



Perfecting the Air

Green Building Solutions

Driving Energy Efficiency Initiatives

PERFORMANCE
GUARANTEE CONTRACT

ENERGY AUDITS

ENERGY OPTIMISATION

Daikin advocates for the global environmental efforts in the carbon footprint reduction and climate policies to protect the environment. In light of this, we have developed a comprehensive suite of Energy Solutions assisting building developers and owners to achieve the Sustainable Green Initiatives and Energy Efficiency Vision. Our air-conditioning solutions offer significant and measurable benefits in the building energy consumption while maintaining smooth business operations, which works perfectly towards this Green Objectives.



Reduce Carbon Footprint



Cost Savings



Higher Green Mark Rating

ENERGY AUDIT

Energy audit is an energy assessment of the system equipment to determine its current operating performance.

WHAT WE DELIVER?

Preliminary OR Walk Through Audits



Quick assessment of current system operations and performance.



Recommendation to improve performance measurement, estimated savings, paybacks.

Detailed Energy Audits



Setup calibrated measuring instruments on-site to trend log key operating parameters of existing systems.



Apply as a baseline to compare with the post-retrofit guaranteed performance.



Detailed audit report covers:

- Key graphical plots of equipment operating parameters.
- Detailed analysis of existing equipment operational efficiencies.
- Detailed economic analysis of each recommended improvement measure.

BENEFITS



Identify any key operational issues resulting in inefficiencies and optimize its efficiency.



Present an Audit Report to meet the statutory requirements and apply for government-funded grants.



Reap energy savings with the recommended implementation measures.



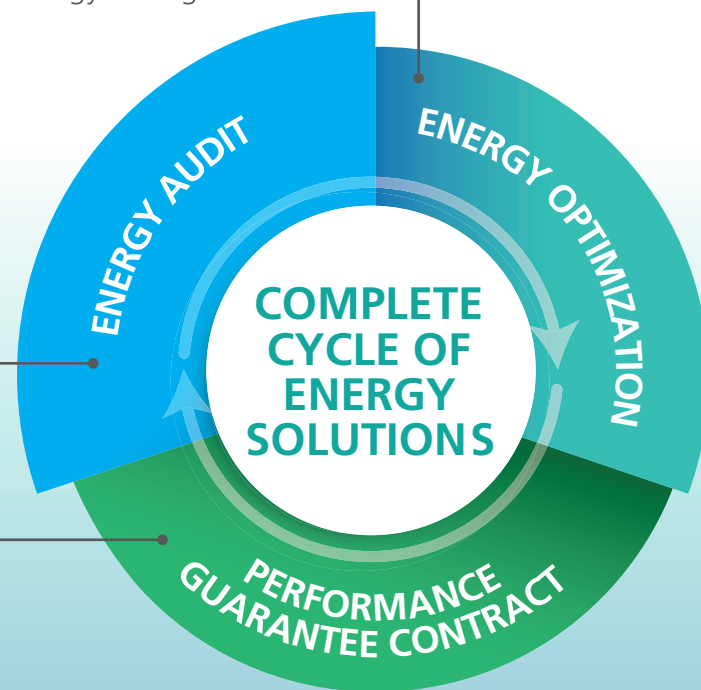
Provide up to 30% savings on energy consumption from pre-retrofit.

COMPLETE CYCLE OF ENERGY SOLUTIONS

Diagnose the performance of the existing air conditioning system and detect the source of degradation

Evaluate options for Energy Savings

Help Building Owners in implementing measures for further improvement to meet energy efficiency targets



Deliver Energy Retrofit projects for Building owners with guaranteed energy savings

ENERGY AUDITS - WORKFLOW

SITE SURVEY

- **Before survey**
Gather building information
- **During Survey**
Inspect the measurement points and site constraints
- **After Survey**
Plan for audit instrumentation required and instrument mobilization schedule

2-3 WEEKS

AUDIT MEASUREMENTS

- Hot tapping works (if needed)
- Coordinate with operations on expected equipment operating schedule
- Mounting of external instrumentation and conduct functional checks
- Check on data integrity and dismount instrumentation if all in order

3 WEEKS

RESULTS OF AUDIT

- Extract trend log for operating data analysis
- Plot graphical trends of key operating parameters
- Present report of findings
- Propose recommendations for improvements, economic analysis and more

3 WEEKS

ENERGY OPTIMIZATION

Energy Optimization is a process of fine-tuning the air-conditioning operation performance to improve the overall energy efficiency.

WHAT WE DELIVER?



Recommendation for implementation measures, involving minor retrofit and replacement works to improve overall system performance.



Monthly post-retrofit operational reports for chiller plant with achieved system efficiencies monitoring.



Optimization proposals for the existing air-conditioning system.



Monthly and consolidated savings reports.

BENEFITS



Energy Savings

- Achieve optimal energy savings.
- Quick turnaround.
- Reduce carbon emissions.



Cost Savings

- Minimal upfront costs.
- Shortest implementation schedules with significant potential paybacks.

PERFORMANCE GUARANTEE CONTRACT

A **Performance Guarantee Contract** guarantees the post-retrofit performance of the air-conditioning system throughout the tenure period.

WHAT WE DELIVER?



Pre & post retrofit audit measurements.



Monthly post-retrofit chiller plant operations report.



Turnkey project implementation

- Design development
- Equipment selection and installation
- Testing and commissioning
- Maintenance of new retrofitted system



Compilation of overall achieved system performance and other submissions to substantiate the achievement of contractual obligations over the tenure period.

BENEFITS



New and more efficient equipment in operation for improved reliability.



Guaranteed energy savings over the tenure period without shortfall risks.



Single-party liability for operations and maintenance of the newly retrofitted systems.



Reduce carbon emissions.

ENERGY OPTIMIZATION - WORKFLOW

SITE SURVEY

- **Before survey**
Gather Building Information and expected performance efficiency requirements
- **During Survey**
Inspect the space constraints for targeted implementation
- **After Survey**
Data integrity checks which are obtained from the BMS system schedule

2-3 WEEKS

IMPLEMENT OPTIMIZATION MEASURES

- Analyse current operating parameters and propose energy optimization measures, expected energy savings and payback
- Carry out Energy Audit to determine Baseline conditions
- Implement approved Energy Optimization measures
- T&C and fine-tune system operations

10-12 WEEKS

POST-RETROFIT M&V (Typically at least 12mths)

- Ensure stable operations with no space comfort issues
- Carry out post-optimization audit with calibrated instruments
- Present and submit post-optimization report showing achieved system performance
- Monitoring and Verification (M&V) over the term of the contract

4 WEEKS

PERFORMANCE CONTRACT - WORKFLOW

SITE SURVEY

- **Before survey**
Gather Building Information and expected performance efficiency requirements
- **During Survey**
 - Inspect the space constraints for targeted implementation
 - Carry out site measurements
 - Evaluate the access for shifting in new equipment and more
- **After Survey**
Arrange for sub-contractors to visit the site for scoping and costing

3-4 WEEKS

DESIGN DEVELOPMENT & PROJECT IMPLEMENTATION

- Carry out Energy Audit to determine Baseline conditions
- Analyse current operating parameters and propose energy retrofits (with selection of new & more efficient equipment etc) to achieve targeted Energy Savings.
- Work out financing options with Client and contractual terms for Performance Guarantee
- Implement approved Energy Retrofit works
- T&C and fine tune system operations

40-45 WEEKS

POST-RETROFIT M&V (Typically over 5-8yrs)

- Ensure stable operations with no space comfort issues
- Carry out post retrofit audit with calibrated instruments
- Presentation to client
- Submit post-retrofit report showing achieved system performance
- Monitoring and Verification (M&V) over the contract tenure and submit monthly performance reports
- Maintenance of new equipment to cover the entire duration of the contract tenure

4 WEEKS



Perfecting the Air

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Monday to Friday: 9.00 am to 6.00 pm
Sat, Sun & Public Holiday: Closed



Energy Solution
Website

SGPCG2101

*Specifications, designs, other content appearing in this brochure are current as of March 2021 but subject to change without notice.