

ep&t global

ENVIRONMENT | PROPERTY | TECHNOLOGY

EDGE Data Analytics in Hotels

Optimising building performance for a sustainable future

EP&T Global – energy optimisation process in hotels

Optimising energy use, saving money, reducing carbon emissions

Step 1 – Design and data capture

The collection of accurate, granular and data provides a real-time view of HVAC, lighting and small power consumption.

Typical data sources include:

1. Utility meters
2. Existing sub-meters
3. New sub-meters (if required)
4. Building Management System (BMS)

This data forms the basis of the EDGE Intelligent System.

Step 2 – Data aggregation

Data is aggregated using one/both of the following approaches:

1. Direct connection of meters and/or BMS to EP&T Memory Module (installed on site)
2. FTP data transfer of meter / BMS data from provider to EP&T Remote Server

Once aggregated, the data will be accessible via the EDGE web portal and mobile app.

HVAC

- Chillers
- Pumps
- AHUs
- FCUs/VAVs
- Boilers
- Calorifiers
- Cooling towers
- CHP
- Solar PV
- Decentralised systems

Devices

- Central HVAC
- General lighting
- Meeting rooms
- Conference facilities
- Guest rooms
- Kitchens
- Swimming pool
- Car park
- Concessions

Data collection hardware

- EDGE Memory Module
- Existing metering
- New metering
- Building Management System
- Utility meters (electricity, gas)

Step 3 – Data analysis

The meter / BMS data is analysed in combination with the following contextual data to identify energy saving opportunities:

- Occupancy
- Weather
- Conferences / events

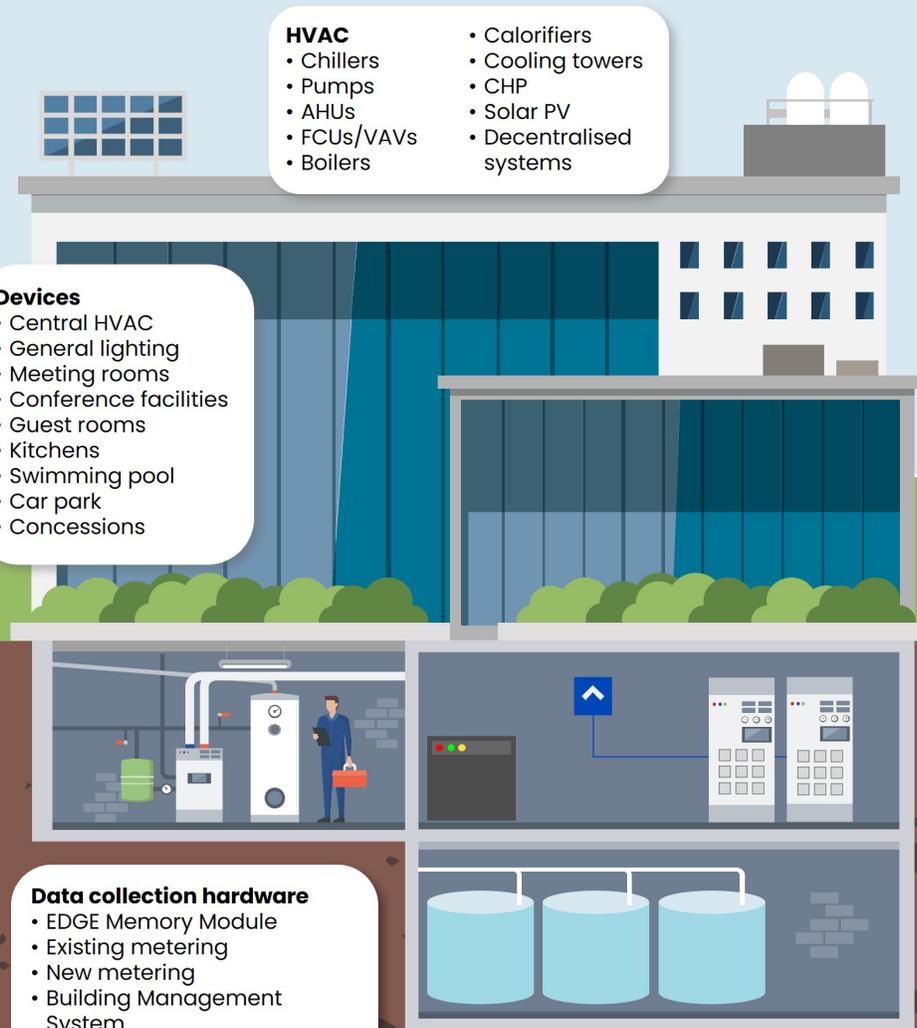
Data analysis is conducted by EP&T engineers using a library of AI and machine learning algorithms developed over 20 years of building energy monitoring.

Step 4 – Ongoing Services

Energy saving opportunities are communicated to the Customer via email, the EDGE web portal and mobile app.

Collaboration with the on-site team is critical to ensure opportunities are understood and actioned. Ongoing services include:

- Monthly teleconferences
- Quarterly site visits
- Capex planning
- Performance reports + dashboard



Case Study – Hotels

EDGE Data Analytics

EP&T Global has delivered its EDGE data analytics platform and services in 29 hotels globally across 12 countries, amounting to over 10,000 rooms. Customers include Fairmont, IHG, Salter Brothers Hotel Group, Accor, BHP, IFA, Cedar Capital Partners, and Corinthia Hotels.

EP&T reduces energy consumption in hotels through the optimisation of existing equipment, using big data analytics to conduct a 'digital energy audit' of the site on an ongoing basis to identify wastage and opportunities for improvement.

The energy saving opportunities are visualised in EP&T's EDGE platform, where the client can converse with EP&T engineers and track the resolution of items. Regular collaboration between EP&T and the client ensures opportunities are actioned in a timely manner and that the highest possible magnitude of savings is achieved.

Savings are typically made through optimisation of the following equipment in hotels: chillers, boilers, pumps, Fan Coil Units (FCUs), Air Handling Units (AHUs), Building Management Systems (BMS), VAV systems, lighting, Variable Speed Drives (VSDs), Combined Heat and Power (CHP) and more...

"The installation of EDGE technology was seamless, and the ongoing monitoring has delivered significant savings. The EP&T team are very professional and work closely with our engineers. We are very pleased to be partnered with EP&T and look forward to them being a critical success factor for our energy savings and sustainability strategy." **Andrew Brandon, Assistant Fund Manager, SB&G**



19%
average energy saving



\$5.7 million
cumulative savings



\$1.46 million
saved in the last 12 months



\$463
average annual saving per room



10,052
hotel rooms covered

EP&T Global's turn-key solution

From Optimisation to Capex Replacement

OPTIMISATION

Optimisation is the process of ensuring energy consumption from existing HVAC and lighting is reduced as far as possible without the requirement for wholesale Capex replacement works.

Example optimisation initiatives implemented by EP&T hotel customers include but are not limited to...

- Chiller and CHW pumps ambient lockout
- Vary CHW, CDW and LTHW set points with ambient temperature
- Limit available guest room temperature range
- Seasonal chiller / boiler staging
- Review temperature setpoints to avoid heating / cooling clashes
- Schedule conference and restaurant spaces to switch-off HVAC and lighting when unoccupied
- Minimise equipment running in manual / in 'HAND'
- Replace faulty temperature / pressure sensors and/or actuators
- Optimise operation of Variable Speed Drives (VSDs)



EP&T Global's turn-key solution

From Optimisation to Capex Replacement

CAPEX REPLACEMENT

The EDGE Intelligent System allows EP&T to support customers with asset replacement using real and accurate data to ensure Capex projects are well planned and deliver an attractive return on investment.

Example capex initiatives implemented by EP&T hotel customers include but are not limited to...

- Replacement of traditional Chiller and Boiler arrangement with Air Source Heat Pumps (ASHP)
- Implementation of guest room / meeting room occupancy system to control HVAC and lighting
- Install Variable Speed Drives (VSDs) on pumps and fans
- Installation of LED lighting
- If IT / Server rooms are connected to the central CHW system, then installation of separate IT room split cooling
- Installation of solar PV array

All energy saving initiatives are tracked and monitored using the EDGE Intelligent System



What we know from our experience in the hotel space

- The market value of a hotel is directly linked to NOI and EBITDA and every kWh saved in energy can be translated into avoided spend and therefore asset value
- Generally speaking, hotel operators have been reliant on CAPEX initiatives to deliver savings with some success, but data analytics will deliver ~19% savings just by improving how you run existing equipment
- Our 4-stage process of data Capture, Aggregation, Analysis and Collaboration is far superior to treating sub-metering, analysis, or services separately
- Our SaaS pricing model delivers proven value the wider the rollout (economies of scale)
- We have a proven track record of optimising hotels without compromise to guest comfort
- In addition to the financial benefits, our solution provides more accurate reporting to investors, reduces carbon emissions, and provides eco-conscious travellers with a reason to believe in the actions of their chosen hotel brand.



FAQs

Your hotels will have their own unique requirements, questions and considerations. We look forward to addressing them when we meet.

In the interim, here are some frequently asked questions that may be useful.

Why use sub-metering as primary data source rather than BMS?

Because 48% of opportunities that we raise are issues with the BMS itself (i.e. faulty code, sensors, actuators, valves etc.) so sub-metering validates information being provided to the client by the BMS. We use a combination of BMS and sub-meter data to provide recommendations.

What happens if we don't want to action your recommendations?

The customer may reject EP&T's recommendation if there is a genuine operational reason. Typically, 67% of MARS (Monitoring and Reporting Service) items are closed with savings achieved which means for 1 in 3 items, the client and EP&T agree to close with no action. This shows a collaborative rather than a prescriptive process.

How do you measure the savings achieved?

We use IPMVP Option C – which means establishing a baseline and measuring savings against baseline +/- adjustments for external factors such as occupancy and weather. We can also back this up with MARS item case studies showing EP&T recommendation, client action and forecast savings / avoided cost.

How do you ring-fence savings from other Capex initiatives?

These are ring-fenced as adjustments under IPMVP Option C. However, what we are witnessing with clients now (because of net-zero) is a more collaborative approach, where EP&T is more active in recommending and tracking other capex initiatives based on actual data. Fewer adjustments and more focus on the end goal of maximising energy performance is better for all parties.

What happens if I sell an asset during contract period?

Typically, the SaaS contract gets passed to the new owner. However, if the new owner doesn't accept this then termination fees would apply. We can provide a termination fee schedule within framework agreement depending on the expired contract length. A portfolio or framework approach will provide you with better termination rights and reduce their overall risk exposure to termination fees.

**The greenest and most cost
efficient energy is the energy
you don't use.**

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