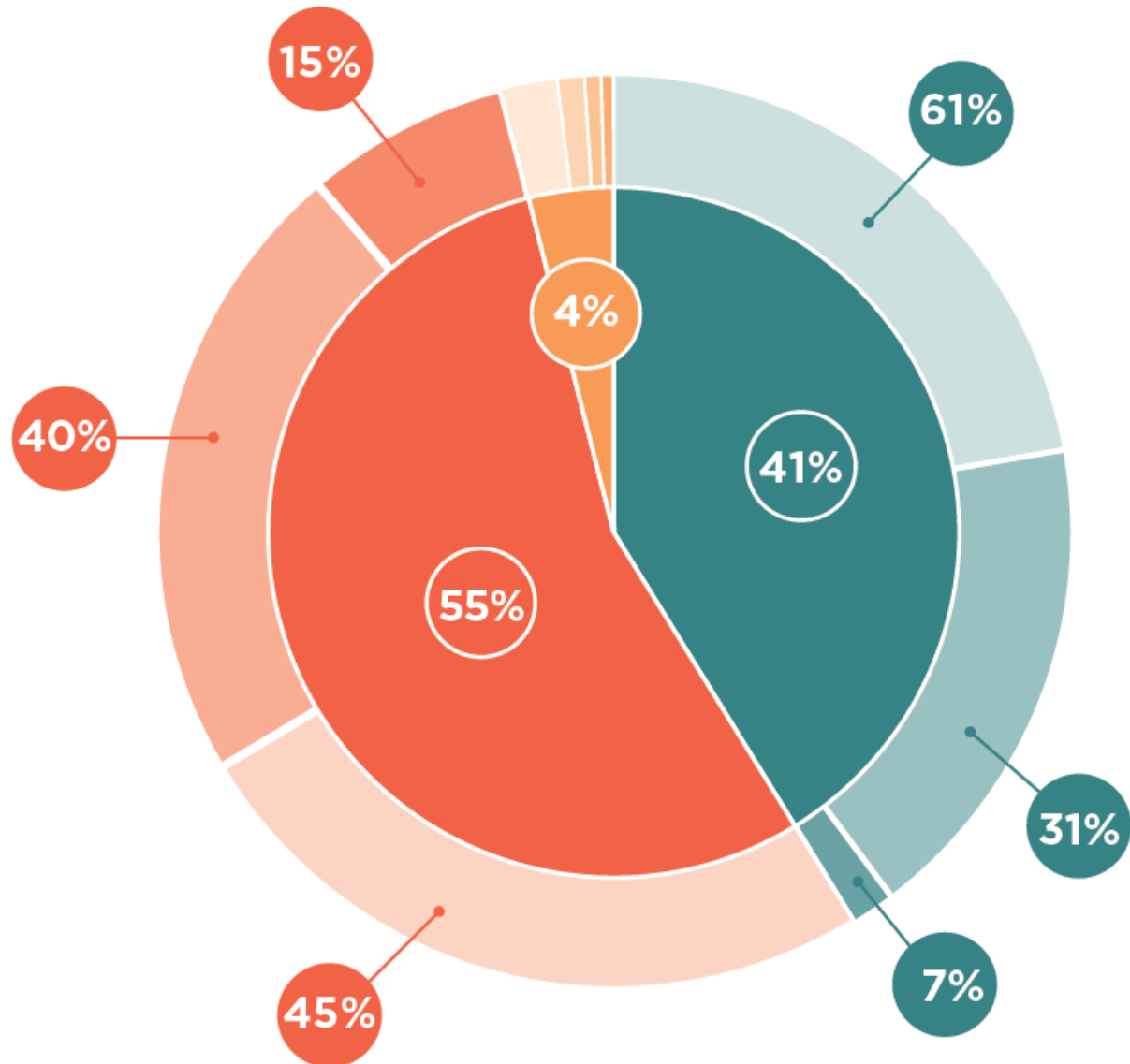
MIAMI-DADE COUNTY'S BUILDING ENERGY + WATER EFFICIENCY CHALLENGE



# Roadmap

- Why benchmarking
- History
- Key policy components
- Supporting Tools
- Implementation timeline and resources needed
- Integration with City of Miami's existing ordinance
- Lessons learned from voluntary Building Efficiency 305 Challenge Program

# Communitywide Emission Sources 2019



## Communitywide Sources of Emissions

### Buildings and Energy 41%

- Electricity 61%
- Other Fuels 31%
- Natural Gas 7%

### Transportation and Land Use 55%

- Air Travel 45%
- Ground - Gasoline 40%
- Ground - Diesel 15%

### Water and Waste 4%

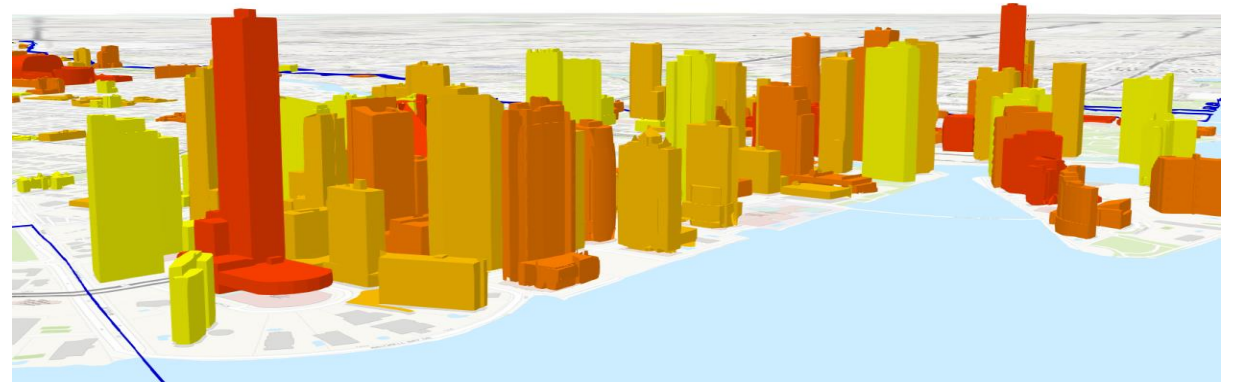
- Landfilled Waste 53%
- Wastewater Energy 25%
- Incinerated Waste 12%
- Other 10%

# TARGET AUDIENCE

- Large buildings (20,000 sq ft or larger) represent 2% of total number of buildings but > 27% of floor space in the County
- Up to 30% of energy is wasted due to inefficient equipment and operations

## BUILDING EFFICIENCY 305 (BE305)

Unlocking the Benefits of Building  
Performance in Miami-Dade County



# Estimated energy savings

- Over 10 years source energy savings of 312,860,720 MMBtu or \$190.3 million with both benchmarking and retrocommissioning providing roughly equal levels of savings
- IMT estimates that buildings who consistently benchmark save 5-10% on energy
- Greenlink and Autocase report show great savings over the long-term

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# Timeline

2017

- BE305 umbrella program launch

2018

- Working Group meetings held
- Community trainings

2019

- Ordinance in legal review

2020

- BE305 Challenge launch

2021-2023

- BE 305 Challenge continues
- Supporting tools: UBIDs, FPL WBD, dashboard procurement

2024

- Significant progress on legal review of ordinance
- Gearing up for implementation, finalizing supporting tools

# BE305 Program Components

Community  
Trainings

County Leadership

Facilitating Access  
to Financing

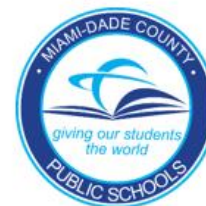
Building Code  
Education

Mandatory Building  
Performance  
Ordinance

Voluntary BE305  
Challenge



# BE305 Working Group



Partners in Hospitality



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# Key Policy Components

## 1. Benchmarking



**Building owners report energy and water usage and building characteristics**

## 2. Retuning



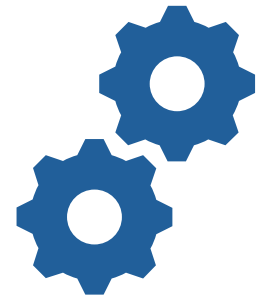
**Retuning or retrocommissioning (RCx) of building to improve performance**

## 3. Disclosure



**Disclosure of annual energy and water use publicly to create market transformation**

## 4. Enforcement

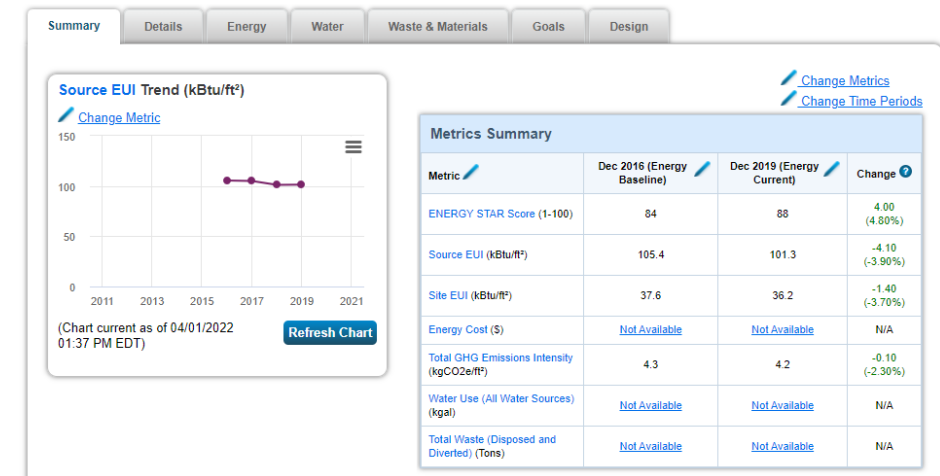


**Ensuring compliance through penalties**

# Benchmarking

- Merging of building characteristics with consumption data
  - Equivalent to MPG for cars
- Use Energy Star Portfolio Manager, free managed by EPA
- For all buildings >20,000 sq ft
- Phase-in implementation, with a few thousand buildings coming online over 4 years for a total of ~13,500 (no City)

## ENERGY STAR® PortfolioManager®



# Retuning

- Retuning or retrocommissioning (RCx)
- Every 5 years for low-performers
- Only for buildings >50,000 sq ft
- 4,700 buildings (no City) to retune, divided over 3 years

Figure 1 depicts the cooling load of floor 22 over a week, and we can see that AC units operate between 6 a.m. and 6 p. To 6:00 pm. To compute non-cooling load during non-operational hours, we focus on floor 22 because we logged cooling on this level, and it is easier to discover non-cooling (including light) during these hours. Based on this estimate, we may calculate additional floors.



Figure 1: Cooling load of floor 22 during period 06/28/24 – 07/05/24

Figure 2 demonstrates that the company is seeing consistent demand this week.

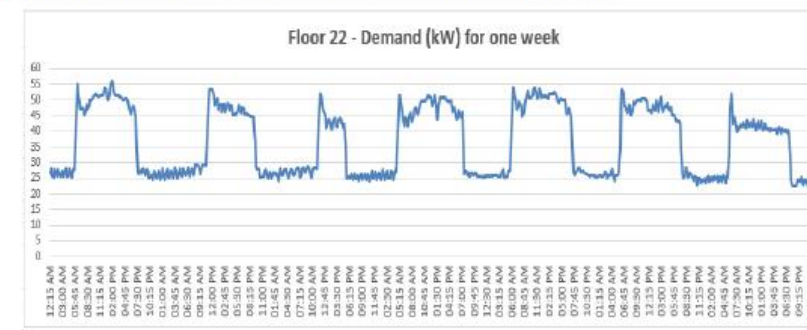


Figure 2: Demand of floor 22 during period 06/28/24 – 07/05/24



# Disclosure

- County to publish benchmarking data annually



## Miami Building Efficiency 305 Program Map

### Filter Covered Buildings

Define the filters to show the desired covered buildings

Search

Search by Address or UBID

Reporting Year

2024

Property Type

All Property Types

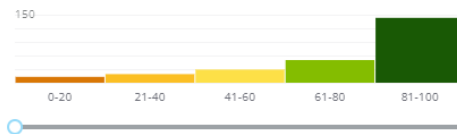
Map View

Covered Buildings

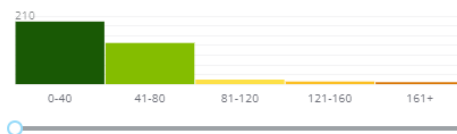
View Comparison

### Energy and Water Performance Metrics

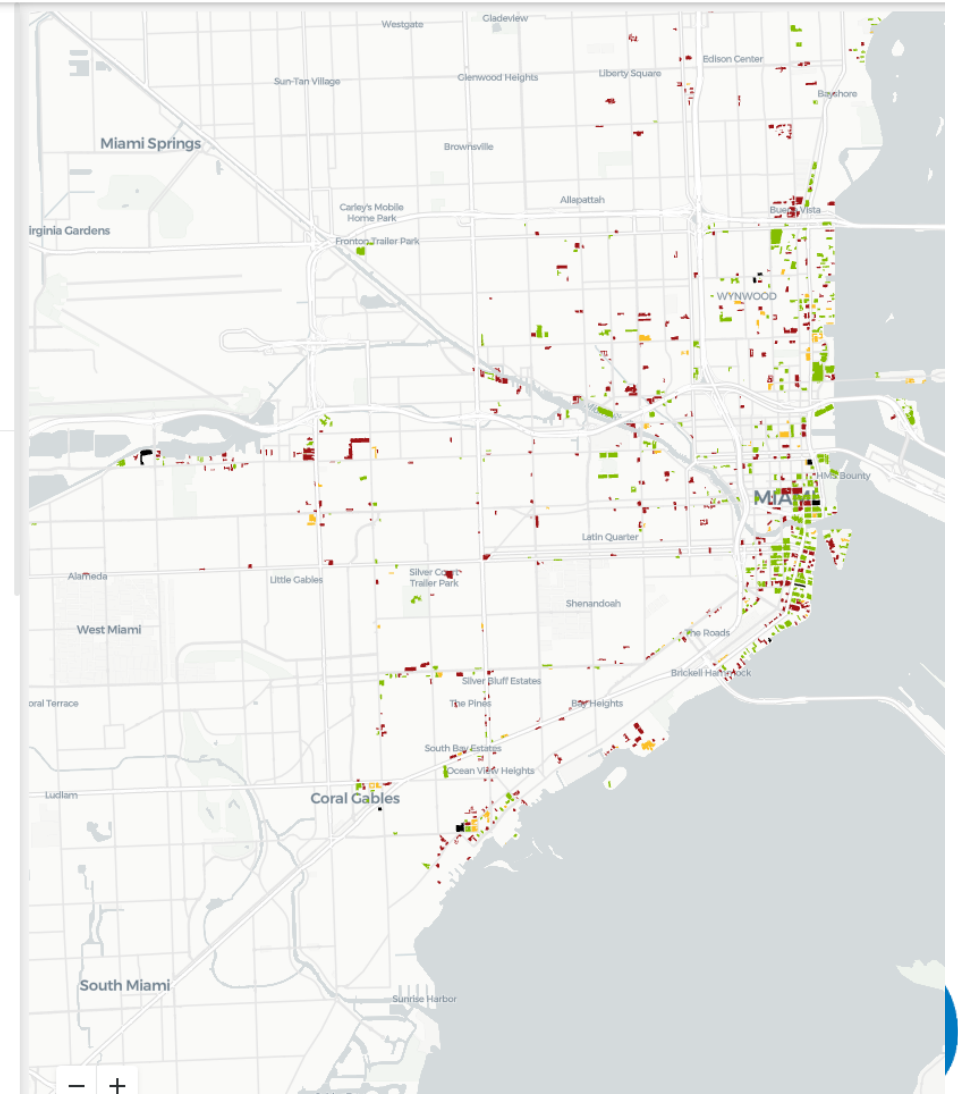
#### ENERGY STAR® Score



#### Site Energy Use Intensity (kBtu/ft<sup>2</sup>)



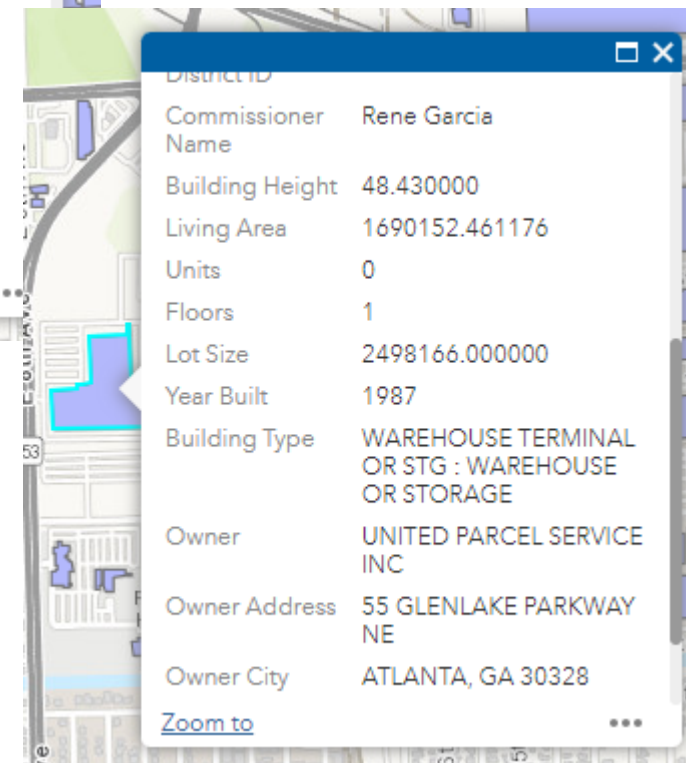
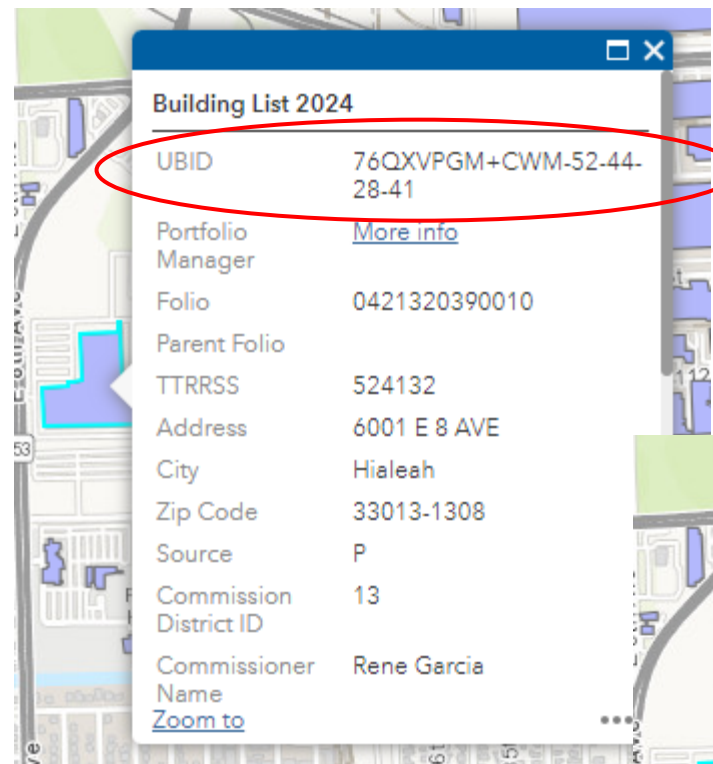
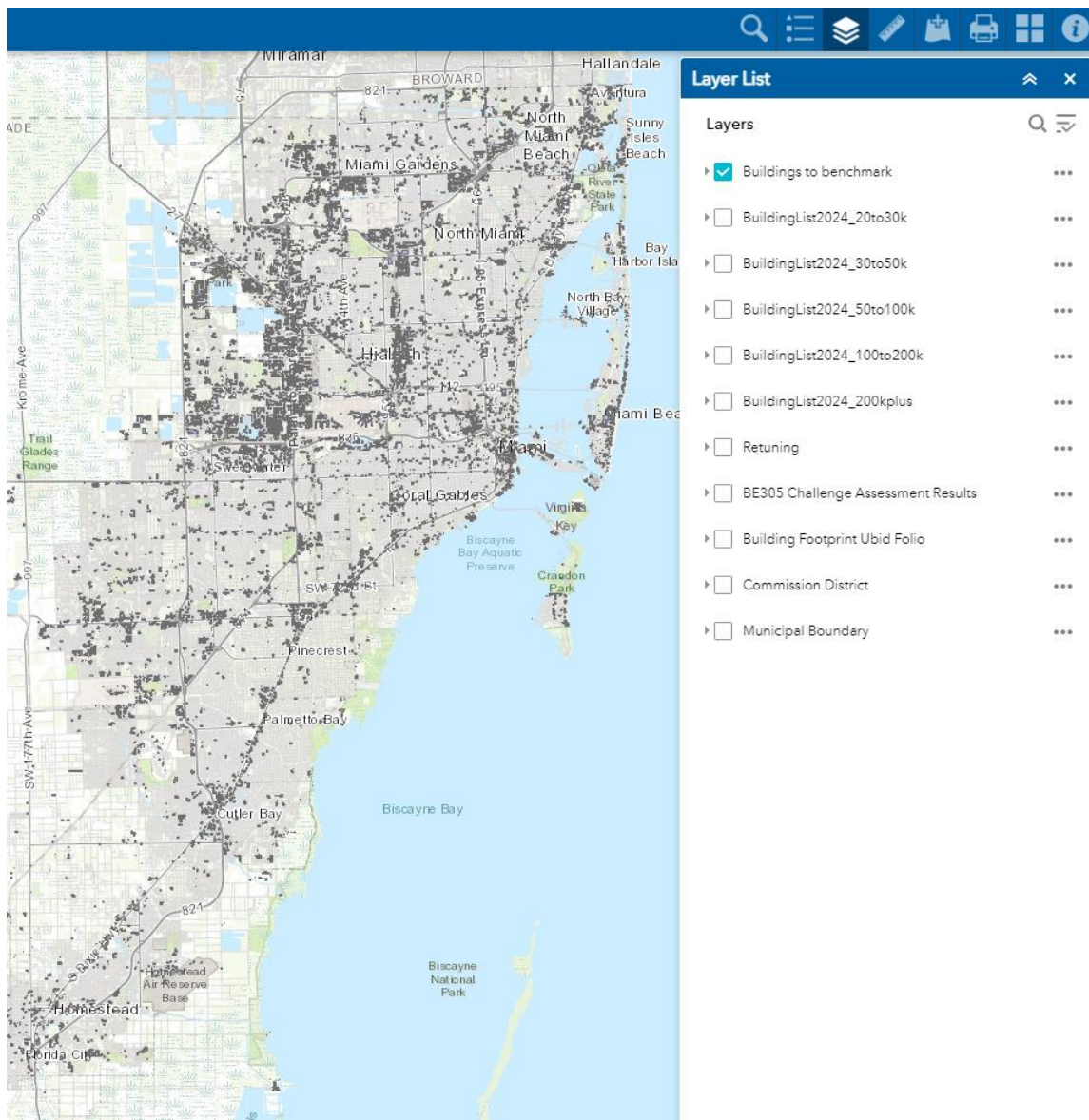
#### Water Use Intensity (gal/ft<sup>2</sup>)



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# Building List and UBIDs





# Benchmarking Tool

- Dashboard to:
  - keep track of compliance
  - verify data quality
  - be CRM tool
  - connect with existing enforcement platform
- Includes or excludes help desk
- County procuring Touchstone to be used until December 2026



Building Energy Analysis Manager

# Working with utilities



## Ideal scenario



1. Provide aggregated whole-building data for multi-owned and multi-tenant buildings (FPL)
2. Streamline benchmarking process by automatically sending energy and water data for all buildings to Portfolio Manager (FPL and WASD)

# Whole-Building Data (WBD)

For **multi-tenant** or **multi-owned buildings** that have only access to energy for common areas:



Multi-tenant or multi-owner building with multiple unique accounts

Building owner submits request to FPL for aggregated whole-building energy data

FPL provides owner with the sum of energy use for all accounts aka aggregated whole-building data

Owner enters number into Portfolio Manager

# Reality - FPL

- Master-metered buildings use paper or digital bills to obtain data
- Multi-owned/multi-tenant buildings request aggregated data using a form and receiving an excel file



## LETTER OF AUTHORIZATION

By executing this Letter of Authorization ("LOA"), the FPL customer of record or authorized representative of the FPL customer of record signing below ("FPL Customer") hereby authorizes FPL to release to FPL Customer's Designated Agent or Consultant ("Agent") FPL Customer records specifically identified on this form, which may include FPL Customer account information and consumption data. By executing this LOA, FPL Customer further authorizes FPL to make the specified modifications to the designated account(s) of FPL Customer identified on this LOA at the request of Agent.

Agent: \_\_\_\_\_  
 Phone Number of Agent: \_\_\_\_\_  
 Email Address of Agent: \_\_\_\_\_  
 Signature of Agent: \_\_\_\_\_

### Information and/or records to be disclosed to Agent (Check as applicable):

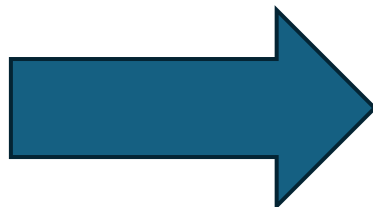
Billing/Payment Options       Billing Detail  
 Billing/Payment History       Deposit Information  
 Rate Analysis       Other: \_\_\_\_\_

### Modifications to the account(s) Agent is authorized to request (Check as applicable):

Address Change       EDI  
 Rate Change       Other: \_\_\_\_\_

Length of the term of the LOA \_\_\_\_\_ to \_\_\_\_\_.

[Note: This LOA will remain in effect for the duration of the period of time indicated above, not to exceed two (2) years, unless revoked in writing sooner. Any revocation of this LOA must be sent by e-mail to [LOA@FPL.com](mailto:LOA@FPL.com).]



Address		10 VENETIAN WAY	
Sum of TOTAL_kWh	Month	Year	Year
	Month (MM/YY)	2022	2023
	1 Jan	177,518	164,221
	2 Feb	137,789	161,783
	3 Mar	165,607	163,001
	4 Apr	167,602	163,413
	5 May	159,068	165,349
	6 Jun	183,913	182,812
	7 Jul	180,851	188,878
	8 Aug	177,637	194,966
	9 Sep	202,251	192,333
	10 Oct	174,538	170,050
	11 Nov	153,651	172,827
	12 Dec	187,981	158,114
<b>Grand Total</b>		<b>2068406</b>	<b>2077747</b>

### \*\*Disclaimer\*\*


Based on the information provided, FPL reports a total number of 125 accounts at this building address. The data below is an aggregate of electric usage for the accounts associated to this building. If the number of accounts is not consistent with your expectations, the best option is to provide the meter numbers to all services within a certain building, and the aggregate of the meters provided can then be delivered.

# Reality - WASD

- All buildings are master-metered and can download 24 months of water data in excel format from WASD customer portal

## WATER & SEWER: SELF SERVICE

Welcome Back, Marta Marello



**Highest in Customer Satisfaction**  
Highest in Customer Satisfaction  
For J.D. Power 2023 award information visit, [jdpower.com/awards](http://jdpower.com/awards)

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[Redacted]

Enroll Account | Unenroll Account

- Account Home
- Pay Bill
- View Current Bill (PDF)
- Billing History
- Payment History
- Consumption History
- Update Contact Information
- Billing Questions?  
Ask AVA
- Service Requests
- Start Service
- Stop Service
- Transfer Service
- Reconnect Service

Account Name: [Redacted]

Account Number: [Redacted]      Folio Number: [Redacted]

### Consumption History

[Download](#)

Meter Number	Service From	Service To	Usage (CCF)	Usage (Gals)
01402973	May 16, 2024	Aug 14, 2024	7	5,236
01402973	Feb 14, 2024	May 16, 2024	10	7,480
01402973	Nov 17, 2023	Feb 14, 2024	11	8,228
01402973	Aug 16, 2023	Nov 17, 2023	7	5,236
01402973	May 16, 2023	Aug 16, 2023	7	5,236
01402973	Feb 14, 2023	May 16, 2023	10	7,480
01402973	Nov 15, 2022	Feb 14, 2023	10	7,480
01402973	Aug 15, 2022	Nov 15, 2022	13	9,724

**Disclaimer**  
Miami-Dade Water and Sewer Department account information is considered a public record. However, [Florida Statutes 119.071](#) provides for an exemption for specified individuals regarding their public information from being disclosed. If you qualify for this exemption, please fill out and send in [this form](#).

	B	C	D	E	F	G
n	Start Date	End Date	Usage (CCF)	Cost	Estimator	Usage (Gals)
3	5/16/2024	8/14/2024	7	✗	No	5236
3	2/14/2024	5/16/2024	10		No	7480
3	11/17/2023	2/14/2024	11		No	8228
3	8/16/2023	11/17/2023	7		No	5236
3	5/16/2023	8/16/2023	7		No	5236
3	2/14/2023	5/16/2023	10		No	7480
3	11/15/2022	2/14/2023	10		No	7480
3	8/15/2022	11/15/2022	13		No	9724

# Working with utilities - future

- FPL
  - Automate internal process to satisfy large demands for WBD
  - Considering automatic integration with Portfolio Manager in the future
- WASD
  - Working to approve automation process and start working on it in mid-2025 to be implementation ready by mid-2026
  - AMIs/Smart meters?



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# Implementation timeline

Building size (sq ft)	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Above 200,000	Benchmarking	Benchmarking	Benchmarking	Benchmarking	Benchmarking + Retuning	Benchmarking	Benchmarking	Benchmarking	Benchmarking	Benchmarking + Retuning
100,000 - 200,000	Benchmarking	Benchmarking	Benchmarking	Benchmarking	Benchmarking	Benchmarking + Retuning	Benchmarking	Benchmarking	Benchmarking	Benchmarking
50,000 - 100,000		Benchmarking	Benchmarking	Benchmarking	Benchmarking	Benchmarking	Benchmarking + Retuning	Benchmarking	Benchmarking	Benchmarking
30,000 - 50,000			Benchmarking	Benchmarking	Benchmarking	Benchmarking	Benchmarking	Benchmarking	Benchmarking	Benchmarking
20,000 - 30,000				Benchmarking	Benchmarking	Benchmarking	Benchmarking	Benchmarking	Benchmarking	Benchmarking
Total # buildings benchmarking	2138	4737	8605	13582	13582	13582	13582	13582	13582	13582
Total # of buildings retuning					901	1237	2599			901



# Implementation tasks

- Maintain building list and UBIDs
- Outreach to increase compliance rate
- Assist with help desk
  - Answer questions
  - Provide trainings
  - Review exemptions
- Revise contract for benchmarking tool



# Labor and cost

- Labor for ~13,500 buildings
  - In-house: 3 FTEs + Additional assistance (University class, interns, AIA members,..) for a few months around compliance date
  - Delegate to third party such as NGO
- Cost
  - Touchstone quote for 15,711 buildings
    - ~\$150,000 w/out help desk annually
    - ~\$550,000 with help desk annually
  - Building list and UBIDs inhouse



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# Integration with City of Miami

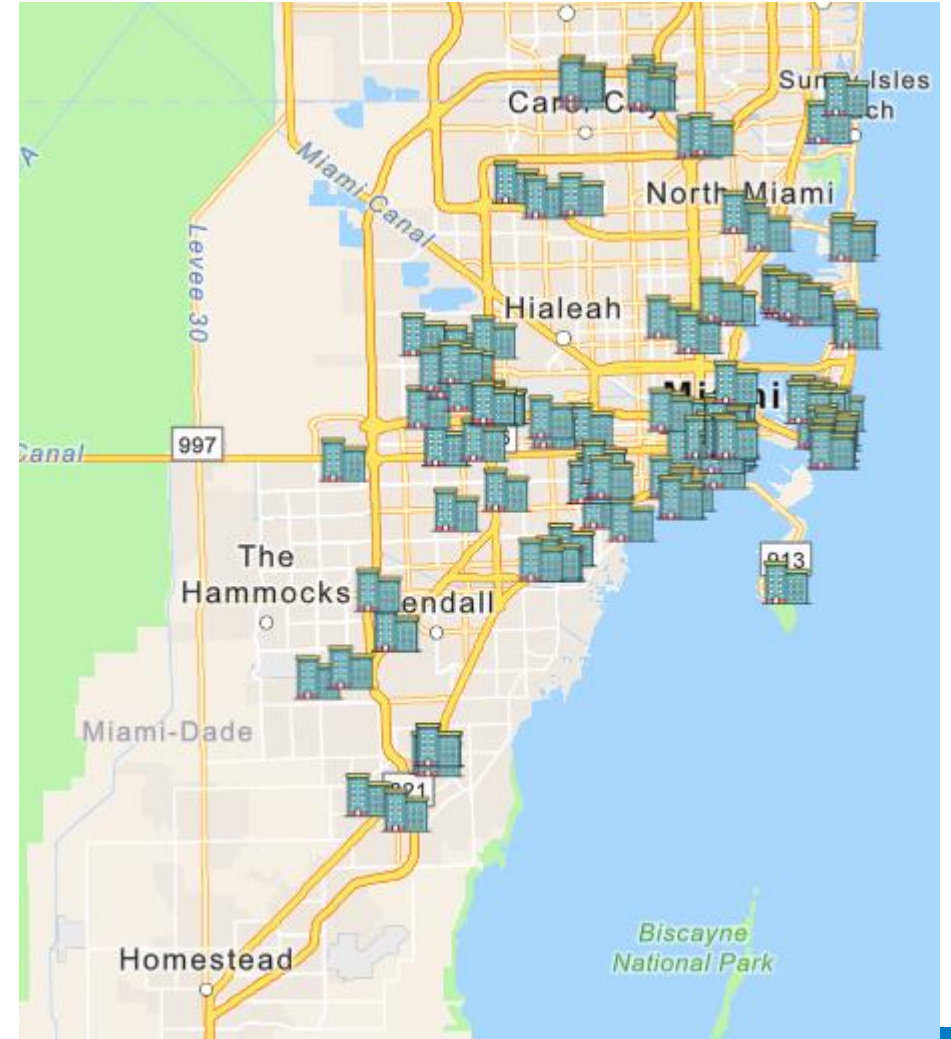


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# PARTICIPATING BUILDINGS

- 180 buildings
- 47 million sq ft
- 16 municipalities + UMSA
- Office buildings, condos, hospitals, car dealership, nonprofit, high school, hotels
- Some interest in climate work, saving money is still the chief driver



# GAME TIME!



## Miami Lakes Town Hall

25,000 sq ft

2013

Municipal building



## City of Miami Police Station

170,000 sq ft

1976



## Grand Venetian

275,000 sq ft

2001

Large residential building

# ASSESSMENTS & CASE STUDIES



## Miami Lakes Town Hall

25,000 sq ft

2013

Municipal building

- \$24,000 savings annually
- 36% energy savings



## City of Miami Police Station

170,000 sq ft

1976

- \$217,000 savings annually
- 50% energy savings



## Grand Venetian

275,000 sq ft

2001

Large residential building

- \$55,000
- 47% energy savings



# IRRIGATION EVALUATION



A condominium in North Bay Village saved ?% on their water bill!



# IRRIGATION EVALUATION



A condominium in North Bay Village saved 50% on their water bill!



# ASSESSMENTS & CASE STUDIES

## ESTIMATION SUMMARY OF ASSESSMENT RECOMMENDATIONS

Assessment Recommendations		Annual Resource Savings (kWh/yr)	Total Annual Savings	Capital Costs	Simple Payback (years)
1)	Turn Off Unused Equipment on Weekends	38,964	\$2,205	\$0	0.00
2)	Review the Rate Structure	0	\$44,524	\$0	0.00
3)	Increase Thermostat Settings on Weekends	166,027	\$22,606	\$580	0.03
4)	Increase Thermostat Settings during Operating Hours	210,677	\$16,925	\$580	0.03
5)	Install Motion Sensor Where Needed	29,679	\$1,721	\$1,680	0.98
6)	Replace Fluorescent Lights With LED	160,928	\$12,928	\$12,962	1.00
7)	Replace Chiller with New Efficient Ones	1,198,003	\$96,243	\$163,000	1.69
8)	Install the Solar Water Heater on the Roof	353,995	\$20,532	\$87,956	4.28
9)	Fix the Leak from Cooling Tower	Additional Consideration			
10)	Remove Personal Heaters	Additional Consideration			
<b>Total</b>		<b>2,158,273</b>	<b>\$217,684</b>	<b>\$266,758</b>	<b>1.0 yrs</b>

# ASSESSMENTS & CASE STUDIES

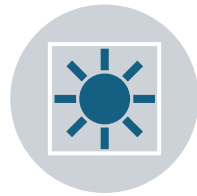
## ESTIMATION SUMMARY OF ASSESSMENT RECOMMENDATIONS

Assessment Recommendations		Annual Resource Savings (kWh/yr)	Total Annual Savings	Capital Costs	Simple Payback (years)
1)	Eliminate Water Leaks	1,068	\$16,760	\$1,600	0.10
2)	Increase Thermostat Settings in the Lobby and Common Areas	119,540	\$9,859	\$580	0.06
3)	Reduce Unused Energy Consumption on Devices After Hours	147,600	\$9,742	\$3,360	0.34
4)	Replace Inefficient Lights with LED in Selected Areas	80,558	\$6,649	\$2,870	0.43
5)	Change the Rate Structure from GSDT to GSD	0	\$6,413	\$0	0.00
6)	Install Motion Sensors in Common Areas	39,312	\$2,595	\$1,200	0.46
7)	Control Air Conditioning by Installing Smart Thermostat in Hallways and Lobby	21,068	\$1,738	\$4,120	2.37
8)	Enroll in FPL Autopay	0	\$712	\$0	0.00
9)	Reduce Temperature Setpoint for Pool Water Heaters	9,953	\$702	\$40	0.06
<b>Total</b>		<b>419,099</b>	<b>\$55,170</b>	<b>\$13,770</b>	<b>0.42 yrs</b>

# ASSESSMENTS IMPACT



16 ASHRAE Level 2 assessments conducted so far



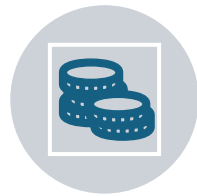
Annual energy saved in kWh: 8,872,158



One time-cost for upgrades: \$367,987



Total annual dollar savings on bills: \$1.035 million



Median savings of \$48,572

# Takeaways

- Voluntary programs are a great way for County staff to learn
- Many buildings are A students who understand the value of operating costs
- Some buildings have a layered structure with lots of stakeholders (Board, property management, consulting company handling the bills)
- Many more buildings don't even do benchmarking
- Lots of opportunities for improvement
- Building assessments show that up to 30% of energy can be saved, confirming the theory
- No complaints but no waiting list for assessments
- A LOT of hand-holding, need to streamline and simplify as much as possible
- A lot of interest in WBD, especially for reporting purposes

# THANK YOU!

**Don't hesitate to reach out:**

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