Examining the suitability of Private Equity for Energy Efficiency Projects

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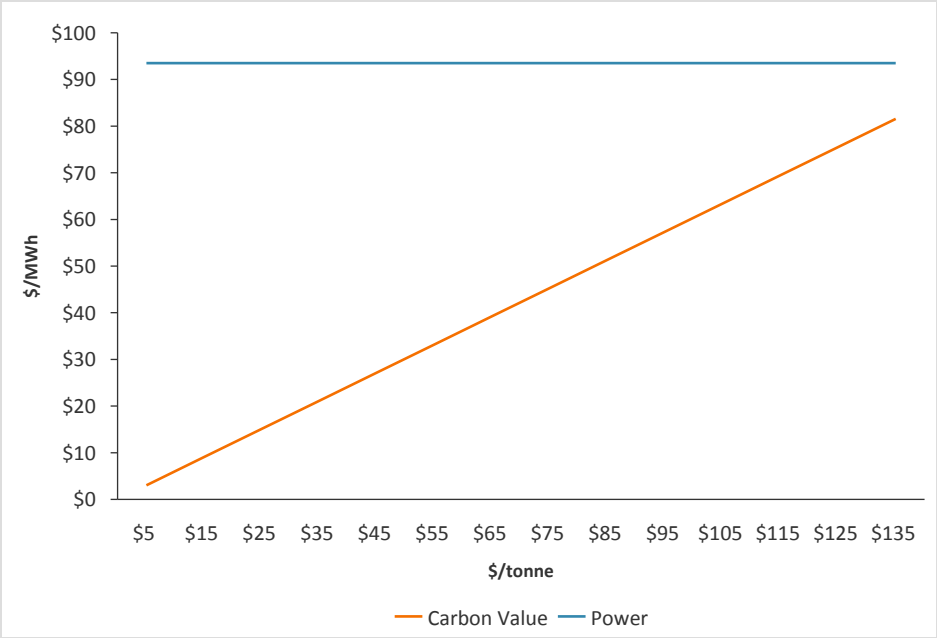
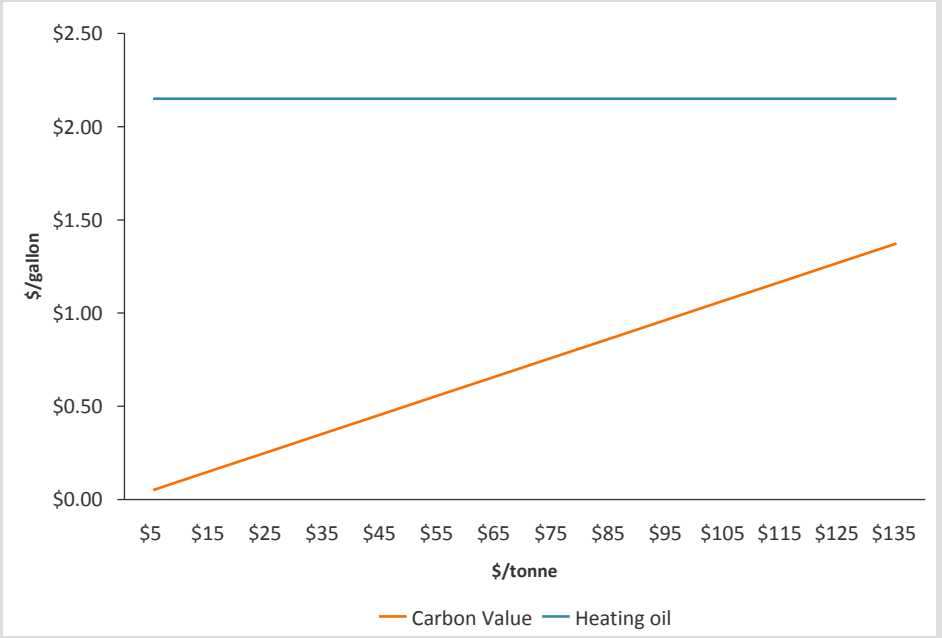
Why carbon investment firms are moving beyond carbon

Even with low energy prices, a unit of energy savings is worth more than the associated carbon reduction





Note: Data from EIA and EPA. Assumes $93.50/MWh average retail electricity price and 0.6 tonne CO_2/MWh emission rate; $2.15/gal fuel oil and 22.4 lbs/gal emission rate

The natural cycle of efficiency projects fits with the familiar guidelines of private equity

- Investments begin yielding cash early in their lifecycle
- Technology is proven, reducing risk
- Most investments are self-liquidating
- Investments supported by intrinsic asset value
- Attractive risk-adjusted returns
  - Unlevered potential for 12-14% returns
  - Potential for leverage to boost returns by 4-6%
- Provides portfolio hedge against rising power prices
  - Efficiency gains reduce exposure to base load price increases
  - Also gain long exposure to carbon prices

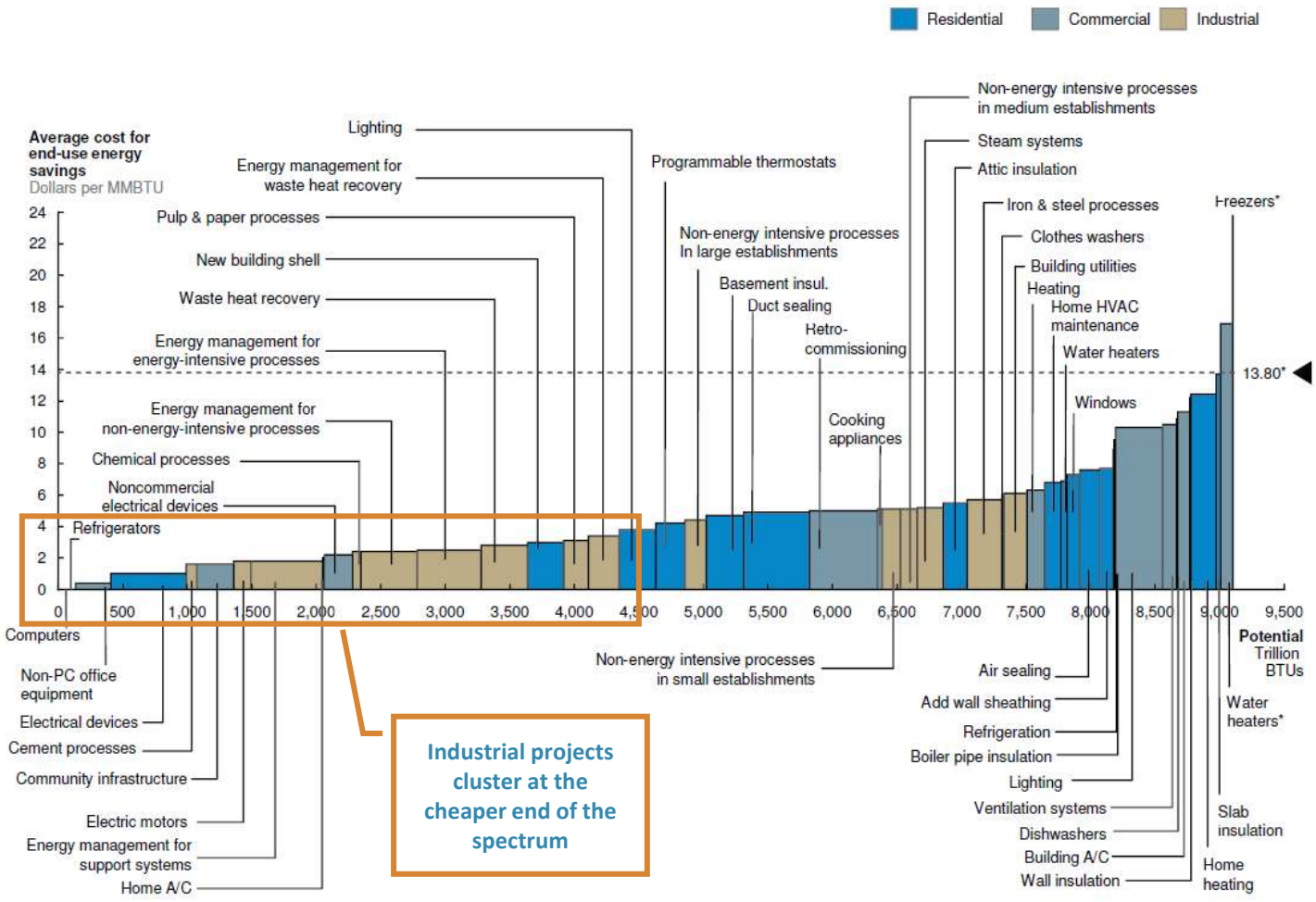
The efficiency opportunity: large, diffuse, and immediate

Energy efficiency gains increase the yield on energy in order to:

- Produce more final energy per unit of primary energy
- Reduce the final energy input required for a unit of output
- Otherwise improve resource output:input ratio

- ACEEE estimates a current $269 billion annual spend on (non-transport) energy efficiency, two-thirds of which is spent on efficiency in buildings
- McKinsey estimates an NPV-positive opportunity to save 9.1 quadrillion BTUs per year (final energy) by 2020 in non-transport sectors (equates to 25% of 2008 demand)
  - 40% in industrial
  - 35% in residential
  - 25% in commercial
  - $126 bn in potential energy savings at U.S. average industrial prices
- Resulting energy savings would reduce carbon output by 1.1 Gt CO_2e/year by 2020 (approximately 15% of total current yearly emissions)
- The opportunities are immediate, on both supply and demand sides
- Many investments have positive NPV and don't depend on a U.S. GHG cap or the ensuing rulemaking period

Cheaper reductions tend to be found in industrial and commercial applications



* Average price of avoided energy consumption at the industrial price; $35.60/MMBTU represents the highest regional electricity price used; new build cost based on AEO 2008 future construction costs

Source: EIA AEO 2008, McKinsey analysis

To access the opportunity, private equity almost certainly needs leverage to improve IRRs

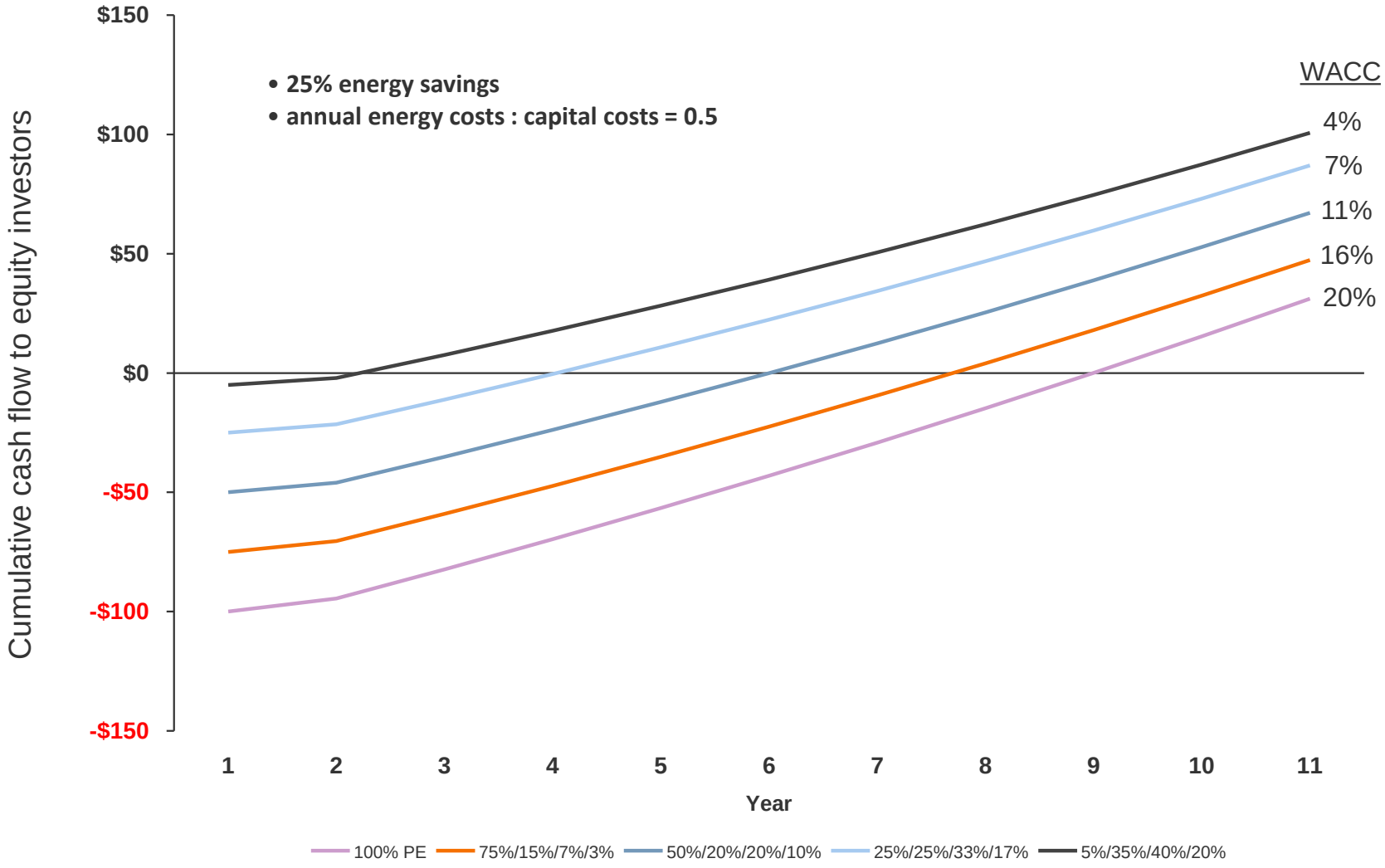
- The classic energy efficiency funding model lacks flexibility
  - ESCO + client arrange lenders, find grants, use asset owners' capital, or finance equipment on balance sheet

- New funding model:
  - Mosaic of financing sources: utilities, public benefit funds, bonds, banks, government general funds
    - Private sector loan
    - Public loan guarantee
    - Private sector lender administering public capital
    - Utility loan to consumer
    - Banks offering interest rate buydowns
    - PACE loans
    - Grants

- Added possibility to employ PRI loans and developer's capital

- Result: energy efficiency projects should become increasingly attractive to private equity investors either directly or as part of a larger portfolio

The power of low-cost leverage – a simplified example



[PE / market rate loan / subsidized loan / grant]

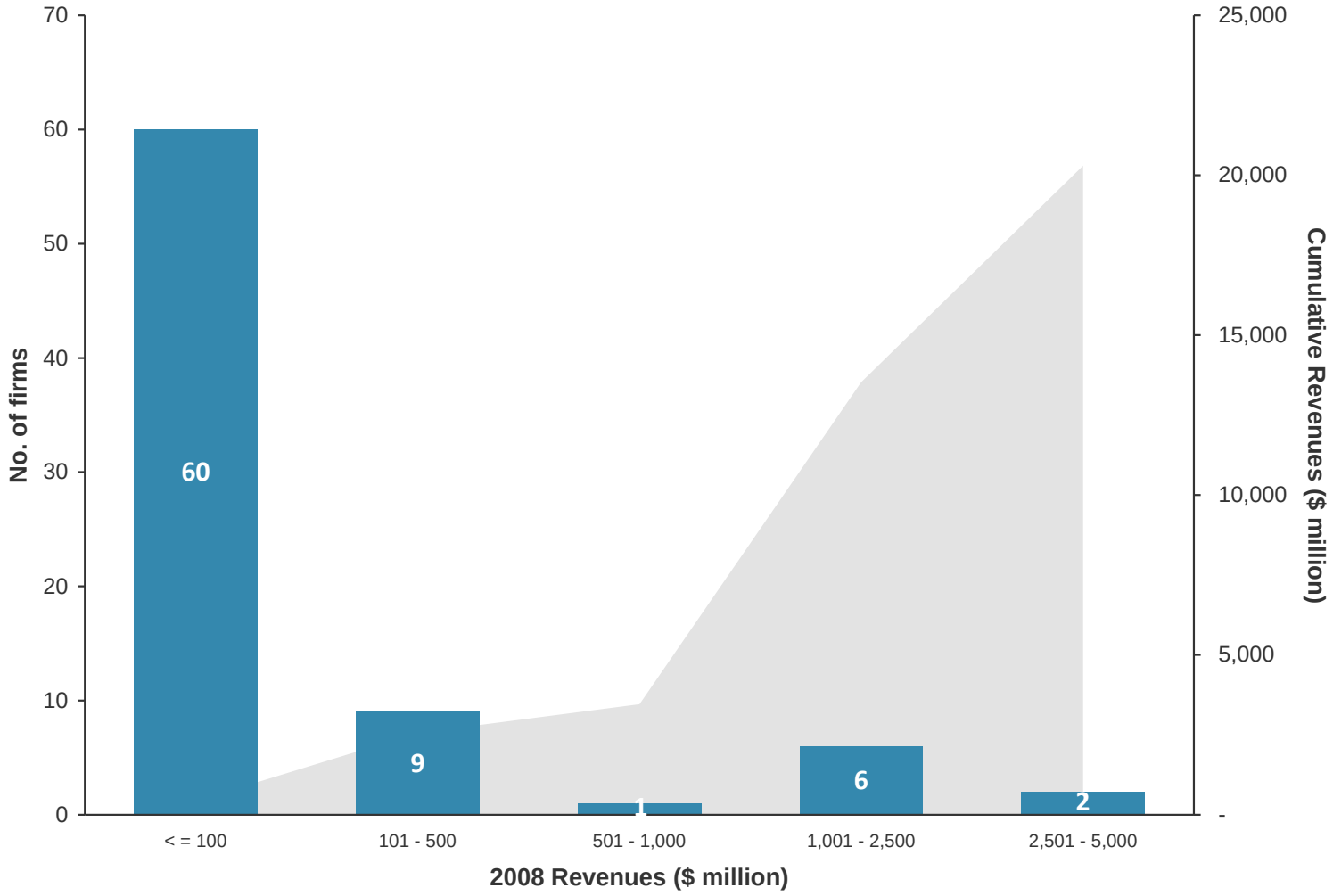
Private equity is not always the right capital source

- PE/VC expects complicated situations and needs to get paid accordingly
  - 20-40% return expectations or more
- PE has a limited time horizon, with investment lives of 3-5 years
- Deals need to be of a certain minimum size for the economics to work out
- Efficiency projects often have good downside protection but limited upside potential
- ESCOs have a large market presence and present formidable competition to developers
- Cheap capital in the market has the potential to crowd out PE/VC
- Financial engineering, historically a centerpiece to PE strategies, is not always necessary

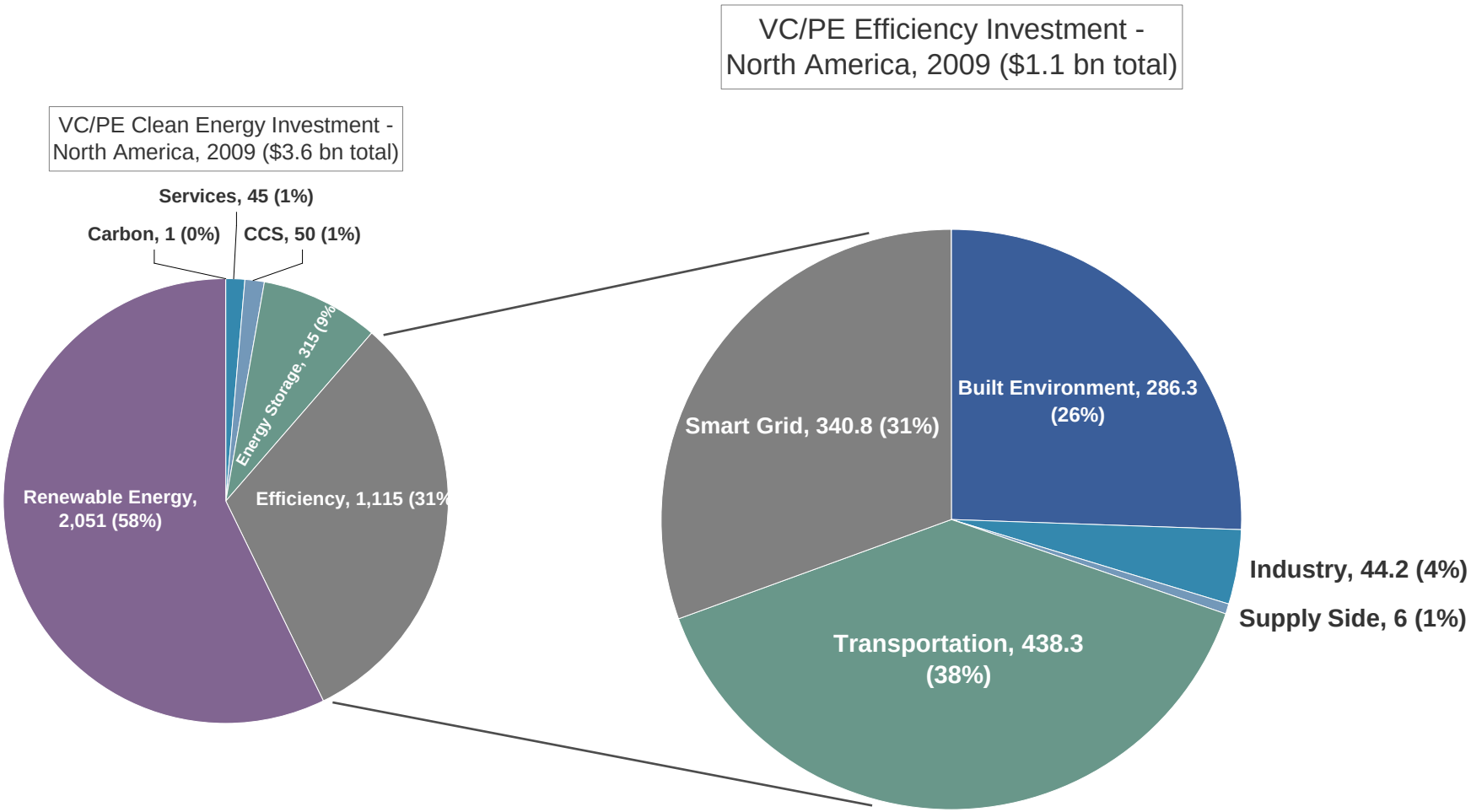
ESCOs: high industry concentration but limited scope

Sector revenues indicate the typical ESCO focus:

- MUSH (58%)
- Federal (22%)
- Industrial (6%)
- Commercial (9%)
- Residential (5%)

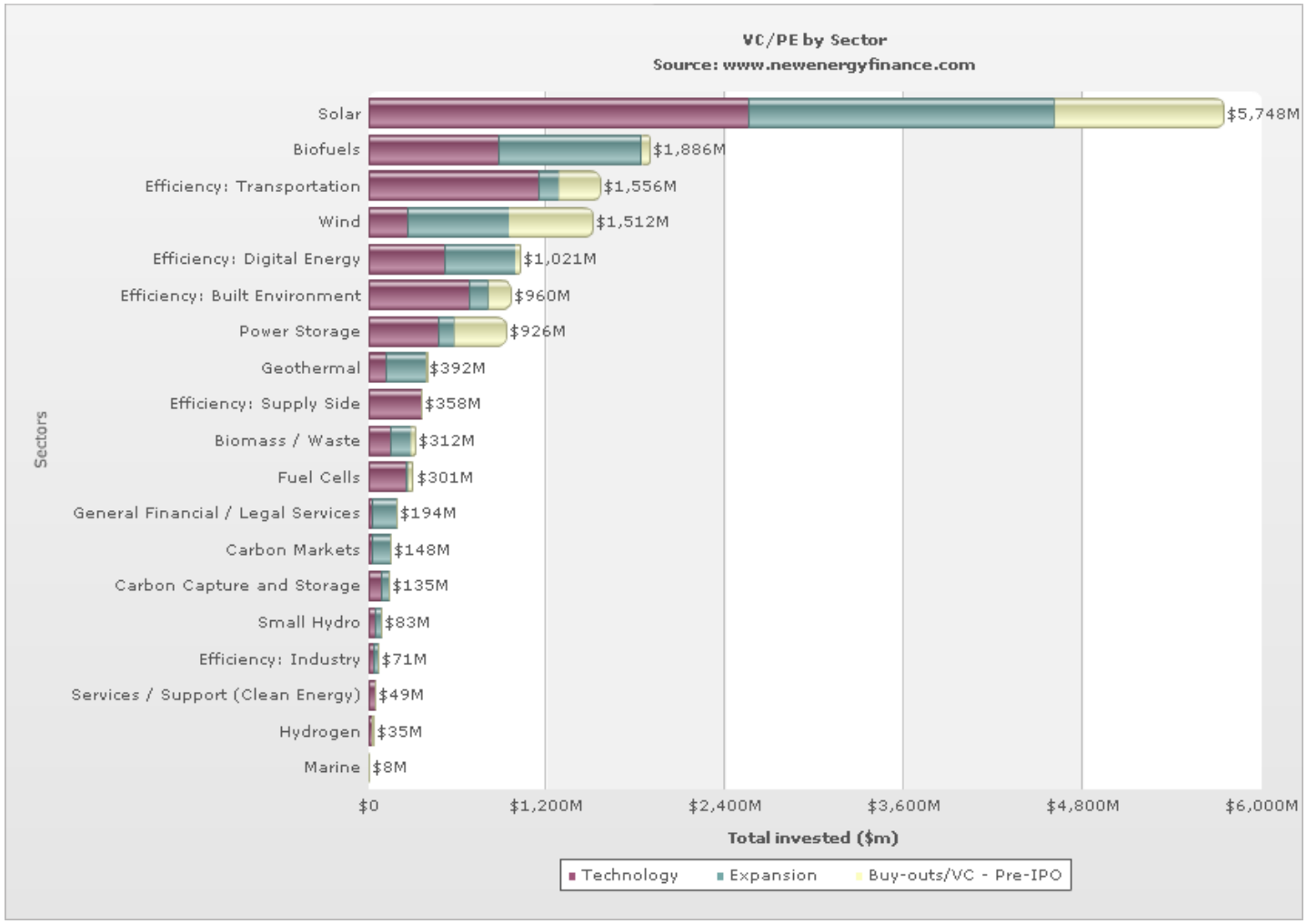


Efficiency already accounts for nearly one third of the $3.6 bn invested in clean energy companies



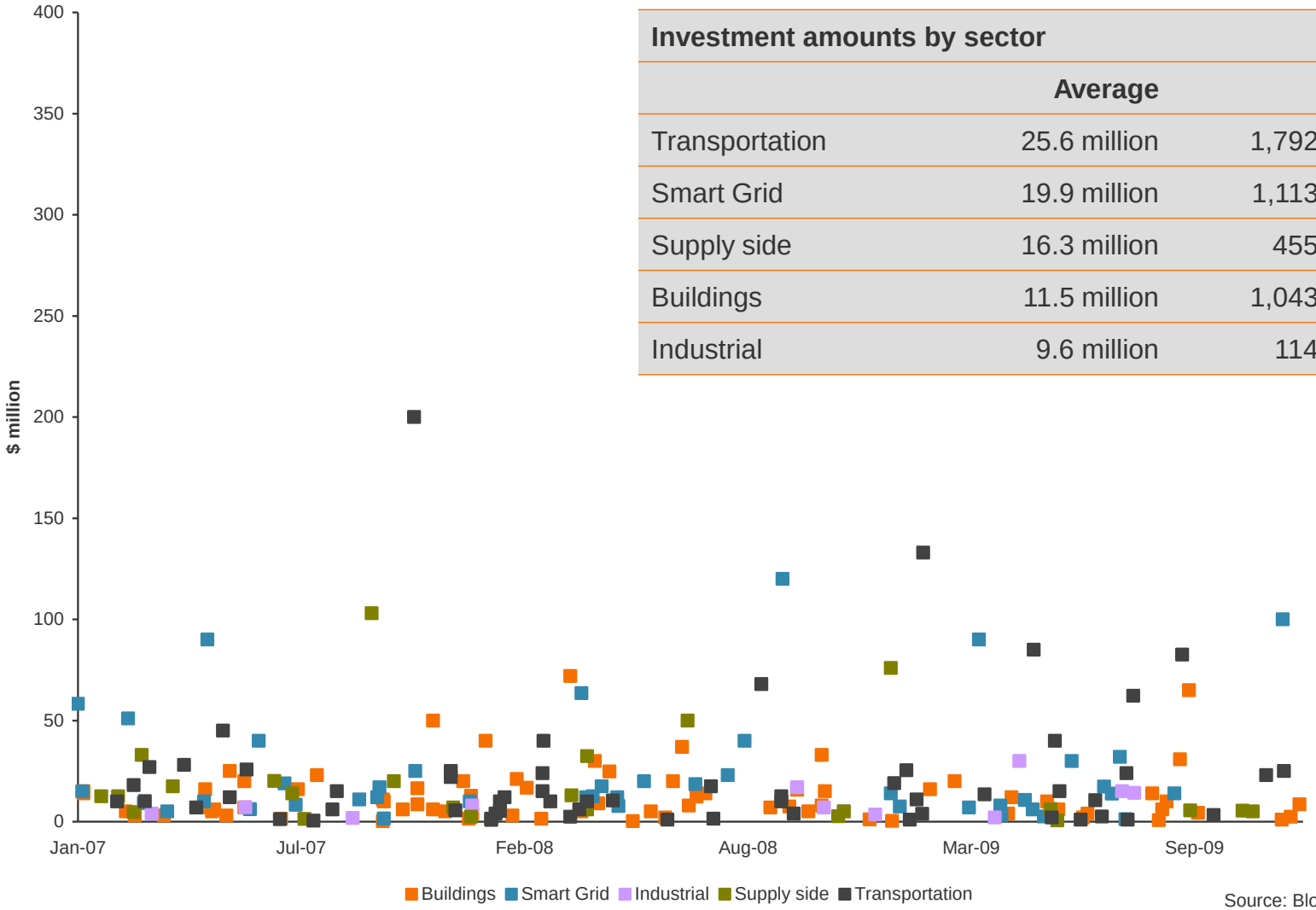
Source: Bloomberg NEF. All figures in $m, as reported. Asset-based financings not a significant share of the market.

Second only to renewables, efficiency captured a large share of private capital invested in 2007-2009



Source: Bloomberg NEF.

…And the steady investment flows bucked the capital market slowdown



Investment amounts by sector		
	Average	Total
Transportation	25.6 million	1,792.3 million
Smart Grid	19.9 million	1,113.1 million
Supply side	16.3 million	455.4 million
Buildings	11.5 million	1,043.8 million
Industrial	9.6 million	114.6 million

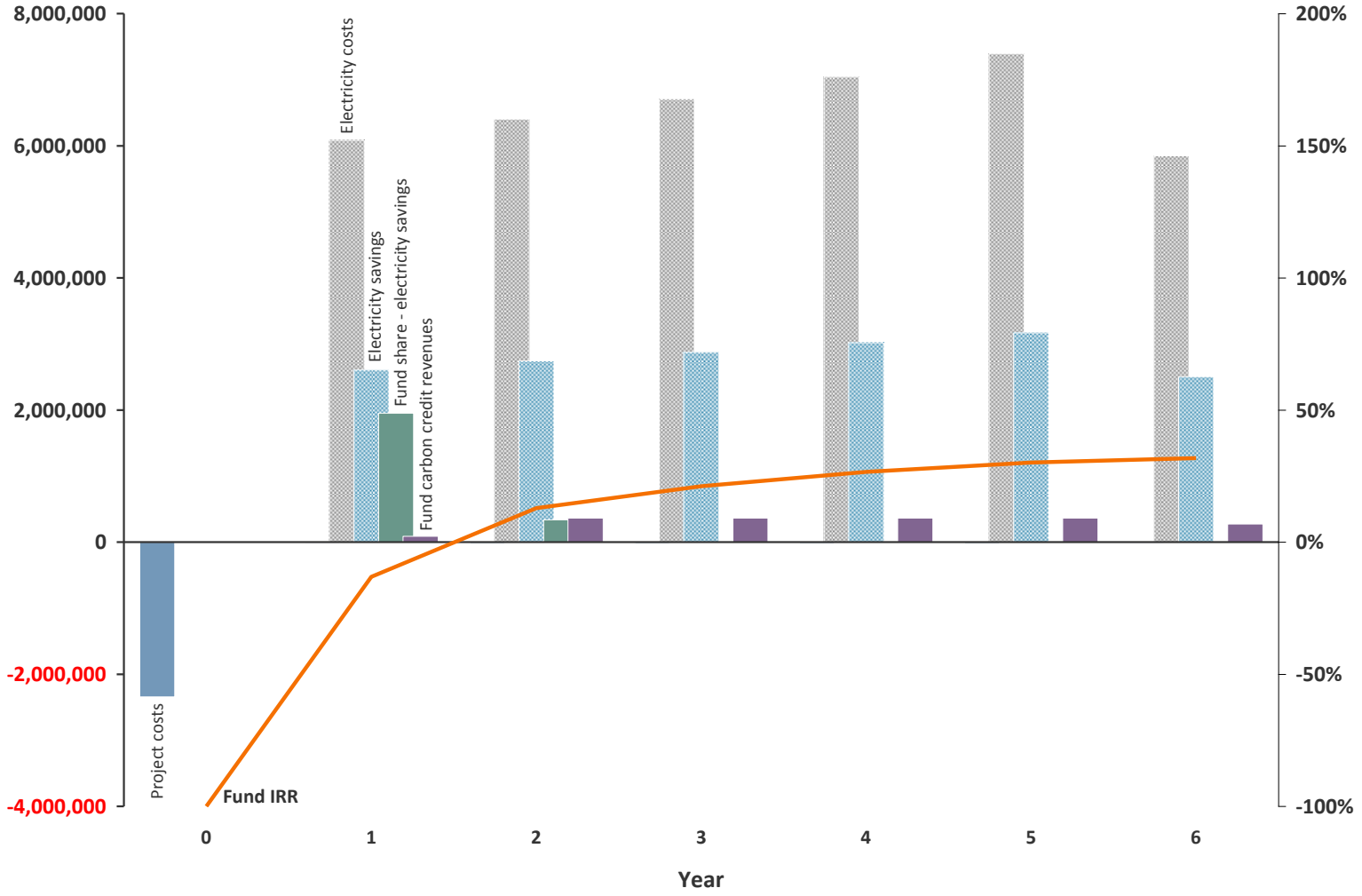
Source: Bloomberg NEF.

Putting it all together: projected cash flows & IRR for a real-world energy efficiency investment

Initial capital costs repaid through electricity savings

Upside secured through rights to carbon credits

Contracts with host entities help insure against credit quality weakness



Conclusions

- Efficiency is more than ready for private equity, but PE may not be ready or suitable for all efficiency projects
- Private equity and venture capital has historically chosen buyouts and seed-stage investments in companies rather than projects
- As the market for energy savings gets more liquid, PE gains more exit options and will probably get more involved at the project level
- Policy mechanisms and grants need to facilitate PE involvement but avoid making it too easy or flooding the market with cheap capital

Critical success factors

- Ability to forecast energy savings, and then monitor and verify them, is essential
- Counterparties may need to be comfortable signing contracts on the basis of projected energy savings or productivity gains
- Supplemental low-cost financing works as an important catalyst where payback periods are longer
- Need the ability to mitigate risk, hedge energy price exposure, secure (and securitize) cash flows
- Investors will always require a well-defined exit strategy

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