



## Rudin Management Company, Inc.

- The Rudin family controls one of the largest privately owned real estate companies in New York City.
- Founded in 1925 by Samuel Rudin and his siblings, and now led by the third and fourth generations, Rudin Management Company oversees management and development of 32 properties in New York City. The portfolio is comprised of 17 residential buildings totaling 4.7 million square feet, 16 commercial office buildings totaling 10.5 million square feet, and 2 condominiums under management totaling 241 residential units.
- Maintaining and strengthening building operations, sustainable design, and incorporating relevant technologies is a key element of the Rudin Management's overall ESG strategy. Rudin has long considered energy management to be an integral part of good building operations. By employing strategies and innovations that include frequent and comprehensive operator training, tracking & managing energy consumption with analytical technology, and performing infrastructure upgrades in their portfolio, RMC has dramatically reduced energy consumption and GHG emissions, controlled energy cost and ultimately enhanced tenant safety and comfort.

# RMC – SUSTAINABILITY TRACK RECORD

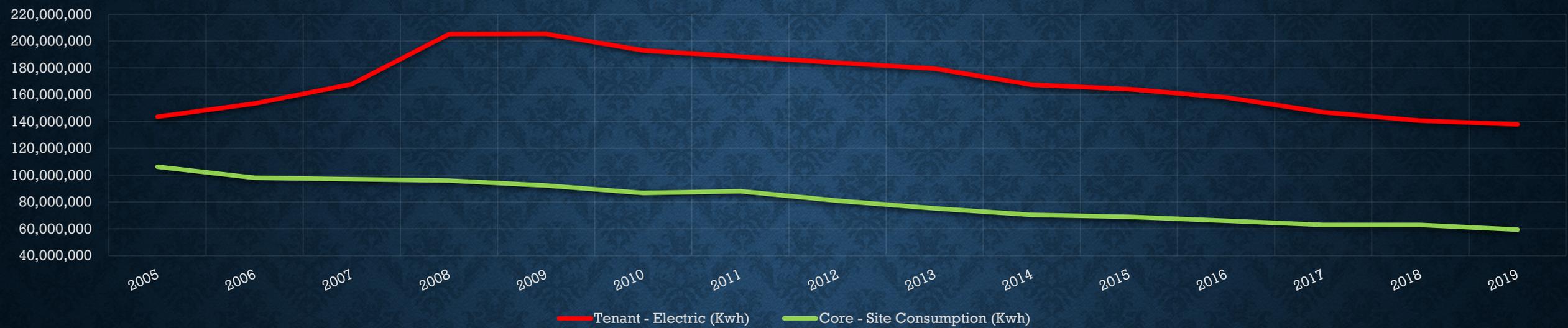
- Rudin’s fundamental strategy of focused building operations includes not only providing the operating staff with the digital tools they need to achieve the collective and desired GHG reduction goals but enlisting staff to use their functional expertise to drive the design of new, purpose driven, analytical software. The strategy is making a difference. In recent years RMC’s focus has been on tightening operations, retrofitting building ancillary equipment and components, and then layering a systems integration technology over existing siloed building systems to achieve greater operational efficiencies. These new levels of efficiency ultimately redefine building heating and cooling loads to inform design on the deeper energy retrofits as that major equipment approaches life cycle limits. This building operating system called “Nantum” was influenced by and developed with input from the building operators. Among its basic functions, Nantum prescriptively recommends the optimal time for building start-up based on internal and external temperatures and weather forecasts, automatically modulates system capacity control base on fluctuating occupancy levels identifies operational inefficiencies, targets preventive maintenance, and provides 24/7/365 re-commissioning.
- To date, this innovative approach to energy management has resulted in dramatic reductions in portfolio-wide energy use. Across the commercial portfolio RMC has reduced District Steam, Core Building Electricity, and GHG by 44% from their 2005 baseline – more than half of the 80% by 2050 goal that was established under the NYC Carbon Challenge.
- Rudin Management Company has committed to achieving carbon neutrality on a portfolio-wide basis by 2050.
- As a proud participant of the Empire Building Challenge, we are proposing to accelerate that goal in the three project buildings (80 Pine Street, 355 Lexington Avenue, 845 Third Avenue) by retrofitting three vintage commercial properties with the measures outlined in our EBC plan, which will advance our goals of achieving carbon neutrality. We are committed to exploring new building technology solutions as they become available and implementing those and other energy saving and decarbonization measures to work towards our goal of carbon neutrality for the three buildings entered in the EBC by the year 2035.

# RMC – HISTORICAL ENERGY TREND 2005-2019

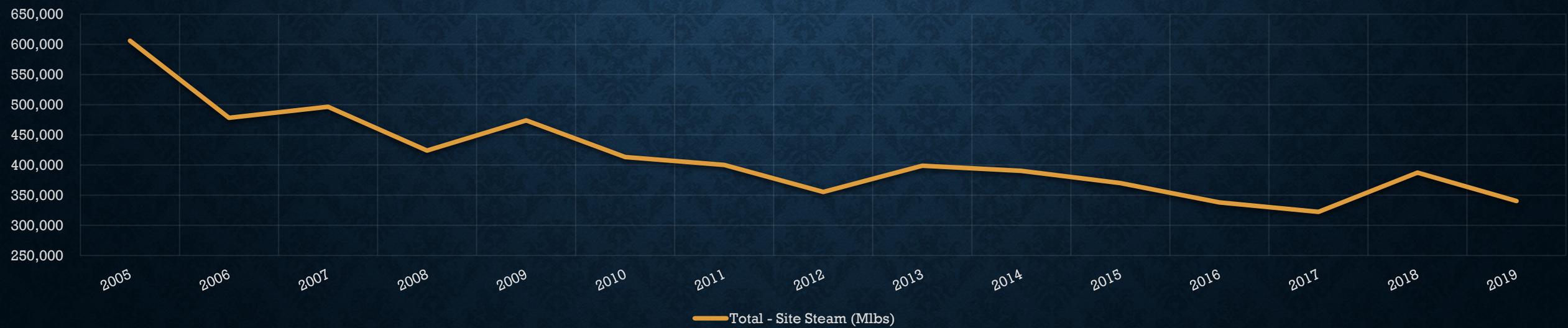
|  | 2005        | 2013        | 2014        | 2015        | 2016        | 2017        | 2018        | 2019        |
|--|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Total - Building Energy Star Consumption (Kwh)</b>    | 249,704,526 | 254,564,448 | 237,629,656 | 232,999,689 | 223,843,023 | 209,720,262 | 203,396,825 | 197,009,116 |
| Kwh - YOY % Diff   | Base        | -4%         | -7%         | -2%         | -4%         | -6%         | -3%         | -3%         |
| Kwh - Yr Vs Base % Diff                                  | Base        | 2%          | -5%         | -7%         | -10%        | -16%        | -19%        | -21%        |
| *Includes Direct Meter Tenants & Base Building           |             |             |             |             |             |             |             |             |
| <b>Total - Base Building Account Consumption (Kwh)</b>   | 158,464,040 | 140,324,600 | 137,338,320 | 133,230,800 | 127,420,160 | 121,166,160 | 121,491,760 | 115,189,240 |
| Kwh - YOY % Diff   | Base        | -5%         | -2%         | -3%         | -4%         | -5%         | 0%          | -5%         |
| Kwh - Yr Vs Base % Diff                                  | Base        | -11%        | -13%        | -16%        | -20%        | -24%        | -23%        | -27%        |
| *Excludes Direct Metered Tenants                         |             |             |             |             |             |             |             |             |
| <b>Submeter - Site Consumption (Kwh)</b>                 | 52,329,948  | 65,179,973  | 67,058,307  | 64,401,899  | 61,535,482  | 58,332,883  | 58,659,242  | 55,937,560  |
| Kwh - YOY % Diff   | Base        | -3%         | 3%          | -4%         | -4%         | -5%         | 1%          | -5%         |
| Kwh - Yr Vs Base % Diff                                  | Base        | 25%         | 28%         | 23%         | 18%         | 11%         | 12%         | 7%          |
| *Excludes Base Building & Direct Metered Tenants         |             |             |             |             |             |             |             |             |
| <b>Core - Site Consumption (Kwh)</b>                     | 106,134,092 | 75,144,627  | 70,280,013  | 68,828,901  | 65,884,678  | 62,833,277  | 62,832,518  | 59,251,680  |
| Kwh - YOY % Diff   | Base        | -7%         | -6%         | -2%         | -4%         | -5%         | 0%          | -6%         |
| Kwh - Yr Vs Base % Diff                                  | Base        | -29%        | -34%        | -35%        | -38%        | -41%        | -41%        | -44%        |
| *Includes Base Building Equipment + Public Light & Power |             |             |             |             |             |             |             |             |
| <b>Total - Site Steam (Mlbs)</b>                         | 606,025     | 398,804     | 390,372     | 370,171     | 337,918     | 322,487     | 387,280     | 340,376     |
| Mlbs - YOY % Diff  | Base        | 12%         | -2%         | -5%         | -9%         | -5%         | 20%         | -12%        |
| Mlbs - Yr Vs Base % Diff                                 | Base        | -34%        | -36%        | -39%        | -44%        | -47%        | -36%        | -44%        |

# RMC – COMMERCIAL ENERGY PERFORMANCE

## Total Building Electric (Kwh)



## Total - Building Steam (Mlbs)





# RMC – 80 PINE STREET

- Built in 1960, 80 Pine Street is a 38-story, Class-A commercial office building with an approximate square footage of 1,084,110 ft<sup>2</sup>. In addition to commercial office space, the building houses seven retail storefronts and a parking garage. Electric consumption is master metered and then sub-metered.
- Heating Plant - 80 Pine Street receives district steam from Con Edison between 150 - 180 psig. Pressure reducing stations located in the basement, 8, 23 & 39th floors reduce the high-pressure steam to approximately 15 psig. Low-pressure steam is distributed to heating coils at AHUs and to shell-and-tube heat exchangers on the floors 8, 23, and 39, for hydronic heating and domestic hot water. The secondary water heating / cooling perimeter water system is divided into three zones; upper, middle and lower zones. District steam is also used to generate heating hot water for reheat system installed in the building's supply air distribution system. This supply air reheat water is produced by shell-and-tube heat exchangers located on the 8th, 23rd and 39th floors. The reheat water system is zoned similar to the perimeter water loop system; that is, divided into lower, middle and upper zones. For the secondary perimeter system and the reheat water system, the lower zone covers floors 2 through 13, the middle zone covers floors 14 through 22 and the upper zone covers floors 24 through 38. The first floor has area in the building has perimeter baseboard heating supplied with low-pressure steam.
- Cooling Plant - 80 Pine Street provides chilled water to all AHUs and secondary (perimeter) water system for air conditioning. Chilled water is provided by supplying 170 psig steam to two (2) steam-driven Elliot condensing turbines with two-stage York compressors, each with a rated capacity of 1,600 tons.
- Supplemental cooling for tenant spaces is provided 24/7 by water-cooled direct expansion (DX) AC units that are owned and operated by the tenants. The water-cooled AC units are supplied condenser water by two (2) dedicated cooling towers with VFD control and a rated cooling capacity of 680 tons.
- Site EUI – 2010 Base 153 kBtu



## RMC – 355 LEXINGTON AVE

- Completed in 1958, the 256,272 ft<sup>2</sup> 22-story building located at 355 Lexington Avenue is comprised of multi-tenant commercial office spaces and ground level retail space. In addition to the 22 floors, the building has a basement and partial sub-basement level, and three pent-house levels that house mechanical equipment. The building is designed with several setbacks in the classic “wedding cake” design. Electric and steam consumption are master-metered with a majority of tenant lighting and plug loads sub-metered.
- The building currently uses two water-cooled centrifugal chillers with a combined capacity of 789 tons. The chillers are located in the sub-cellar. One (1) 75HP pump, delivers chilled water (CHW) to coils on the main supply fans and to the peripheral fan coil units in the tenant spaces. The pumps are controlled by variable frequency drives (VFDs). Outside air is conditioned through high efficiency bag filters and across heating or cooling coils before air is delivered throughout the various floors.
- 355 Lexington Avenue is heated using district steam provided by Con Edison. Steam enters basement where it passes through a pressure reducing station, supporting the domestic hot water generator (DHW) and two steam to hot water heat exchangers, for hydronic heating.
- Site EUI – 2010 Base 62 kBtu



# RMC – 845 THIRD AVENUE

- Completed in 1963, the 342,387 ft<sup>2</sup> 21-story building located at 845 Third Avenue is comprised of multi-tenant commercial office spaces and retail space. In addition to the 21 floors, the building has a basement and sub-basement level, and there is a mechanical equipment room on the 7th and 22nd floors. The building is designed with several setbacks in the classic “wedding cake” design. Electric consumption is master metered and then sub-metered for a growing majority of the tenants.
- 845 Third Avenue uses district ConEd steam for heating and cooling. Cooling is provided by two 750 ton steam driven chillers. HVAC zones are divided into two major sections, the upper house and the lower house. The upper house is comprised of floors 13-22, with related fan equipment located in the 22nd floor mechanical equipment room (MER). The lower house is comprised of floors 2-12, with related fan equipment located in the 7th floor MER. Ground level spaces are supported by HVAC equipment located in the basement.
- 845 Third Avenue is heated using district steam provided by Con Edison. Steam enters basement where it passes through a pressure reducing station, supporting domestic hot water generator (DHW) and two steam to hot water heat exchangers for hydronic heating.
- Site EUI – 2010 Base 128 kBtu

# RUDIN MANAGEMENT COMPANY

- “The Rudin Family is proud to partner with NYSERDA and participate in the Empire Building Challenge at 80 Pine Street, 845 Third Avenue, and 355 Lexington Avenue,” said Rudin Management Company COO John Gilbert. “Sustainability has always been a core principle at Rudin and public-private partnerships are critical to addressing the challenges of climate change. Reducing our carbon footprint is integral to our short and long term goals and we are honored that NYSERDA is acknowledging our efforts to date as well as our plans for the future.”