

NRDC Center for Market Innovation High Performance Demonstration Project

SCALING ENERGY EFFICIENCY
DEMAND IN THE COMMERCIAL
TENANT MARKET

Goldman
Sachs



GREENPRINT
FOUNDATION

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VORNADO
REALTY TRUST

HIGH PERFORMANCE DEMONSTRATION PROJECT

GOAL: Transform the market by accelerating demand for high performance tenant installations and energy upgrades to base building central systems in commercial buildings

METHOD: Integrate value analysis of potential high performance measures into standard practice for design and installation of tenant improvements and base building retrofits

VALUE PROPOSITION

TENANTS:



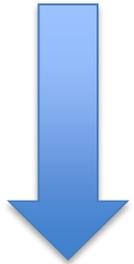
- energy consumption
- operating and maintenance cost



- workplace comfort
- occupant satisfaction and HR benefits
- corporate responsibility and investor recognition

VALUE PROPOSITION

BUILDING OWNERS:



- energy consumption
- operations and maintenance cost
- Avoided current capital expenditures if externally financed
- Reduced consumption can avoid infrastructure upgrade costs



- occupancy and tenant quality
- tenant satisfaction
- renewal probability
- asset class, value and recognition

HIGH PERFORMANCE DEMONSTRATION PROJECT

VALUE ANALYSIS

1. Compare a code compliant baseline energy case for the premises against projected energy usage with a recommended set of high performance measures, to determine projected energy savings
2. Use projected energy savings and estimated incremental cost to calculate projected return on investment (ROI) for the recommended performance measures
3. Incorporate value analysis into standard tenant design and evaluation process

HIGH PERFORMANCE DEMONSTRATION PROJECT

EVALUATION METRICS:

1. FINANCIAL

Projected energy cost savings / Incremental implementation cost

- Return on Investment (ROI)
- Payback Period

2. ENVIRONMENTAL

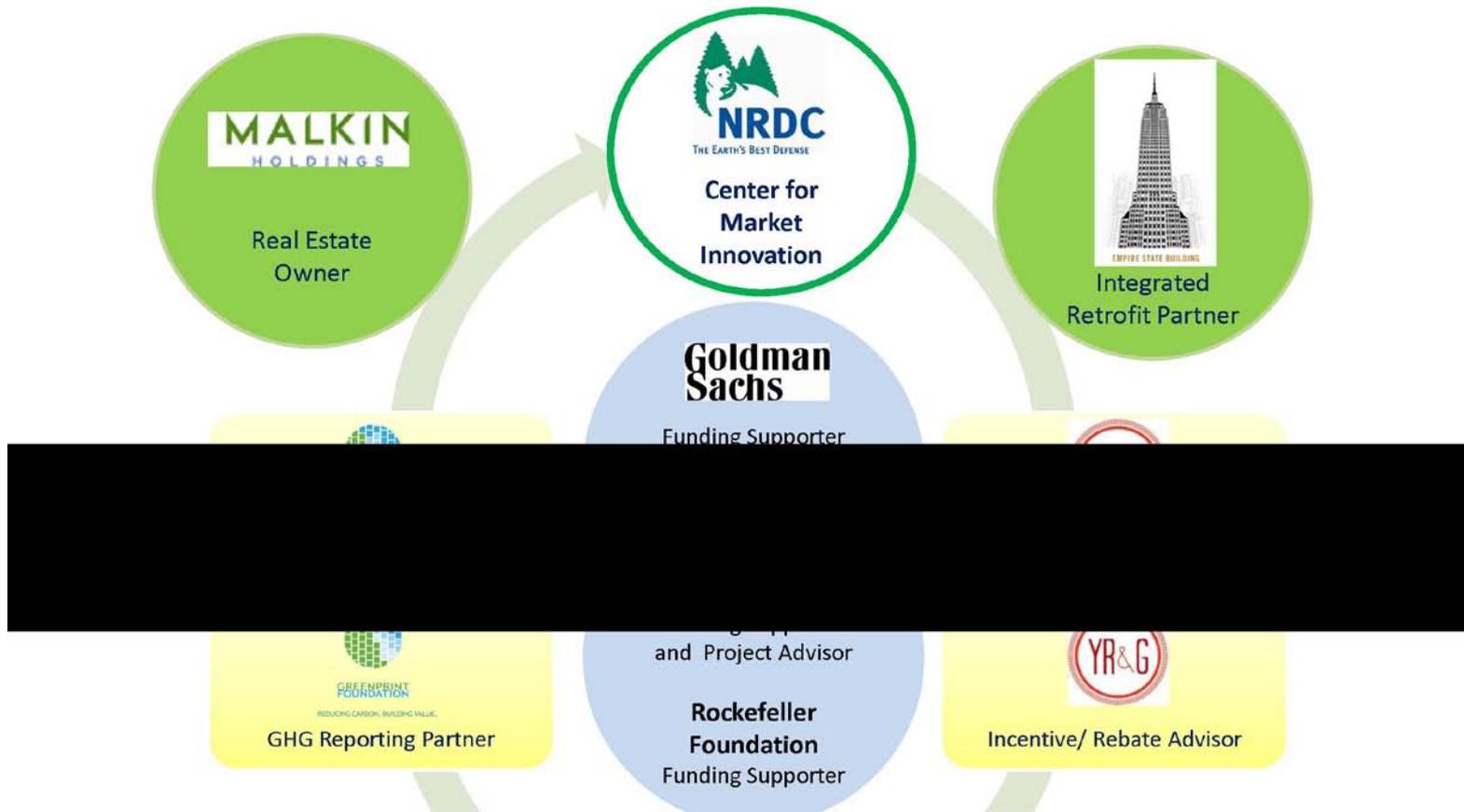
- Greenhouse Gas (GHG)

3. OCCUPANT SATISFACTION

- Comfort and Indoor Environmental Quality Survey

PROJECT PARTNERS

TENANT PARTNER



PROJECT DEVELOPMENT PROCESS



1. Initiation/
Define Tenant
Goals

2. Design
Workshops

Preliminary
Energy Analysis

3. Value
Analysis
•Energy
Modeling
•ROI
•GHG

4. Tenant
Review &
Decision/
Implementation

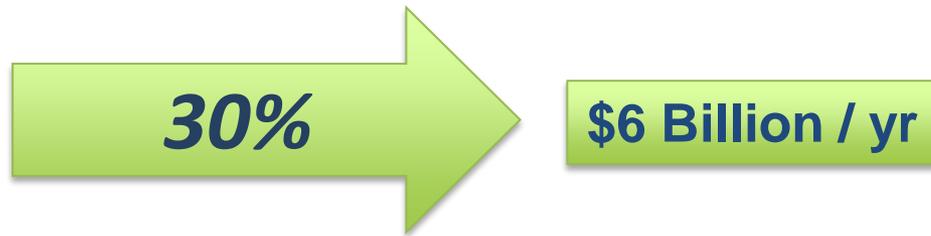
5. Measurement
and
Verification

6. Case
Study

CONCLUSION

COMMERCIAL OFFICE MARKET IMPACT:

Energy Expenditures = \$21 Bn/ yr



POTENTIAL:

Savings = 202 Tbtu/ yr

Investment = \$17 Billion Total *

* estimated energy efficiency retrofit cost for a pre-defined bundle of measures with a targeted energy reduction of 30% on the pre-1980 building stock

MARKET TRANSFORMATION

1. **Develop a roadmap for high performance tenant retrofits and build-outs**
2. **Present a compelling business case to tenants and building owners, by:**
 - Implementing and measuring cost effective energy efficiency and indoor environmental quality (collectively, “high performance”) measures through real time engagement by the project team in 10-12 tenant build-outs
 - Including integrated, whole building retrofits that demonstrate how upgrades to an owner’s base building systems can enhance tenants’ returns from investing in high performance build-outs
 - Publishing a “how to” guide with a streamlined and replicable process for high performance tenant build-outs, for others to follow across the country
 - Executing a strategic marketing and communications campaign to publicize results

OWNER / TENANT COLLABORATION

SPACE SELECTION AND LEASING

- ENERGY PERFORMANCE FACT SHEET
- ENERGY ALIGNED LEASE CLAUSE
- ENVIRONMENTAL DESIGN AND CONSTRUCTION GUIDELINES
- HIGH PERFORMANCE PRE-BUILTS / TENANT SPACES

DESIGN AND CONSTRUCTION

- WHOLE BUILDING ENERGY MODEL (POTENTIAL TENANT AMENITY)
- MENU OF MEASURES MATRIX
- FINANCIAL ANALYSIS CALCULATOR
- TENANT SPACE PERFORMANCE ASSISTANCE

OCCUPANCY AND OPERATIONS

- SUBMETERED SPACES
- TENANT ENERGY MANAGEMENT DASHBOARD
- ONGOING COMMISSIONING THROUGH MODEL CALIBRATION