Delivering Energy Efficient Buildings

The Low Energy High Rise Project
LEHR – The Objective

- Measurable evidence
- Factors affecting energy & water efficiency
  - Encouraging factors
  - Discouraging factors
- For commercial office buildings
The Process

- Major survey of building attributes and management characteristics
- Index energy/water efficiency via NABERS
- Use statistics to relate NABERS to building/management attributes
Building Characteristics & Technical Factors

- Newer buildings are more efficient
Building Characteristics & Technical Factors

- Better technology leads to better performance

![Graph showing the correlation between Building Technology Score and NABERS Office Energy Rating.](chart.png)
No significant differences found between different PCA Grades.
Buildings with economy cycles perform better
Better performance when building management is in-sourced
Efficiency penalties or incentives for maintenance contractors improve performance.
Building Management & Operation

- Buildings that disclose their NABERS performance to tenants perform better.

![Graph showing NABERS Office Energy Rating reporting to tenants](image)
Building Management & Operation

- Buildings perform better when building, asset and portfolio managers all feel they can influence energy efficiency.

NABERS Office Energy Rating

Multiple Managers
Better performance when there is an energy efficiency training program in place.
Managers who considered that they had a greater level of energy efficiency skills were generally found to operate buildings more efficiently.
Investment Factors

- Sites that had implemented low-cost management measures had better NABERS performance

[Graph showing NABERS Office Energy Rating vs. Low-cost Management Measures]
Investment Factors

 Sites that had implemented minor capital measures had better NABERS performance
Project Conclusions

- The measures identified could lead to performance improvements of up to 30%
  - Approx 1 star relative to average
- Equivalent to a 1.2% reduction in Australia’s total greenhouse emissions, when extrapolated to the CBD office building sector
LEHR Stage 2 - objectives

- LEHR materials covering:
  - Management
  - Monitoring and reporting
  - Technical
  - Tenants
  - Training

- Stage 2 complete with materials currently being designed for publication
LEHR and Existing Buildings

- LEHR demonstrates day to day operation is critical
- While new can be better it is not a guarantee of performance
- The same challenges exist in empowering and enabling performance
A Building Energy Efficiency Upgrade Strategy

1. Get the day to day right
2. Identify current performance
3. Ensure the necessary skills are covered
4. Then consider at the building structure & services
Beyond LEHR

1. Know your building – review the design and construction
2. Identify the problem areas
3. Only fix what is broken
4. Ask first is it the best fit for the building
5. Secondly look for whether it offers the most efficient outcome
6. Develop a strategy
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