Energy Efficient Buildings

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ENERGY EFFICIENT OFFICE BUILDINGS (EEOB)
AUDITS UNCOVERED....

- Boilers running all the time
- Heating and cooling in conflict
- Broken outside air temperature sensors
- Blocked hot water coils
- Rusted outside air dampers (shut/open)
- Seized heating and cooling coil valves
- Holes in the air distribution system
- Toilet fan running 24/7/365
- Duct layout doesn’t match the floor plan
- Carpark fans running 40 hours a week
- Absence of monitoring, metering, controls, alarms, documentation.
Most buildings typically have one thermostat

A standard Hux deployment with sensing throughout the building.
Comfort monitoring – Melbourne Legacy case
TYPICAL UPGRADES....

- Repair and replacement
- Recommissioning BMS, adjusting set points
- Replacing, adding sensors and controls
- Installing new BMS
- VSDs
- Carpark CO sensors
- Lighting upgrades
- Time clocks
- Occupancy sensors
- Economy cycle
- New boilers and chillers
- Scaling, cleaning, coils
- Metering
Comfort monitoring: Bank Australia

- Expected savings of 84,300 kWh, 151,000 MJ gas
- Est. NABERS improvement from 3 to 4 stars
- Total project value $213,030

Service Provider – Energy Action
King Street case study

COSTS
- Total project = $1.5M
- SV contribution $150,000
- Annual cost savings $121,000

RESULTS
- NABERS 2.5 → 3.5 → 4.5
- Electricity - 50.6%
- Gas - 61.5%
- Occupant complaints reduced

Service Provider – Allstaff

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Kensington case study

COSTS
• Total project = $95k
• SV contribution $41k
• Annual cost savings $19k

RESULTS
• NABERS 3 → 3.5
• Electricity - 11%
• Gas - 12%

Service Provider – Airmaster
“Maintenance tasks have reduced significantly and the tenants are really happy. The whole building’s occupied now, after having 4 floors vacant. The savings have really shocked me – much greater than anticipated.”

Manoj, Facility Manager

“If it wasn’t for EEOB we wouldn’t have tried installing sub-meters, but they’ve paid for themselves over and over because we now know where we’re using energy. Our bills will be half what they were two years ago.”

Anthony, Building Manager

“Complaints have dropped because air temperatures are a lot better controlled and stable. Our building manager is dealing with less problems and the tenants aren’t as grumpy anymore.”

Andrew, Service Provider

“I’ve certainly learned a lot and now have a better understand how the building works. The biggest thing is having all the meters and sensors that I can access through a laptop, I can troubleshoot issues instantly.”

Rob, Facility Manager
Energy Efficient Office Buildings

Program Achievements (annual savings)

• 28% energy
• 3,367 MWh electricity
• 11,814 GJ gas
• 4,408 tonnes CO$_2$-e
• >$900k

Performance (average)

• 1.2 star average NABERS improvement
• Less than 3 year simple payback
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