

ARE COMPANIES UNDER-INVESTING IN ENERGY EFFICIENCY?

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CARBON
DISCLOSURE
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BACKGROUND

In an era where businesses are facing increasing energy costs, tightening company budgets and the threat of increased carbon emission related expenditure, companies are constantly looking for low-risk, cost-effective ways to decrease their operational costs towards improving their financial performance. With the threat of increasing energy costs in particular, such an opportunity that is gaining increased traction amongst companies and policy makers alike is investments in energy efficiency projects.

The purpose of the research thesis which this executive summary describes was to investigate the existence of an “Energy Efficiency Gap”, the term used to describe the apparent anomaly in the sub-optimal diffusion of energy efficiency project investments. The governing research hypothesis postulated that current practices used in capital budget allocations adopt inappropriate investment conditions when assessing energy efficiency projects, which if shown to be correct, would suggest a misallocation of capital and a market disequilibrium that negatively affects the financial performance of these companies.

To test the validity of this hypothesis we firstly sought to determine if the “Energy Efficiency Gap” in fact exists and to what extent, then to quantitatively assess the effect of the Energy Efficiency Gap on the financial performance of companies, and finally to qualitatively understand why this so called “gap” occurs. To achieve these goals the financial metrics, hurdle rates, and investment decision making processes of a sample of the Forbes Global 2000 list of CFOs were surveyed. A total of 982 companies were invited to participate in the survey, with 808 CFOs contacted directly, and the remaining 174 companies contacted through their Investor Relations (IR) personnel.

Of the 982 companies invited to participate in the survey, a total of 32 companies returned completed surveys, giving a survey response rate of 3.26%. While this may appear small, when compared to the large number of companies contacted it is still sufficient to allow a statistical analysis of the returned data within suitable confidence intervals with allowable margins for error. Also, the returned surveys were distributed over the survey sample according to company size, GIC sector classification and company energy usage.

This title was originally suggested by Mr Michael Liebreich, founder and CEO of Bloomberg New Energy Finance (BNEF), and the survey was issued by Imperial College London with the assistance and collaboration of BNEF, Ceres and the Carbon Disclosure Project (CDP).

SURVEY RESULTS

The following is a summary of the key insights from our research into energy efficiency investment decision making (A copy of the full thesis that this executive summary describes is available upon request).

1 ENERGY EFFICIENCY INVESTMENTS ARE WIDELY PERCEIVED AS LOW-RISK...

- Respondents were asked to compare the risk associated with energy efficiency and core business investments. 55% of respondents stated that energy efficiency project investments were less risky, 42% said they were as risky, and 3% that they were more risky (Figure 1). This shows that energy efficiency project investments are widely perceived as low-risk compared to core business investments.



Figure 1 - Perceived "Riskiness" of Energy Efficiency compared to Core Business Projects

... BUT THIS DOES NOT TRANSLATE TO THE HURDLE RATES DEMANDED

- However, this does not correlate with the hurdle rates demanded of energy efficiency and core business projects of 26% and 23% respectively (as IRR equivalent percentages) (Figure 2).



Figure 2 - Average Demanded Hurdle Rates for Energy Efficiency and Core Business Projects (IRR Equivalent %'s)

- In addition, again despite the majority of respondents stating that energy efficiency investments are less risky than core business investments, 35% of the respondents demand a higher hurdle rate of energy efficiency investments (Figure 3). More precisely, among companies responding that energy efficiency projects are less risky than core business investments, only 10% demand a lower hurdle rate of energy efficiency investments compared to core business investments (Figure 3).



Figure 3 - Hurdle Rates demanded of Energy Efficiency compared to Core Business Investments

2 PAYBACK PERIOD METRICS TEND TO BE MORE ONEROUS THAN IRRs

- The discounted and simple payback period metrics (DPB & SPB), which were more popular for energy efficiency project investments, demanded IRR equivalent hurdle rates that were 8% and 6% higher respectively when compared to the IRR demanded hurdle rate.
- When the SPB metric was used (the second most popular metric for energy efficiency projects) to appraise energy efficiency projects, it demanded a shorter more onerous payback period (Avg. 5.00yrs) than if the discounted payback period (DPB) metric was used (Avg. 5.40yrs). However, as the discounted payback period discounted cash flows over the life-time of the project, the average IRR equivalent hurdle rate for DPB was more onerous (26% as opposed to 22%) despite having a less onerous average required payback period (in years).

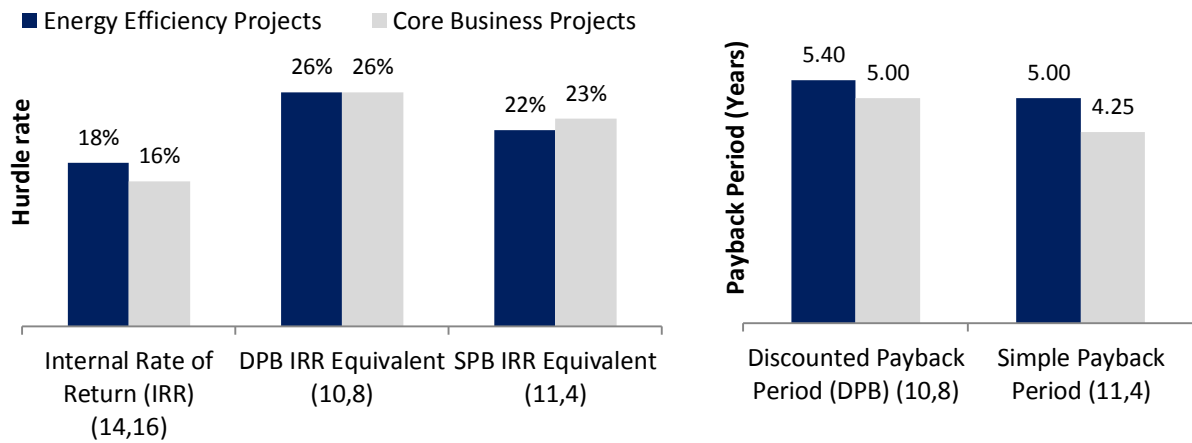


Figure 4 - Required Hurdle Rates (No. of Responses in Parentheses)

- When the hurdle rates are considered according to respondent type, CFO teams gave the least onerous hurdle rates for energy efficiency project appraisals, and Energy teams the most onerous. With average weighted hurdle rates of 17.8%, 20.8% and 24.2% for responses from CFO, Sustainability and Energy teams respectively.

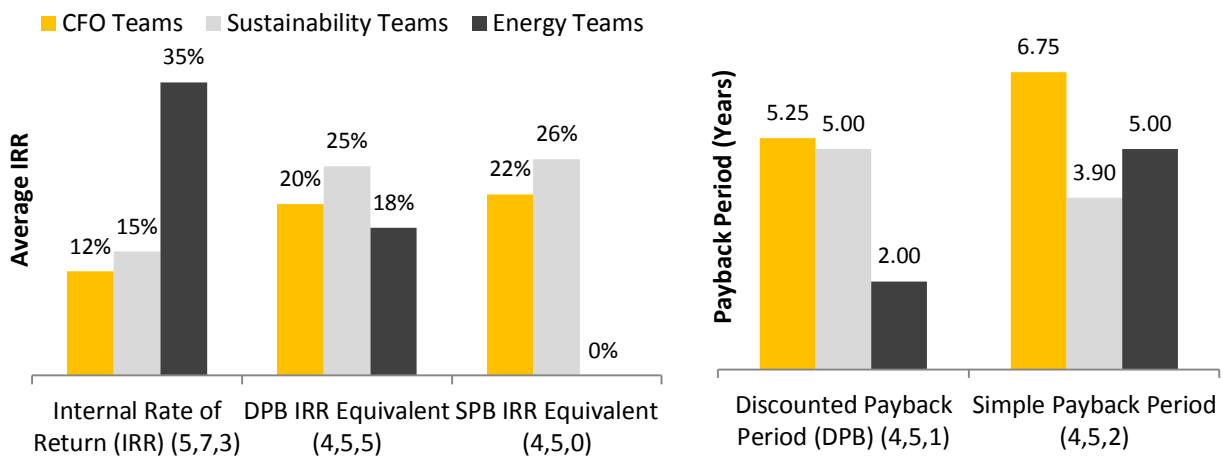


Figure 5 - Required Hurdle Rates by Respondent Type (No. of Responses in Parentheses)

3 THE STRONGEST DRIVERS AND BARRIERS TO CORPORATE ENERGY EFFICIENCY INVESTMENTS ARE FINANCE RELATED

- The highest ranked drivers for energy efficiency project investments were financial criteria, with “Cost savings”, “A sound investment” and “Energy cost volatility and uncertainty” being the highest ranked drivers for respondents. The least important driver according to respondents was “Carbon costs”, followed by “Improved corporate social responsibility”. The highest ranked non-financial driver was “Pressure from Investors”, which was ranked the 4th most important driver.

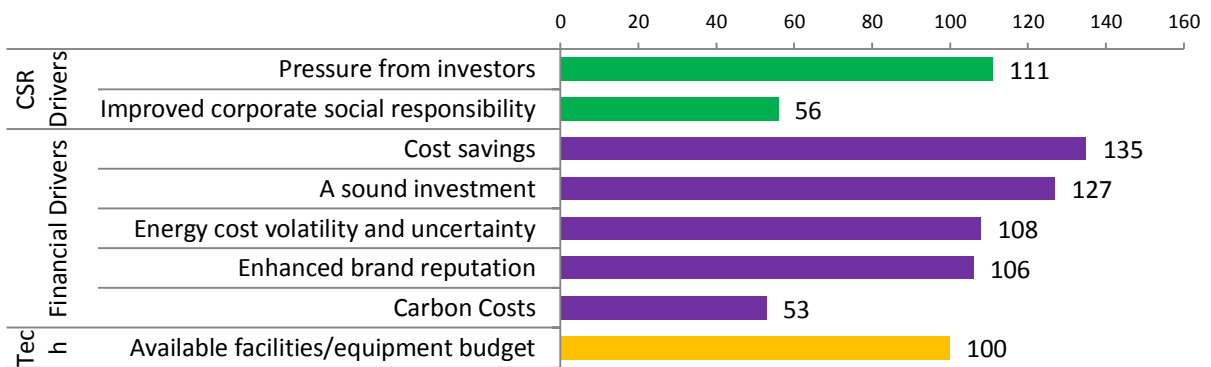


Figure 6 - Energy Efficiency Project Drivers (Scored Out of 160)

- The highest ranked barriers for energy efficiency project investments were again financial criteria, with “Payback period is too long”, “Rate of return is too low” and “Cost savings are not as attractive as revenue generation” being the highest ranked drivers for respondents. The least important driver according to respondents was “Lack of staff expertise”, followed by “Lack of relevant information”. A “Lack of senior management support” was the highest ranked of the non-financial related barriers according to respondents.

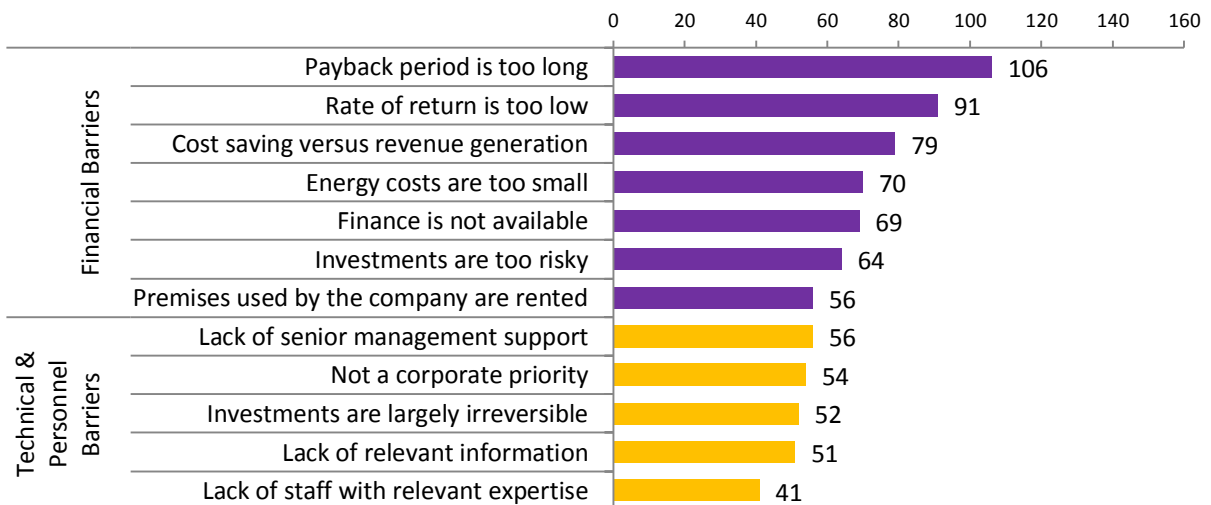


Figure 7 - Energy Efficiency Project Barriers (Scored out of 160)

4 ENERGY EFFICIENCY INVESTMENT DECISIONS TEND TO BE MADE AT A JUNIOR LEVEL AND WITH A MORE FREQUENT USE OF THE PAYBACK PERIOD

- A critical assessment of the 3.3% response rate may conclude that CFOs do not consider energy efficiency projects as critical investment opportunities within their companies. This would be corroborated by the fact that despite the survey being targeted at company CFOs, only 24% of surveys were completed by CFO teams and 44% by Sustainability teams, with the remainder completed by Energy specific teams. This would suggest that a large proportion of CFOs are not focused on EE project investments or consider energy efficiency projects as a means of improving their corporate social responsibility, and not as a profitable, low-risk energy reduction opportunity.



Figure 8 - Survey Respondents by Respondent Type

- 44% of respondents confirmed that energy efficiency investment decision making is made by different personnel than core business investments. In most cases, this was because energy efficiency investment decisions were made at a lower level than core business investment decisions, sometimes by a dedicated energy department or even at the individual business unit level. However, very large energy efficiency investments go up to the executive team and the decision is made by the board of directors.



Figure 9 - Are Investment Decisions made by the same or different personnel for Energy Efficiency and Core Business projects

- 48% of respondents confirmed that the investment decision making process for energy efficiency projects differs from that of core business. Respondents stated that other long term benefits are often considered in energy efficiency project appraisals. They also confirmed that EE projects often had to meet specific energy reduction or sustainability targets, some of which had their own capital allocations.
- Energy efficiency projects were seen to suffer from siloed accounting, where company's cost structures were set up differently from their revenue centres. So, for example, the responsibility for making energy efficiency project investments was at a facility level, whereas energy bills and any corresponding beneficial cost savings would be seen at a higher central operations level. Companies that were seen to perform the best had specific teams that were tasked to appraise energy efficiency projects across the entire company portfolio.

- The most popular financial metric for assessing energy efficiency and core business projects was the Internal Rate of Return (IRR), with 72% and 78% of respondents stating that they use IRR to appraise energy efficiency and core business projects respectively. The simple payback period (SPB) was the second most popular for energy efficiency projects with 66%, and the discounted payback period the second most popular for core business with 50%.
- Respondents preferred to use the more simplistic and often more onerous appraisal methods of discounted payback period and simple payback period for energy efficiency project appraisals: the simple payback period is used twice as often for assessing energy efficiency projects than for core business projects (Figure 10).

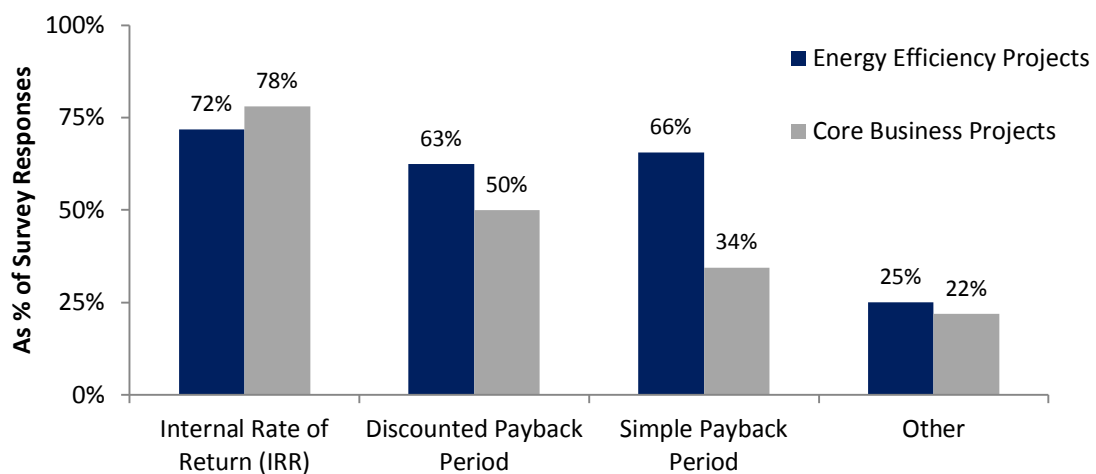


Figure 10 - Financial Metrics Used

5 ADDITIONAL COMMENTS

- In energy intensive industries energy efficiency could not be differentiated from core business as energy makes up such a large component of the operational budget. In these cases, companies pursue energy efficiency projects for purely financial reasons focussing on specific goals to reduce energy usage per a specific unit of output or product.
- Respondents identified the need to accurately measure energy usage across their entire portfolio so that facilities could be bench-marked towards making targeted energy efficiency project investments. Effectively, you cannot manage what you cannot measure. Where respondents installed measuring equipment they showed that they allowed profitable energy savings. However, others considered improved energy measurement investments as an additional hidden cost and not as an investment opportunity.
- Companies that had specific energy reduction goals with clearly defined energy reduction targets over defined time horizons were found to have less stringent energy efficiency project hurdle rates. These

companies also used specific central support mechanisms for financing, appraising and managing energy projects, along with specific capital allocations for energy efficiency projects.

- When asked why they demand a higher hurdle rate of energy efficiency projects, the Energy Director of a surveyed company explained that energy efficiency investments do not participate in the strategy of the company as core business investments do. Therefore energy efficiency investments are more driven by financial returns than core business investments. As a result, a higher hurdle rate is demanded of energy efficiency investments. Another point was made by the Head of Energy Management of a surveyed company who observed that “energy efficiency investments are very low risk compared to core business investments” but that his company demanded a higher hurdle rate of energy efficiency investments. He explained that the main reason for that is the need to focus on core business activities as the availability of capital is tight.

CONCLUSION

The main findings of this study are:

1. One in three companies demands a higher hurdle rate of energy efficiency investments compared to core business investments and half of all companies demand equal hurdle rates.
2. Energy efficiency investments are widely perceived as low risk; with nearly 60% of respondents declaring that investments in energy efficiency are less risky than investments in core business projects.
3. A tendency to use the simple and discounted payback period for energy efficiency projects, which were found to require a more onerous hurdle rate when equated to an equivalent IRR figure.
4. The low-risk associated with energy efficiency investments does not translate to the hurdle rates demanded: only 10% of the companies perceiving energy efficiency investments as less risky than core business investments demand a lower hurdle rate of energy efficiency investments compared to core business investments.

The results therefore validate the governing hypotheses formulated initially, namely that despite energy efficiency investments being perceived as less risky than core business investments, that a significant number of companies demand more stringent investment conditions of energy efficiency investments compared to core business investments. This then confirms the existence of underinvestment in corporate energy efficiency projects and hence the existence of misallocated capital.