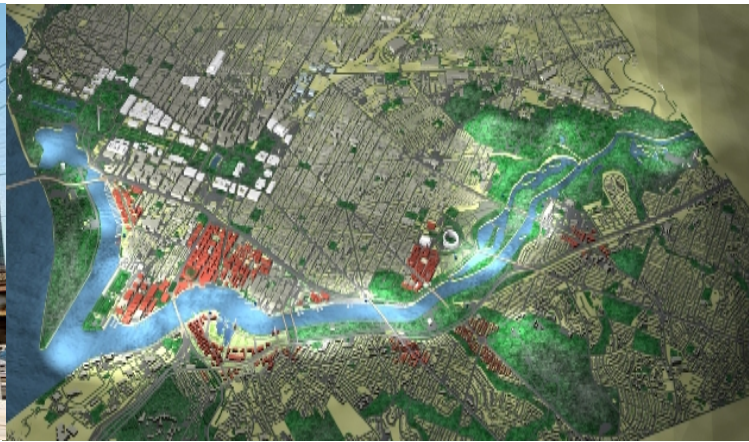


Multifamily Energy Efficiency Retrofit Financing and Savings

*Stockton Williams, Principal
HR&A Advisors*



HR&A is an industry-leading real estate, economic development and energy efficiency consulting firm. Strategic advisory services for complex mixed-use, neighborhood, downtown, campus, and regional development projects across North America and abroad for 30+ years.



HR&A's 3 Primary Practice Areas



Clients

- City government
- State agencies
- Utilities
- Private building owners
- Non-profits

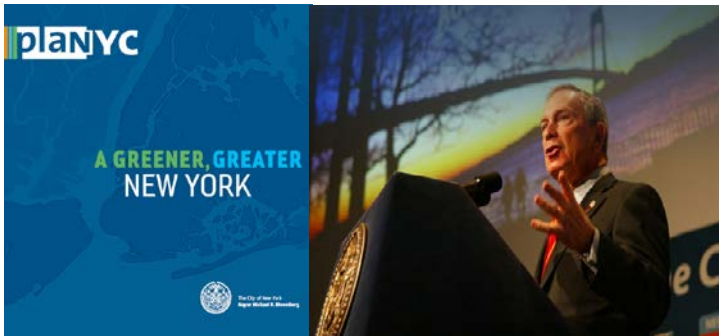
Clients

- City government
- State agencies
- Utilities
- Private building owners
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Services

- Program Design & Administration
- Capital Planning
- Public Policy
- Market Analysis
- Strategic Advisory

HR&A's Energy Experience



challenges A paucity of data concerning the efficacy of energy retrofits

Lack of interaction between the worlds of building science & finance

Deutsche Bank/Living Cities Initiative 2011

challenges

A paucity of data concerning the efficacy of energy retrofits

Lack of interaction between the worlds of building science & finance

response

Build a set of reliable data to:

1. Change ***underwriters' practices*** to incorporate energy efficiency
2. Advance & improve the effectiveness of ***public policy & programs***

Deutsche Bank/Living Cities Initiative: Central Findings

1. Building retrofits **save energy.**

Portfolio-wide savings

fuel: **Saved 19%**

electric: **Saved 10%**

Deutsche Bank/Living Cities Initiative: Central Findings

1. Building retrofits **save energy**.
2. **Fuel measures save more** than electric measures

average savings per unit

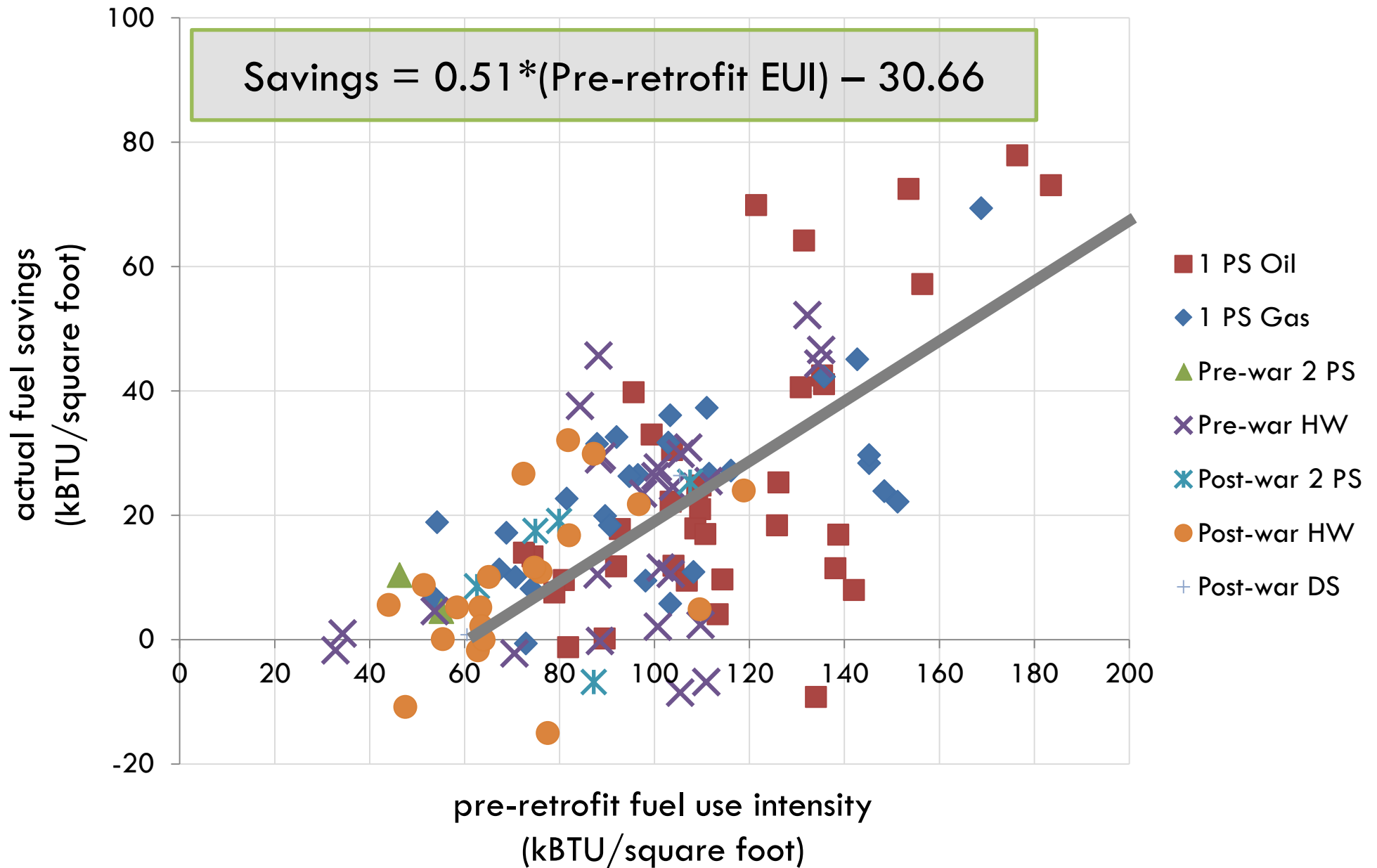
fuel: **Saved \$240**

electric: **Saved \$70**

Deutsche Bank/Living Cities Initiative: Central Findings

1. Building retrofits **save energy**.
2. **Fuel measures save more** than electric measures
3. Actual savings are strongly correlated with **pre-retrofit fuel usage**

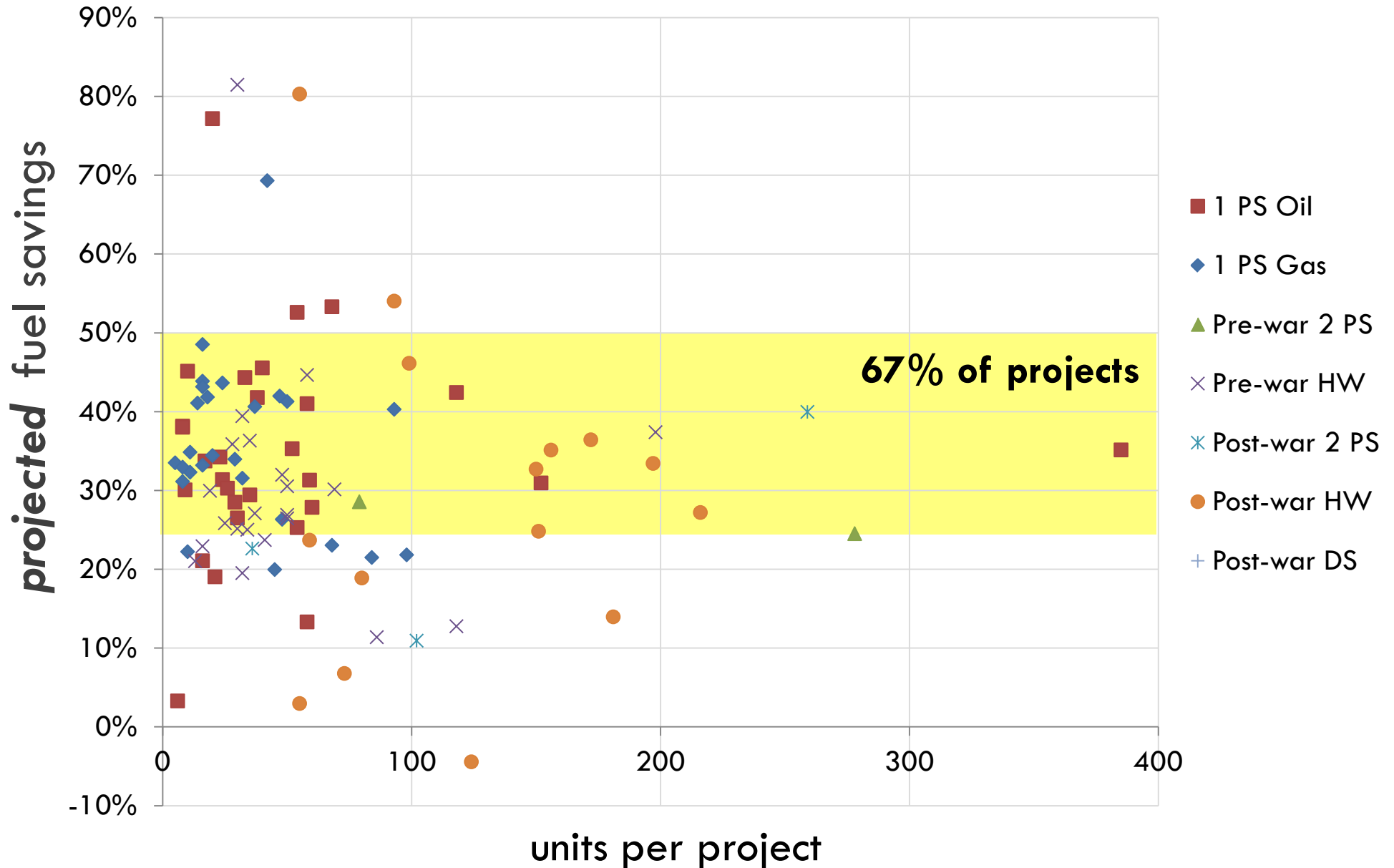
Higher pre-retrofit EUI indicates greater savings potential



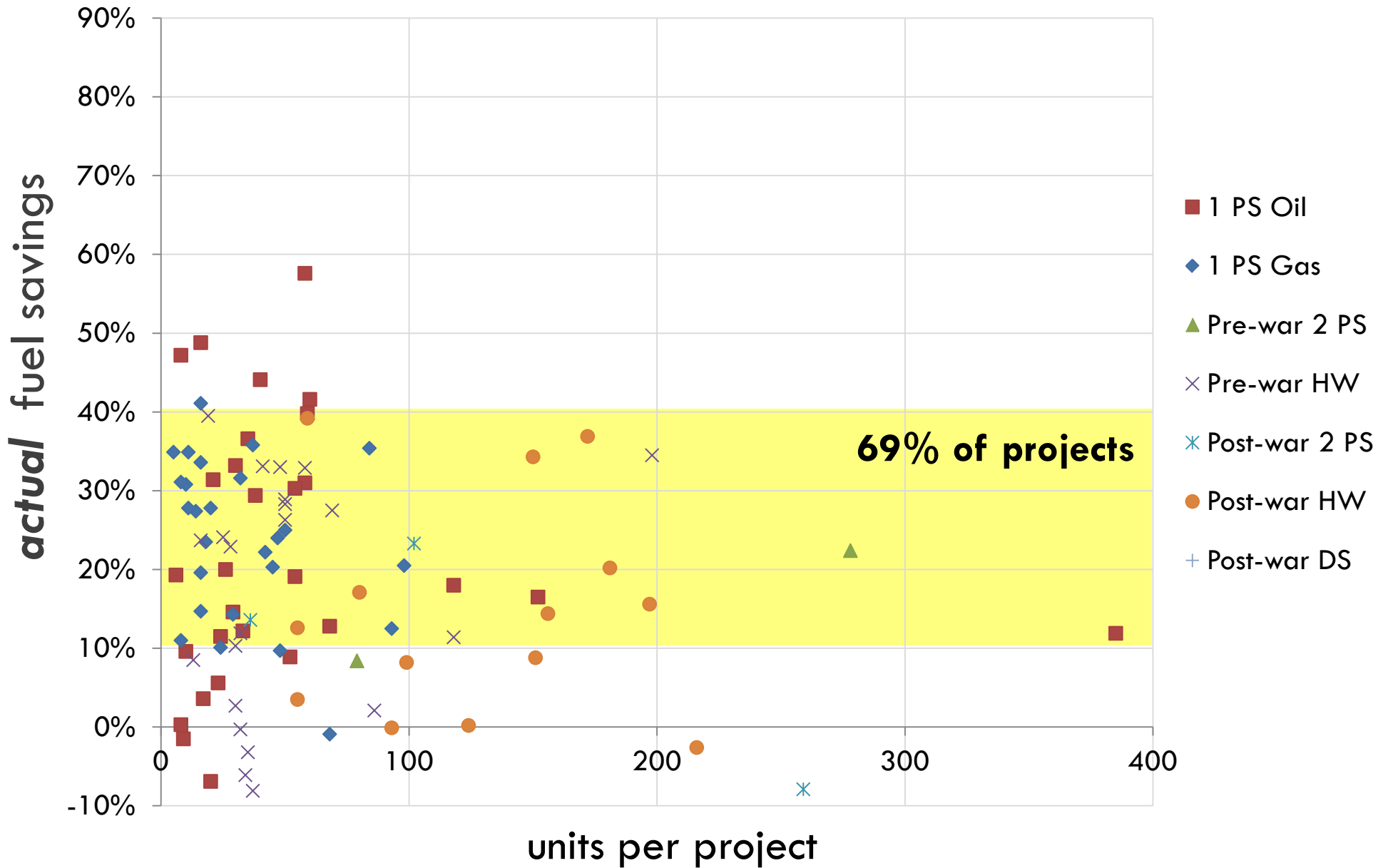
Deutsche Bank/Living Cities Initiative: Central Findings

1. Building retrofits **save energy**.
2. **Fuel measures save more** than electric measures
3. Actual savings are strongly correlated with **pre-retrofit fuel usage**
4. Strategically capping projections can vastly improve a portfolio's **realization rate**

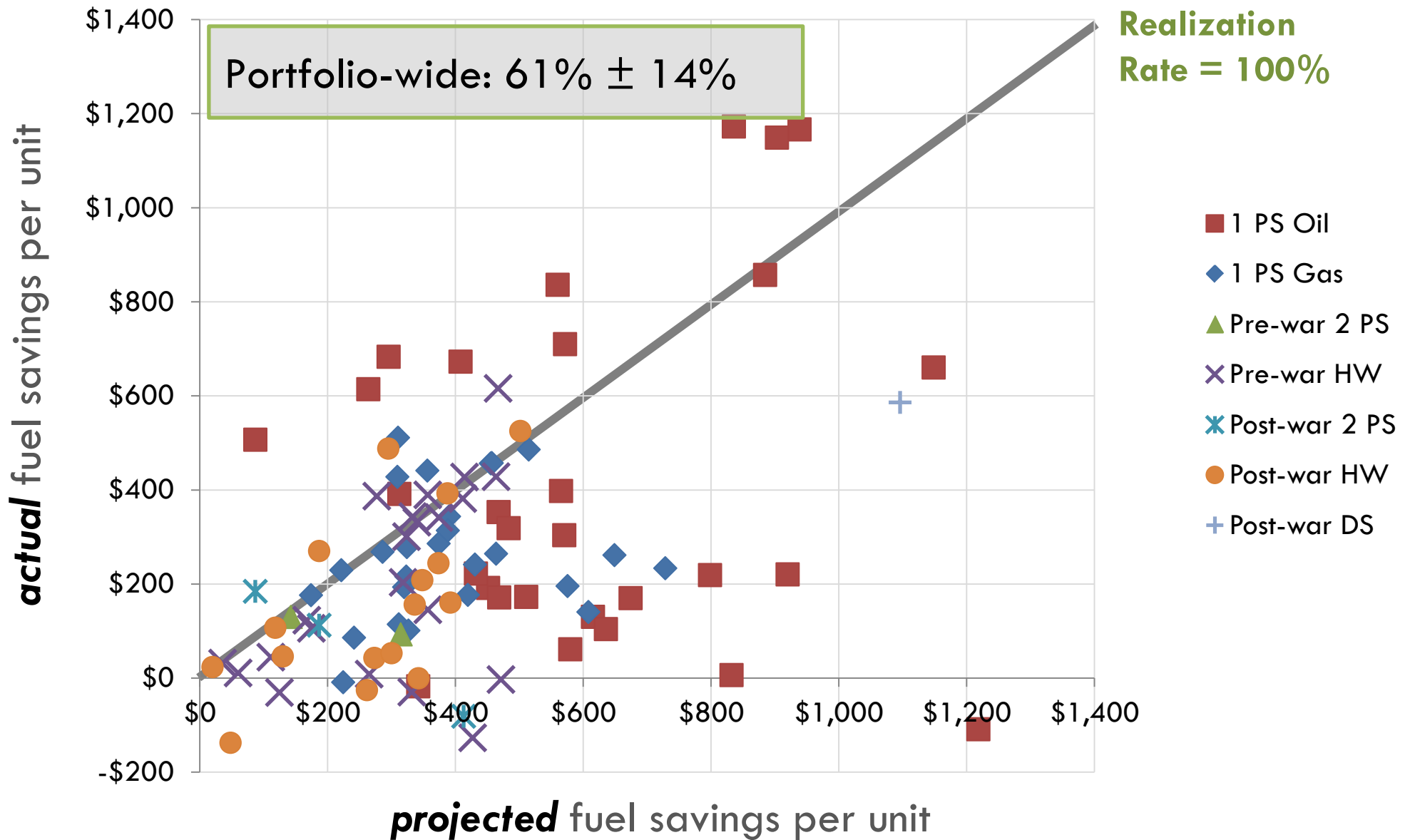
Auditors usually project 25% – 50% savings...



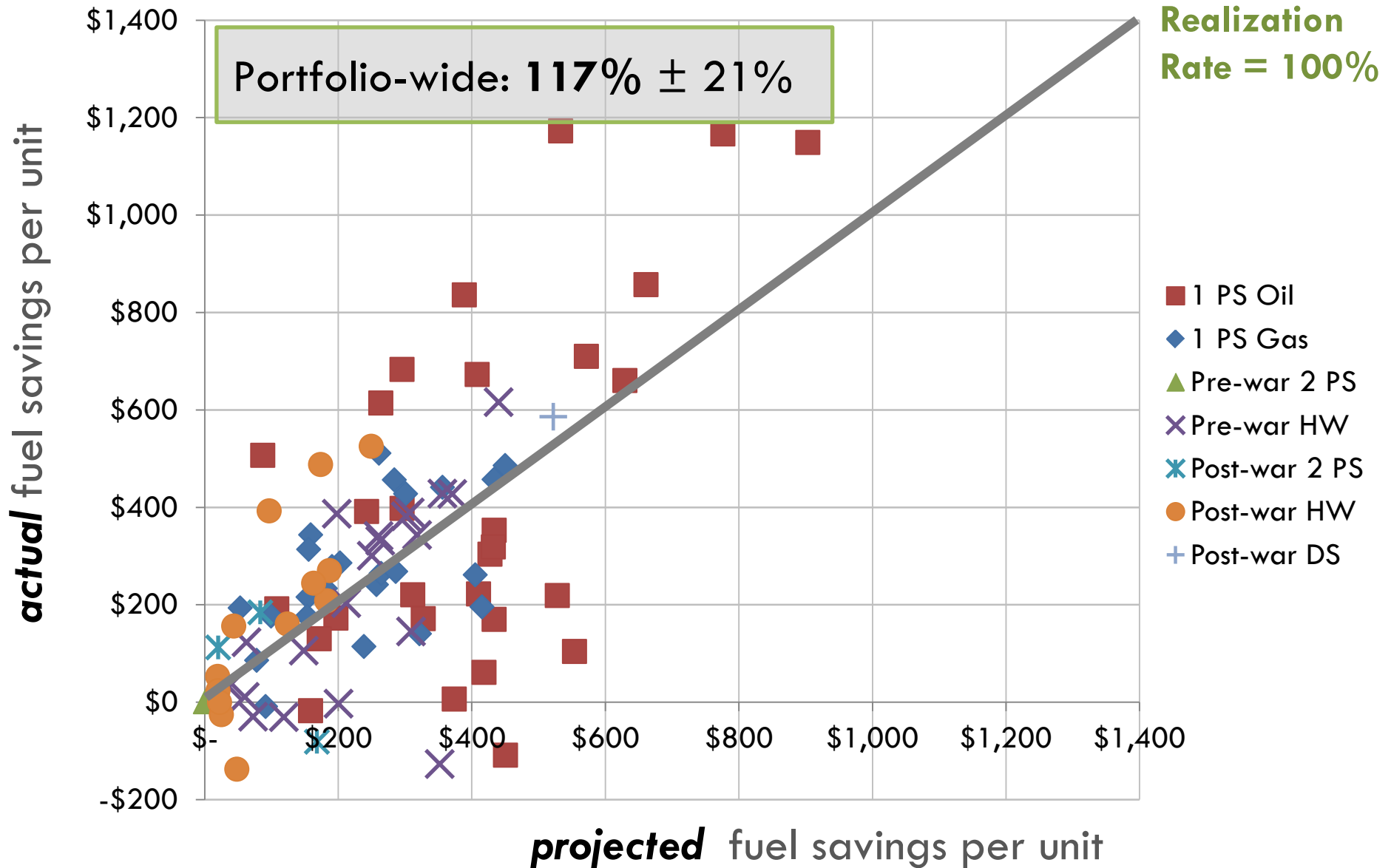
but most fuel measures save 10% – 40%.



Strategically capping fuel savings projections can improve the portfolio-wide realization rate.



Capping fuel savings projections improves the portfolio-wide realization rate from 61% to 117%.



Loan performance

30-year amortization

**Audit projection,
unadjusted**

**“Capping”
methodology**

Debt supported by
actual savings

\$ 19,116,000

\$ 19,116,000

Debt estimated per
projection

\$ 31,339,000

\$ 15,713,000

Difference

\$ (12,223,000)

\$ 3,403,000

Realization rate

61%

117%

Loans where cash needed to service > savings

	Audit projection, unadjusted	“Capping” methodology
Loans where cash needed to service > savings	71%	35%
Annual repayment shortfall (portfolio)	\$ (1,103,000)	\$ (205,000)
Median annual shortfall (per unit)	\$ (153)	\$ (110)

loan supports
full fuel retrofit costs in
50% of projects

Other Leading Efforts

- FHA-Fannie Mae Green Refi Plus:

http://portal.hud.gov/hudportal/HUD?src=/press/press_releases_media_advisories/2011/HUDNo.11-106

- HUD Multifamily Energy Innovation Fund:

http://portal.hud.gov/hudportal/HUD?src=/press/press_releases_media_advisories/2012/HUDNo.12-051

- Bank of America EE CDFI Program:

<http://ahead.bankofamerica.com/fueling-the-economy/bank-of-america-announces-recipients-of-55-million-energy-efficiency-finance-program/>