THE “SUSTAINABLE” EPC: ENSURING ENERGY EFFICIENCY

The upfront cost for retrofitting buildings has always been a barrier for building owners looking to improve their building’s energy efficiency. This is a sound business decision as much as a sustainable one, as improving energy efficiency is one of the most cost effective ways of reducing energy costs and greenhouse gas emissions. Energy performance contracting can help building owners realise their energy efficiency goals without giving them a hard financial pill to swallow.

WHAT IS ENERGY PERFORMANCE CONTRACTING (EPC)?

EPC is a method for retrofitting existing buildings by using guaranteed operational energy savings to pay for the upgrades. For EPC retrofits, building owners are assured that the retrofits are effective and generate enough cost savings to pay for itself.

Savings can be generated from use reduction in electricity, heating fuels, water and/or wastewater.

WHAT ARE THE BENEFITS OF EPC FOR BUILDING RETROFITS?

1. Building owners can focus on other aspects of the business while leaving building energy efficiency and performance to the professionals. Turnkey services offered by EPC firms include helping owners design retrofit solutions to achieve the desired level of BCA Green Mark certification (e.g. to meet requirements for aircon system efficiency, Singapore Standards 554 Indoor Air Quality standards, etc), as well as to apply for applicable government incentives/grants. In addition, EPC firms can advise owners on the latest technological advancements for higher sustainability targets.
For EPC projects where the building owner takes on a bank loan, the loan amount is usually capped at up to 90 percent, with an upfront payment of 10 percent or above. However, for EPC projects with Zero Capital Partnership (ZCP) arrangements, there can be no capital outlay by the building owner, as the EPC firm will arrange for and bear the financing needed (i.e. any loans will not be on the balance sheets of the building owner). This ensures that building upgrades are not deferred due to competition of capital against other allocations, and hence avoid incurring higher operating costs over time. Should utility costs rise, EPC projects will also provide additional cost savings.

There is the option to include maintenance works in the EPC contract to sustain long term operational savings, where most EPC firms are able to offer such services as well.

HOW IS AN EPC PROJECT FOR BUILDINGS STRUCTURED?

An agreement is made between the EPC firm and a building owner that will outline the terms of the project, namely how cost savings are shared, measured, and verified, as well as the contract (payback) period. Based on the owner’s needs/goals of retrofitting (e.g. to meet Green Mark Rating requirements), the EPC firm will perform a baseline energy audit of the building, identify relevant retrofits and structure the project together with the owner/ the appointed M&E coordinators/facilities managers. Retrofits could also be structured together with tenders calling for other items to increase the ease of raising a tender.

WHAT DO CLIENTS LOOK FOR IN AN EPC PROJECT?

- Amount/percentage of guaranteed savings
- Overall cost (payback period) and financing model
- Track record of EPC firm
- Implementation process of EPC project

HOW ARE EPC PROJECTS FINANCED?

In financing an EPC project, several approaches can be taken depending on each client’s preferences and project specifications. Common sources of funding include:

- Management Corporation Strata Title (MCST) Sinking Fund
- Bank loans taken up by building owners to be repaid with energy savings guaranteed by EPC firm (Guaranteed Savings model), or in the case of Zero Capital Partnerships (ZCPs), energy savings will be paid to EPC firms which take on the bank loan on behalf of the client (Shared Savings model)
• Green Mark Incentive Scheme for Existing Buildings and Premises (GMIS-EBP): co-funds up to 35 percent, 40 percent and 50 percent, for achieving Gold, Gold Plus and Platinum GM ratings respectively and meeting the minimum aircon system efficiency (kW/RT) for each rating

• Pilot Building Retrofit Energy Efficiency Financing (BREEF) Scheme: covers the cost of retrofit equipment, installation and professional fees for buildings that attain the minimum GM certification.
  • Through the scheme, the building retrofits can be financed from a loan from participating banks/financial institutions, which is paid off through the energy savings reaped.
  • BREEF covers the cost of equipment, installation and professional fees

• Zero Capital Partnership Scheme (ZCP): bridges building owner with the expertise of an accredited EPC firm. The EPC firm serves as a one-stop solution for both minor and major retrofit options, can provide financing options and also facilitate the application of relevant grants or incentive schemes to fund the retrofit works.

**IS EPC SUITABLE FOR ALL RETROFITTING PROJECTS?**

No, not all retrofitting projects will be suitable for EPC. In rare cases, the guaranteed savings from upgrades are too small to justify a reasonable payback period, taking into account higher interest rates charged by financial institutions for loans that will require a long repayment duration.

As a ballpark estimation, the payback period for retrofitting an old chiller is about five to eight years, with savings in the range of $50,000 per month.

**BRIDGING ENERGY EFFICIENCY**

The Singapore Green Building Council accredits energy performance contracting firms under the Singapore Green Building Services certification scheme to ease the industry into energy efficiency retrofits.

Evaluated and assessed based on track record, financial net worth, EPC project amount and bizSAFE accreditation levels, these EPC firms will be able to help building owners implement sound and fruitful building retrofit arrangements. Additionally, SGBS-certified EPC firms can help green building projects gain bonus points if the firm has been engaged to implement suitable projects that guarantee operational system efficiency over a minimum of 3 years (Green Mark 2015, Section 4.03d).