Opinion Dynamics

MONEY MATTERS – OR DOES IT?

A Study of Alternative Incentive Strategies

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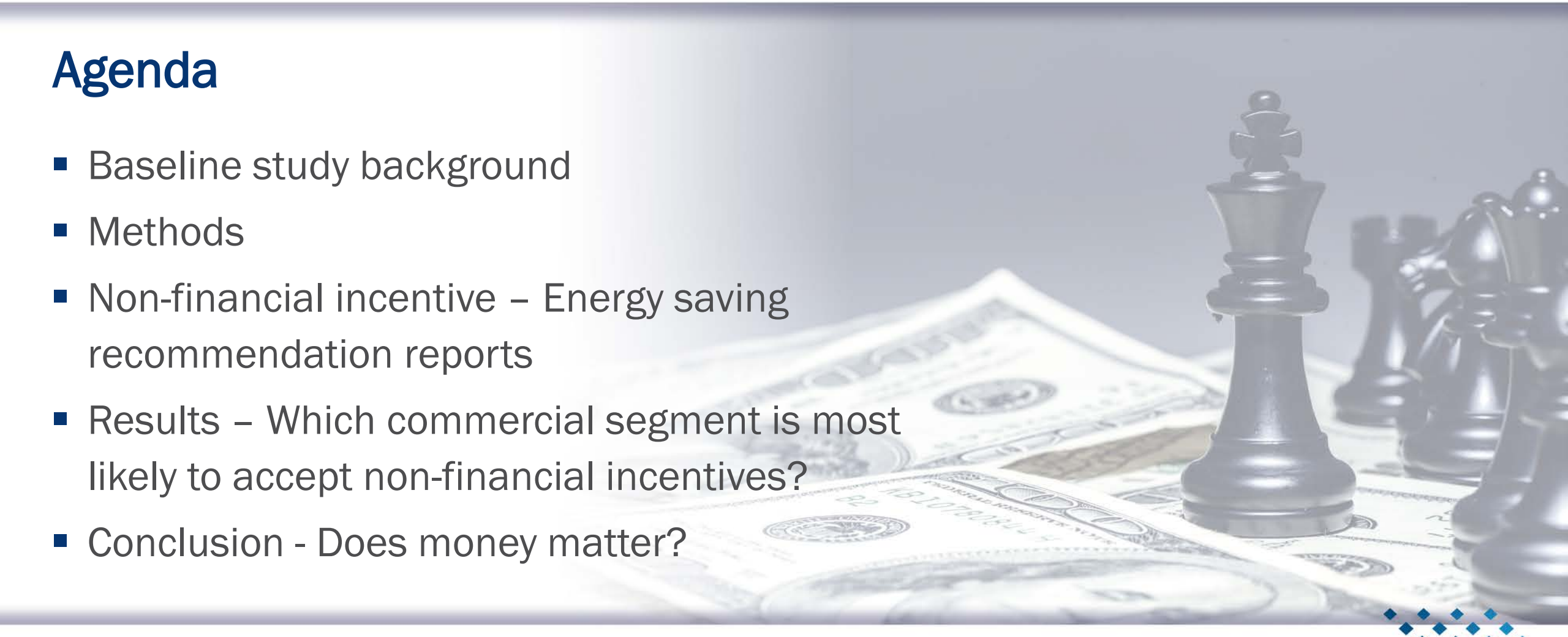
Agenda

- Baseline study background
- Methods
- Non-financial incentive – Energy saving recommendation reports
- Results – Which commercial segment is most likely to accept non-financial incentives?
- Conclusion - Does money matter?



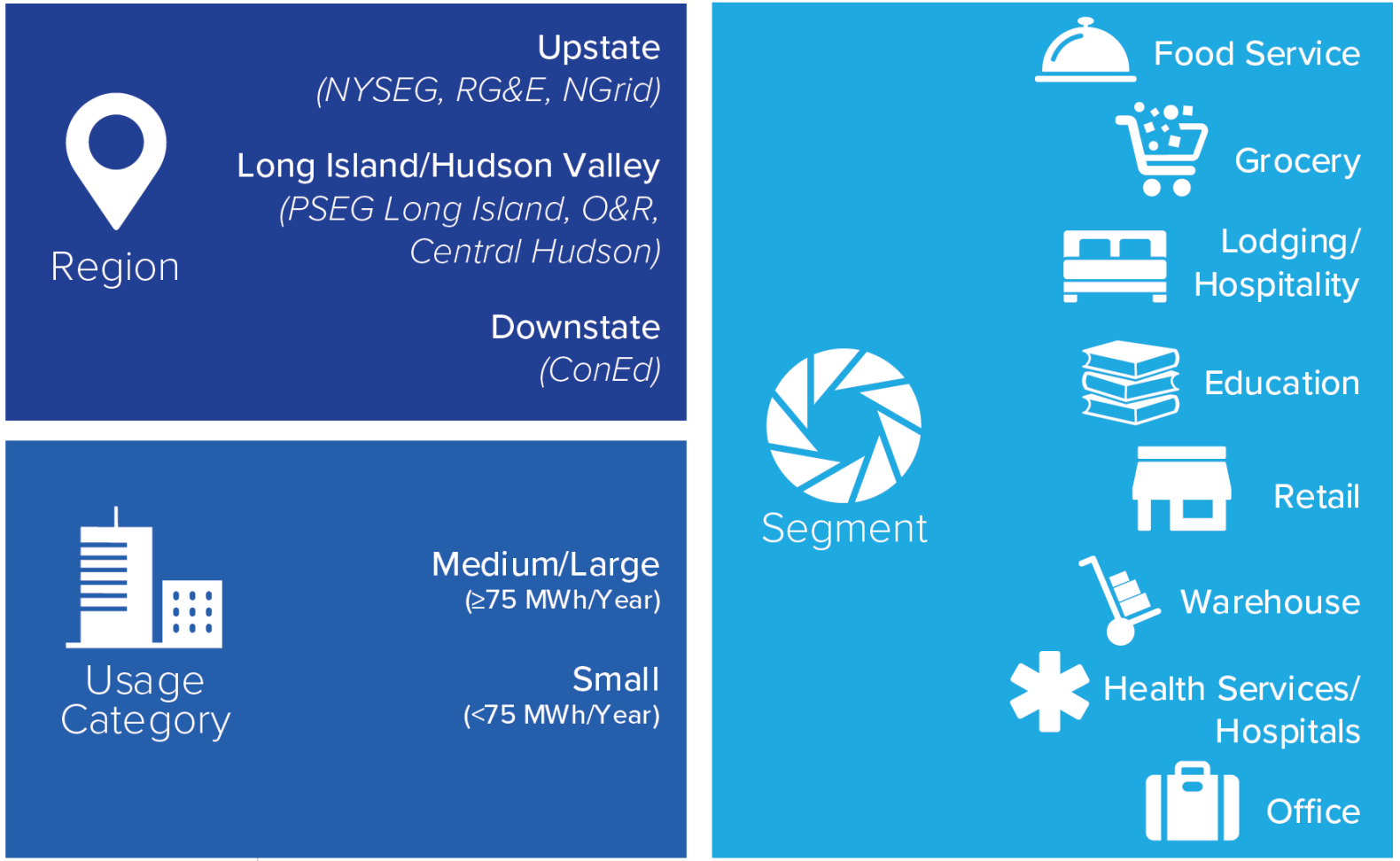
Baseline Study Background

- Large commercial baseline study in NY
  - 826 sites
  - 3 main sample dimensions
  - Extensive data collection
- Choice of incentive:
  - $150
  - Custom energy savings recommendation (ESR) report

Baseline Study Background (cont.)

- Extensive data collection effort
  - June 2018 – January 2019
- Two components
  - Surveys with commercial businesses
  - Site visits of nested sample of survey completes
    - Focus here

Methods: Baseline Study Sample Dimensions



Methods: On-Site Data Collection

- Auditors collected information on:
  - Business/Building Characteristics
    - Square footage
    - Space types (% Overall SF, conditioned)
    - Occupancy hours
  - Major Equipment
    - Presence
    - Type
    - Quantity
    - Characteristics (e.g., efficiency, size/capacity)
    - Hours of Use

- Two options for incentive
  - $150 gift card
  - Site-specific energy savings recommendations (ESR)

Creating the ESR Reports

- Use of primary data gathered
- Speed/cost of data processing and development of recommendations
- Engineering analysis leveraging site-specific inputs:
  - Location
  - Hours of use
  - Equipment characteristics (efficiency and capacity etc.)
  - Quantities
- Developed recommendations spanning most end-uses

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Example Recommendation Calculations

01

A 30-year-old, inefficient boiler found on site

02

Energy savings calculation triggered

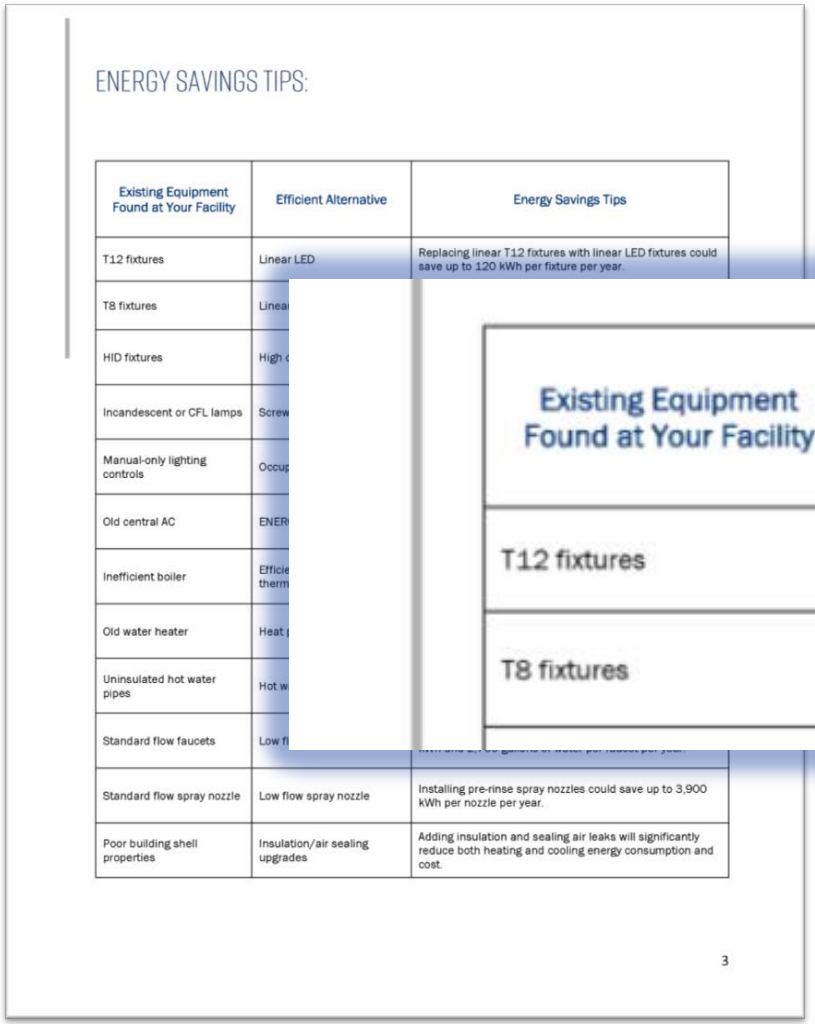
03

NY TRM, existing equipment characteristics & weather data

04

Recommendation to upgrade boiler provided

Energy Saving Recommendations Example



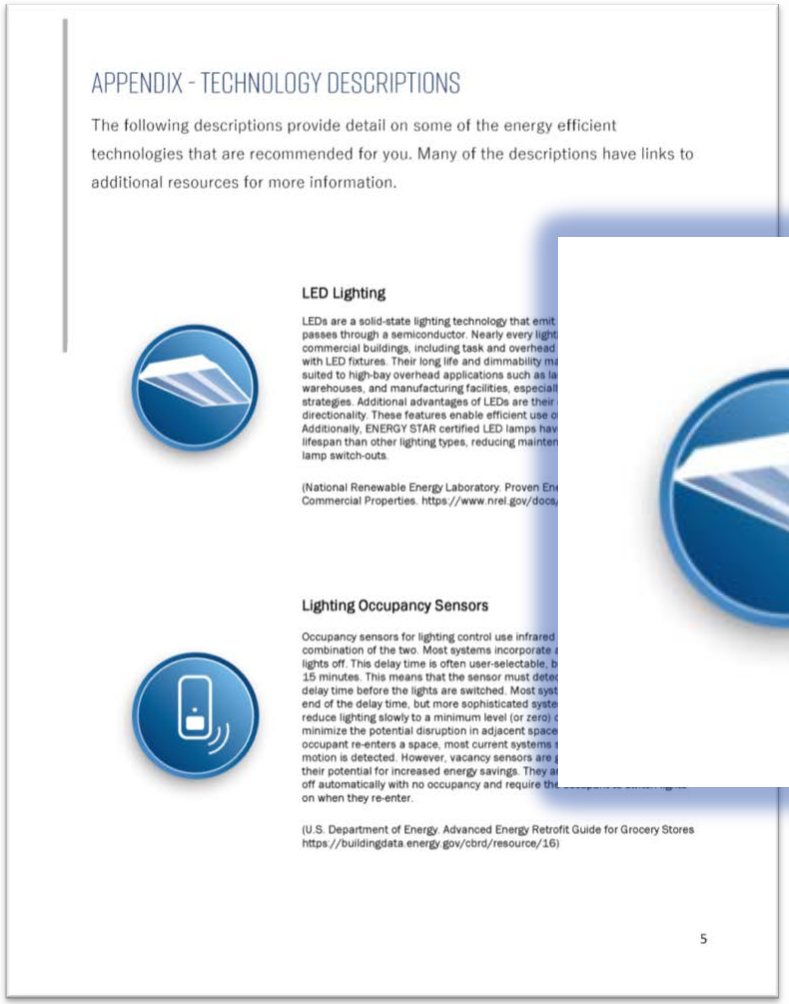
ENERGY SAVINGS TIPS:

Existing Equipment Found at Your Facility	Efficient Alternative	Energy Savings Tips
T12 fixtures	Linear LED	Replacing linear T12 fixtures with linear LED fixtures could save up to 120 kWh per fixture per year.
T8 fixtures	Linea	
HID fixtures	High	
Incandescent or CFL lamps	Screw	
Manual-only lighting controls	Occup	
Old central AC	ENER	
Inefficient boiler	Efficie therm	
Old water heater	Heat	
Uninsulated hot water pipes	Hot w	
Standard flow faucets	Low fl	
Standard flow spray nozzle	Low flow spray nozzle	Installing pre-rinse spray nozzles could save up to 3,900 kWh per nozzle per year.
Poor building shell properties	Insulation/air sealing upgrades	Adding insulation and sealing air leaks will significantly reduce both heating and cooling energy consumption and cost.

3

Existing Equipment Found at Your Facility	Efficient Alternative	Energy Savings Tips
T12 fixtures	Linear LED	Replacing linear T12 fixtures with linear LED fixtures could save up to 120 kWh per fixture per year.
T8 fixtures	Linear LED	Replacing linear T8 fixtures with linear LED fixtures could save up to 65 kWh per fixture per year.

Energy Saving Recommendations Example



APPENDIX - TECHNOLOGY DESCRIPTIONS

The following descriptions provide detail on some of the energy efficient technologies that are recommended for you. Many of the descriptions have links to additional resources for more information.

LED Lighting

LEDs are a solid-state lighting technology that emit
passes through a semiconductor. Nearly every light
commercial buildings, including task and overhead
with LED fixtures. Their long life and dimmability ma
suited to high-bay overhead applications such as la
warehouses, and manufacturing facilities, especiall
strategies. Additional advantages of LEDs are their
directionality. These features enable efficient use o
Additionally, ENERGY STAR certified LED lamps hav
lifespan than other lighting types, reducing mainten
lamp switch-outs.

(National Renewable Energy Laboratory. Proven En
Commercial Properties. https://www.nrel.gov/docs/

Lighting Occupancy Sensors

Occupancy sensors for lighting control use infrared
combination of the two. Most systems incorporate
lights off. This delay time is often user-selectable, b
15 minutes. This means that the sensor must dete
delay time before the lights are switched. Most syst
end of the delay time, but more sophisticated syste
reduce lighting slowly to a minimum level (or zero)
minimize the potential disruption in adjacent space
occupant re-enters a space, most current systems
motion is detected. However, vacancy sensors are
their potential for increased energy savings. They a
off automatically with no occupancy and require th
on when they re-enter.

(U.S. Department of Energy. Advanced Energy Retrofit Guide for Grocery Stores https://buildingdata.energy.gov/cbrd/resource/16)

5

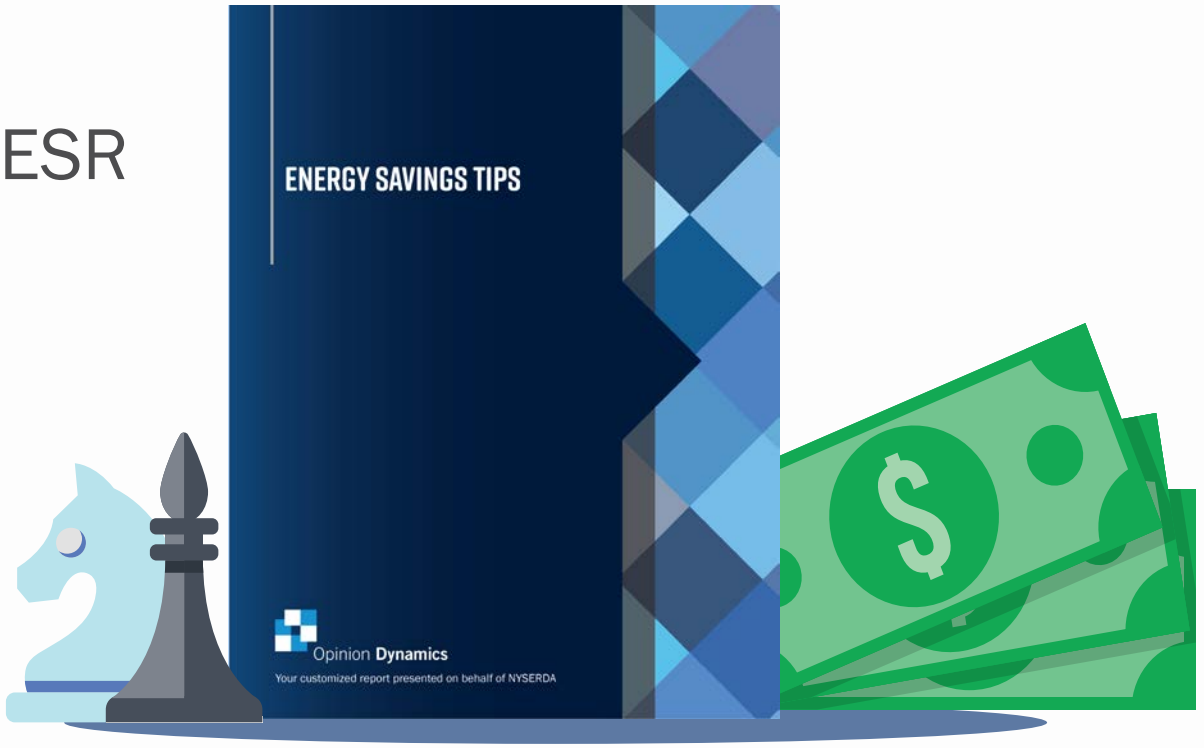
LED Lighting

LEDs are a solid-state lighting technology that emit light when direct current passes through a semiconductor. Nearly every lighting application in commercial buildings, including task and overhead lighting, can be retrofitted with LED fixtures. Their long life and dimmability make LEDs particularly well suited to high-bay overhead applications such as large retail stores, warehouses, and manufacturing facilities, especially when utilizing daylighting strategies. Additional advantages of LEDs are their controllability and directionality. These features enable efficient use of light where it is needed. Additionally, ENERGY STAR certified LED lamps have a significantly longer lifespan than other lighting types, reducing maintenance costs associated with lamp switch-outs.

(National Renewable Energy Laboratory. Proven Energy-Saving Technologies for Commercial Properties. https://www.nrel.gov/docs/fy15osti/63807.pdf)

What did we find?

- Completed 826 site visits
- Only 6% of participants chose the ESR
- Noteworthy differences between sample segments that chose the ESR



ESR Report Distribution by Customer Business Segment

Customer Business Segment	Number of ESR Reports [A]	Number of Sites Completed [B]	Percent of ESR Reports within Segment ([A]/[B])	Percent of Overall ESR Received ([A]/[Total A])	Percent of Site Visits ([B]/[Total B])
Office/Government	20	145	14%	43%	20%
Education	12	92	13%	26%	13%
Retail	5	144	3%	11%	20%
Food Service	3	136	2%	7%	19%
Lodging/Hospitality	3	49	6%	7%	7%
Warehouse	2	30	7%	4%	4%
Health Services/ Hospitals	1	58	2%	2%	8%
Grocery/Convenience	0	75	0%	0%	10%

ESR Report Distribution by Usage Category

Customer Usage Category	Number of ESR Reports [A]	Number of Sites Completed [B]	Percent of ESR Reports within Segment ([A]/[B])	Percent of Overall ESR Received ([A]/[Total A])	Percent of Site Visits ([B]/[Total B])
75 MWh and Greater	22	267	8%	48%	37%
Less Than 75 MWh	24	462	5%	52%	63%

ESR Report Distribution by Job Function of On-site Contact

Job Function of On-site Contact	Number of ESR Reports [A]	Number of Sites Completed [B]	Percent of ESR Reports within Segment ([A]/[B])	Percent of Overall ESR Received ([A]/[Total A])	Percent of Site Visits ([B]/[Total B])
Business Owner/ Executive	25	452	6%	54%	62%
Facilities Manager or Engineering Employee	13	87	15%	28%	12%
Property/Office Manager	3	86	3%	7%	12%
Other/Don't Know	5	104	5%	11%	14%

Conclusion – Money Does Matter!

- Less participants opted for the report than originally anticipated (6%)
- Varied participation between segments:
  - More participation for:
    - Government and Education segments
    - Large Usage
    - Facilities/Engineering on site contact
- Channel customers into energy efficiency program
- Improve uptake of ESR report by:
  - Ensuring on-site contact understands value of ESR report
  - Associating dollar amount to ESR report

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