FROST & SULLIVAN

ENERGY MANAGEMENT

CONTENTS

INTRODUCTION

On the back of rapidly evolving technologies and digital revolution across multiple industries, Facilities Management (FM) companies are now starting to go through a significant transformation to catch up with the new demands in the marketplace. Competing in the industry and maintaining significance without following industry megatrends is no longer an option for FM providers with traditional service portfolios. Now, more than ever, it is essential for FM companies to advance towards integrating Workplace Management, Smart Technologies and Energy Management (EM) services into their offerings.

In the context of this whitepaper, we are focusing on Energy Management as one of the fastest growing trends globally. While energy management applies to a whole host of industries and asset types (including automotive) the term, for the purposes of this paper, is circumscribed to only performance contracting of buildings.

Integrated Facilities Management (IFM) companies have long realised the value-add of Energy Management (EM) services to their businesses, clients, and ultimately, the environment. EM's value proposition goes far beyond just the benefits obtained through energy efficiency; it allows end users to access the EM data for better decision making, increased business productivity and successful performance contracting. While typical EM projects are predominantly delivered by Energy Service Companies (ESCOs), FM service providers are now beginning to build capabilities to compete with them comprehensively. The line between FM and ESCO markets is now getting increasingly blurred as plenty of FM companies are actually acquiring ESCO accreditations globally.

Performance contracting for Facilities Management companies and ESCOs in the GCC remains in early stages of development. This is attributable to restraints such as access to financing, incomplete regulatory environment, and an overall lack of awareness. However, creation of Super ESCOs in the UAE and the KSA, in 2013 and 2017, respectively, has significantly eliminated entry barriers, especially in the UAE (given the longer presence of Etihad ESCO in the market). Mandated to regulate the market, Super ESCOs have accelerated the process of establishing new norms in energy services. In many cases Super ESCOs facilitate initial funding for performance contracting projects as well, allowing the market to overcome the challenges related to financing.

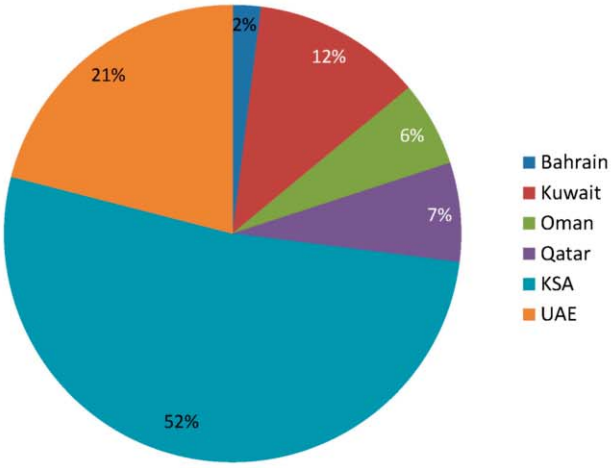
INCREASING DEMAND FOR ENERGY PERFORMANCE CONTRACTING MARKET IN GCC FORECASTED

Energy demand in the GCC has increased dramatically over the past decade. This is primarily driven by increasing population, a massive industrialisation and a construction boom – all focused at diversifying the individual economies away from an excessive dependence on the oil sector.

In 2017, total consumption of electricity in the region was approximately 527 TWh, where half of the consumption came from KSA (Exhibit 1). In 2023, this figure is expected to reach 780 TWh (Exhibit 2).

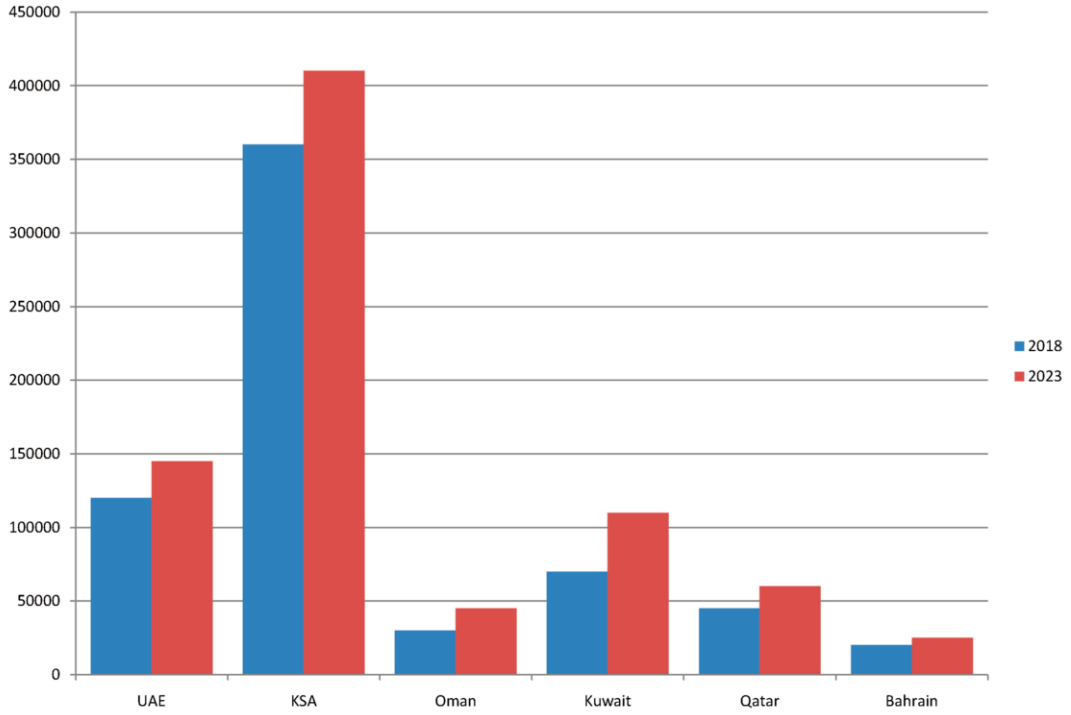
From an end-user sector point of view, the residential sector has shown the highest demand in almost all of GCC countries in 2017, backed by a massive upsurge in newly constructed facilities getting commissioned in this period. However, Qatar and the UAE are seen to be exceptions, where industrial and commercial users, respectively, turned out to be the largest consumers of electricity. It is important to note that more than 70% of the total electricity consumed in the region is attributable to the residential and commercial sectors in the region, as the region undergoes a significant construction boom encompassing residential, commercial and mixed-use structures. This Sectorial energy consumption is displayed in Exhibit 2.

Exhibit 1: A Total of 527 TWh Electricity Consumption by the GCC Member States in 2017



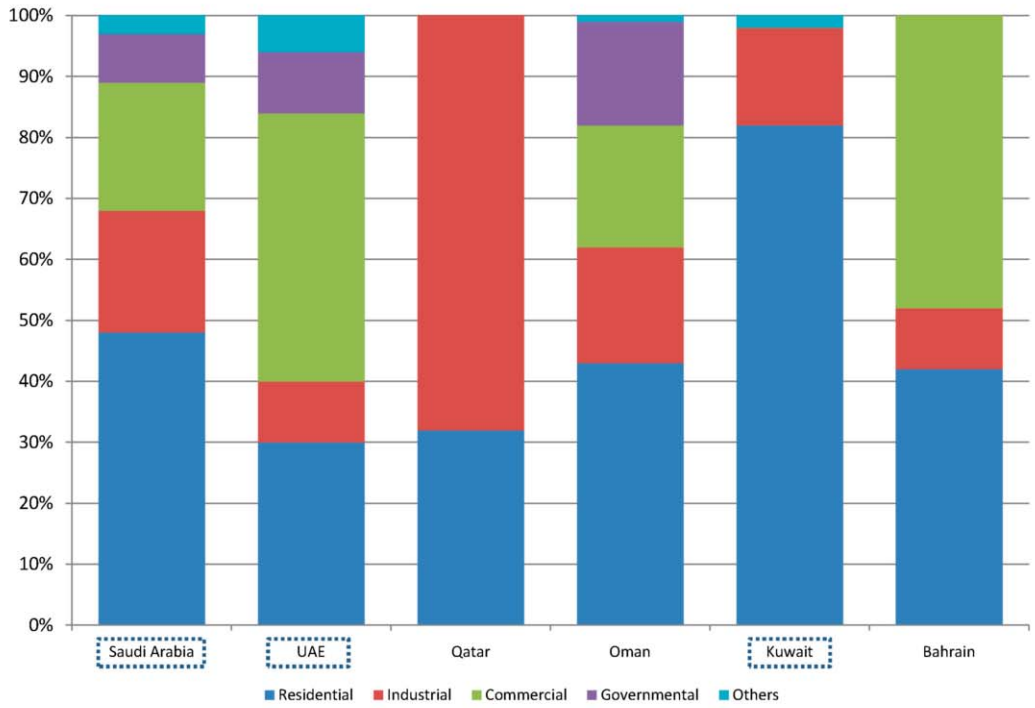
Source: Arab Union of Electricity. KAPSARC, Saudi Electricity Company, Electricity & Cogeneration Regulatory, ADWEA, DEWA, SEWA, FEWA, KBEWA, Bahrain EWA, Ministry of Electricity and Water of Kuwait, OPW, Qatar Electricity & Water Corporation

Exhibit 2: Electricity Consumption Forecast by the GCC Member States from 2018 to 2023



Source: Arab Union of Electricity

Exhibit 3: Energy Consumption by Customer Segments in the GCC Member States in 2017



Source: IRENA

In the past, the GCC governments had responded to this escalating increase in energy and electricity demand by investing in power generation facilities, majorly based on hydrocarbon fuels. However, the economic turmoil in the last decade put a stop to this trend. Now, as a response to the increasing energy inefficiencies, governments of the GCC member states have started to set short and long-term energy efficiency targets, with an aim to stave off the impending need for capital outlay for new power plants. These new initiatives aim to lessen energy waste as well as electricity consumption through various programmes that countries are willing to implement in the foreseeable future.

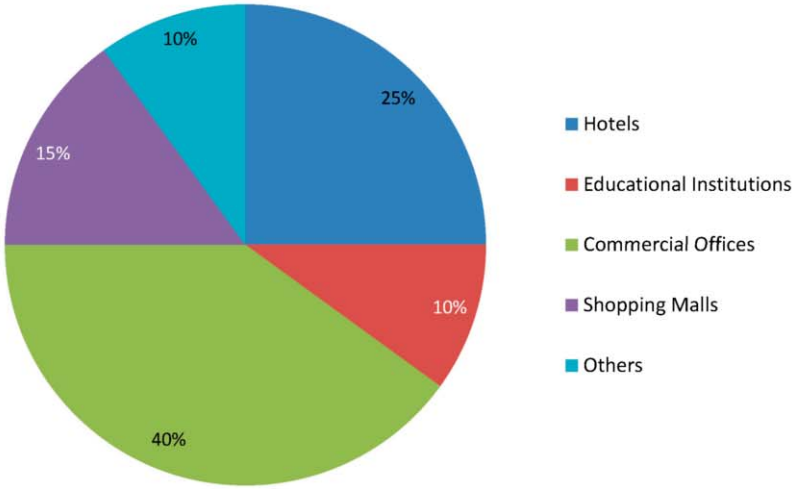
For instance, in 2014 Dubai has developed the Dubai Integrated Energy Strategy with the goal to reduce energy consumption by 30% by 2030, while the KSA's Electricity and Cogeneration Authority is aiming to reduce electricity requirements from new and retrofitted buildings by 8% for 2021. At the same time, governments have been cutting energy subsidies to incentivise more conscious consumption of electricity and water among end users. For example, in 2016 the UAE has announced that tariffs for UAE expats living in Abu Dhabi would increase by 28% reaching 26.5 fils/kWh. In Dubai, electricity tariffs for the majority of end users have been unsubsidised since 2011. DEWA tariffs vary across end-user segments and their consumption levels. In the KSA, effective from 2018, tariffs have tripled as a result of a revised calculation methodology and the value-added tax of 5%. In Kuwait, commercial sector tariffs have increased by 500% since 2016. The increase was also applied to the Government.

Increasing tariffs coupled with government initiatives of creating Super ESCOs and other supporting mechanisms to ensure energy sustainability started to boost the performance contracting market - making it more attractive for various types of stakeholders from FM companies to Financial Institutions. According to the Frost & Sullivan performance contracting market study (2015) for the period of 2016 to 2021, energy performance contracting market in the UAE for 2017 is estimated at USD 105 million with a robust CAGR of 16% .

This market estimation includes end users from both private and public sectors, but significantly excludes DEWA's retrofit programme of 30,000 buildings – including this demand could result in a near doubling of the demand forecasts for the UAE market. In the KSA, the performance contracting market was estimated to be approximately USD 45 million in 2017. However, this is expected to witness a significant increase considering the rapid slew of initiatives that the country has announced in the recent past. Notable examples to be cited include the increase in electricity tariffs, setup of an ESCO with committed funds for retrofits, and a stated focus on energy efficiency and management within the purview of the overall Vision 2030 programme.

It is significant to note that a majority of the performance contracting business in these two countries has emanated from commercial offices (Exhibit 3).

Exhibit 4: Performance Contracting Market by End Users in UAE and KSA, 2017



Source: JLL Real Estate Market Overview, Emirates GBC, Frost & Sullivan Analysis

In the future, we expect this to witness more diversity, seeing demand come from residential and mixed use developments, educational institutions, healthcare facilities, retail units as well as government infrastructure.

In a reflection of the potential for energy performance contracting, up to 30 companies have already obtained a full or provisional ESCO accreditation in the UAE and the KSA from relevant authorities. While a majority of ESCO accredited companies are BMS and energy efficiency product companies, there are 7 companies with a Facilities Management background that are operating in the UAE market today. Exhibit 4 below shows ESCO accredited FM companies in the UAE. In the KSA, Enova Facilities Management is the only FM service provider with an ESCO accreditation. Most of the ESCO accredited FMs are actually Integrated Facilities Management companies that have been involved in buildings energy management.

Exhibit 5: Performance Contracting Market by End Users in UAE and KSA, 2017

FM COMPANY	TYPE OF ACCREDITATION (UAE)
Quimera Energy Facilities Management	Provisional Accreditation
Al Shirawi Facilities Management	Provisional Accreditation
Farnek Total Facilities Management	Provisional Accreditation
Cofely Besix Facility Management	Provisional Accreditation
Duserve Facilities Management	Provisional Accreditation
Enova Facilities Management Services LLC	Full Accreditation (UAE) Provisional Accreditation (KSA)
Imdaad Facility Management	Provisional Accreditation

Source: Regulatory and Supervisory Bureau (RSB Dubai), SEEC

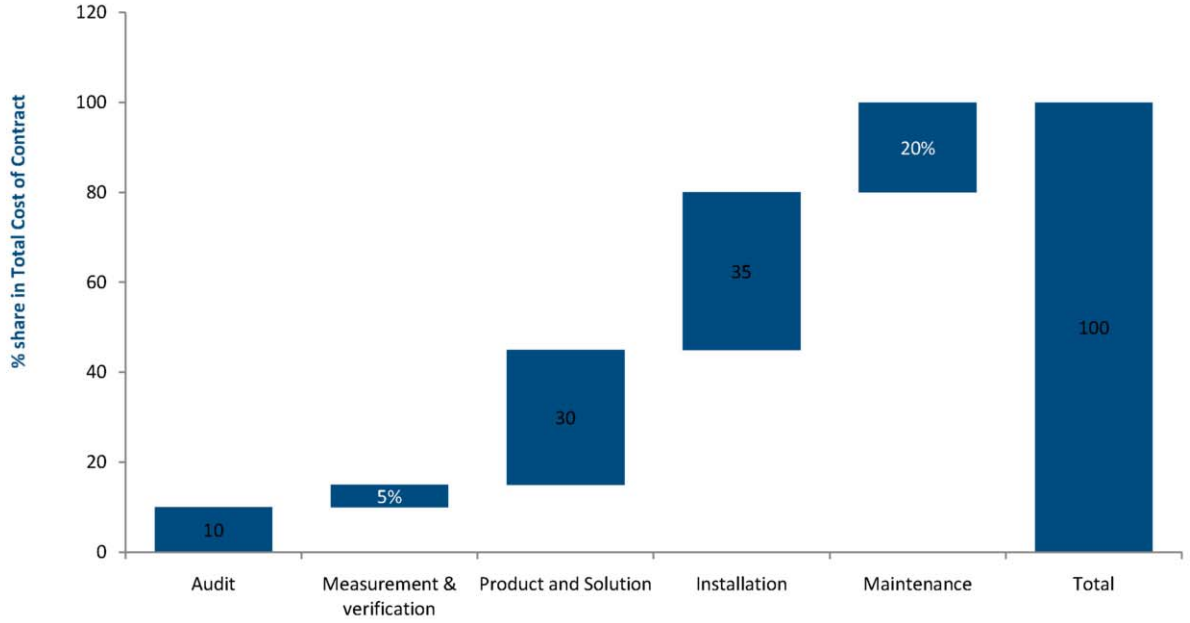
The energy performance contracting space for FM providers creates benefits that give these companies a competitive edge among other (non-FM) players in this market. One of the advantages for FM providers here is the thorough knowledge of their clients' assets that can be fully utilised to deliver EM services successfully. At the same time, existing short-term FM contracts can now become long-term FM+EM contracts owing to longevity of energy performance contracting. Last but not the least FM companies can deploy their resources more effectively when they deliver both, facilities and energy management services.

FM companies that are eager to enter the performance contracting market need to understand existing models for performance contracting. Guaranteed Savings and Shared Savings are two prevailing financing models currently. Both of these models have multiple stakeholders that include end user, ESCOs, and financial institutions. In some cases technology providers (OEMs) and government entities (ESCO regulators) could also be involved in the scheme.

Typically, performance contracts between owners and FM-ESCOs in the UAE and the KSA have five stages of cost elements. These cost elements are:

1. Audit
2. Measurement and Verification (M&V)
3. Product and Solution (software, hardware)
4. Installation of Energy Efficiency Products
5. Maintenance of Products and Solutions

Exhibit 6: Cost Breakdown of Typical Performance Contracting Project Contract



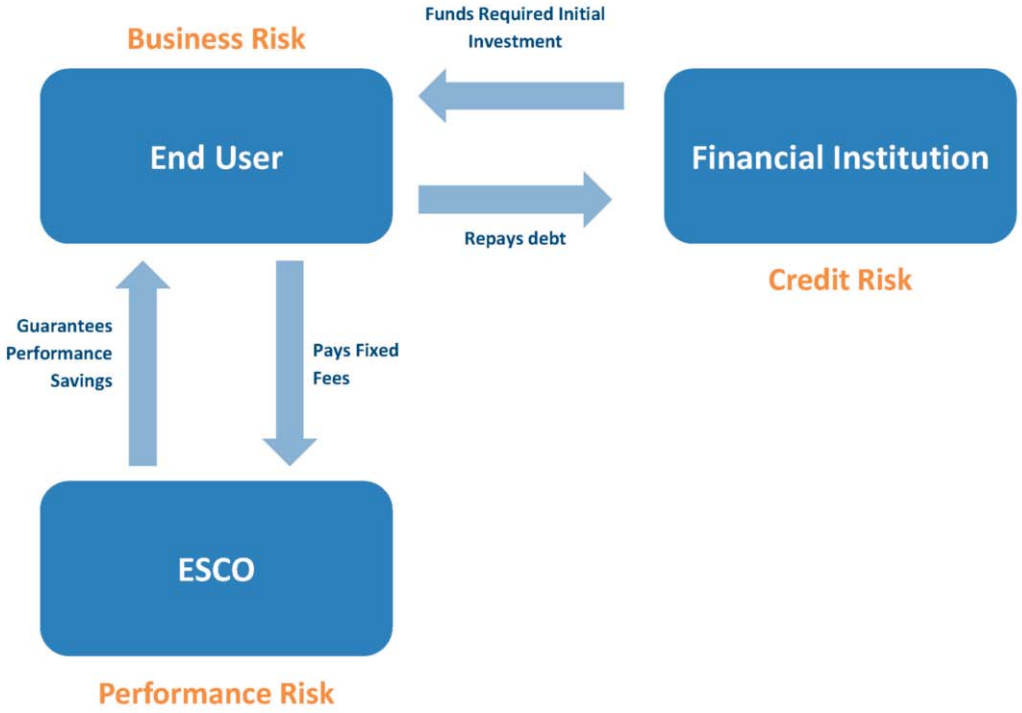
Source: Frost & Sullivan Analysis

Total cost of the performance contract is usually high. Cost breakdown in a typical contract is as follows: purchase, installation and maintenance of energy efficient products and solutions (i.e., LED lighting systems, software, controls and so forth) accounts for more than 85% of the overall contract cost. Audit cost is usually set between 10 to 15% annually. Because of the high cost, performance contracting has several stakeholders ranging from financial institutions to OEMs and energy service providers.

Guaranteed Savings and Shared Savings models are designed in a way that performance contracting projects can pay off the initial investment over a certain period of time. Savings are created through operational efficiencies. Based on end user's project needs and requirements, ESCOs (not regulator ESCOs) may provide full range of services that include but is not limited to arranging initial funding for the retrofit and/or upgrade of buildings. Depending on the agreement, ESCO takes on either the majority or partial risk that ranges from business to performance and credit risks.

With the guaranteed savings model, the end user provides either internal or external financing and the ESCO guarantees savings. The ESCO is paid a fixed fee if the guaranteed savings is achieved through upgrades, retrofits or effective maintenance. The length of the contract usually ranges from four to eight years. In this case, ESCO assumes the performance risk, while business and credit risks are assumed by end users and financial institutions, respectively (Exhibit 8). Guaranteed Savings model is more common than the Shared Savings one in the UAE and the KSA.

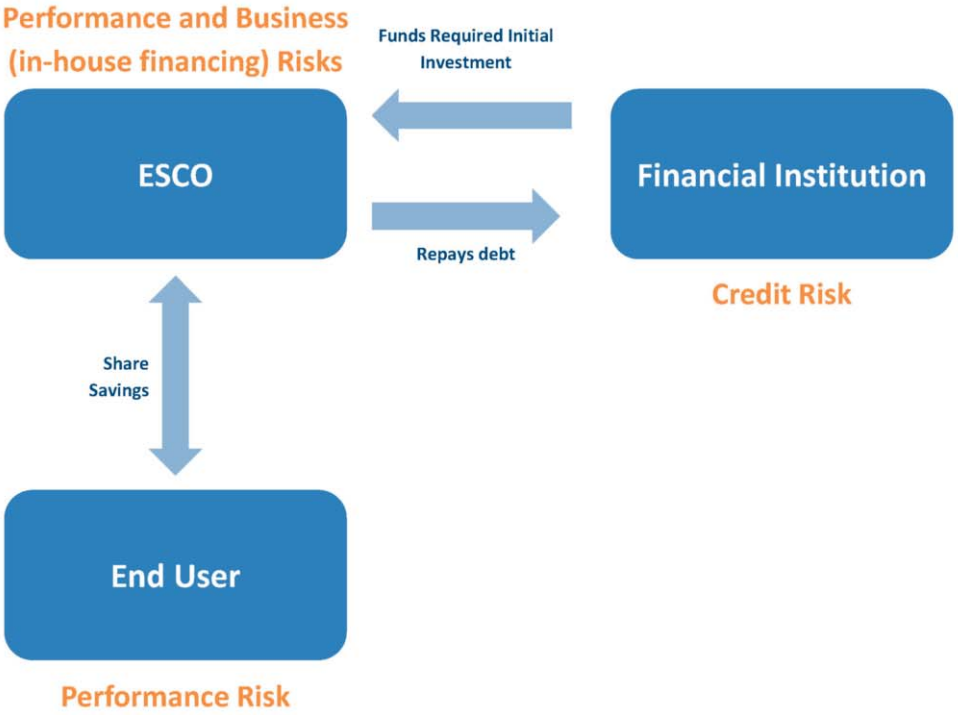
Exhibit 7: Guaranteed Savings Model



Source: Frost & Sullivan Analysis

Shared savings model requires that the ESCO provides financing through its in-house funds or a loan from a financial institution. The client and ESCO share savings based on a predetermined ratio. Contract terms usually run between 10 to 25 years because it takes longer for the investment to be recovered and majority of credit and performance risks is assumed by the ESCO. Because of higher exposure to risks, this model is not preferred in the market.

Exhibit 8: Shared Savings Model and Risk Exposure



Source: Frost & Sullivan Analysis

In Dubai, under the scope of building retrofitting programme, the mandate of facilitating access to project financing is granted to Etihad ESCO. Etihad ESCO that is also known as a Super ESCO establishes and organizes energy management market in the Emirate by removing entry barriers for energy service as well as FM service providers. Business model used by Super ESCO is shown in Figure XX.

Initial funds obtained through Etihad ESCO will be used for implementation of Energy Conservation Measures into the client's building. Loan will be covered with the savings generated though these measures. During the loan repayment period, facilities owner will have limited (typically 15%) or no share of the savings. However, when the loan is repaid, the end user will benefit from all the savings.

Having a regulator involved as a third party throughout the performance contracting project eliminates several challenges that could be encountered by stakeholders. For building owners, Super ESCO can provide a full package of services ranging from technical and economic know-how to fair selection of ESCO and project execution verifications. As for awarded ESCOs, Super ESCO eases relations with owners, manages issues between the parties and deals with Financial Institutions.

CONCLUSIONS

There is a massive potential for Energy Management in the GCC. The as-built infrastructure that can benefit from retrofitting is significantly high, facilitated by being relatively new and adequately sophisticated. Additionally, the planned construction for the region, for high-attractiveness segments like healthcare, education, mixed-use and hospitality, reflects a strong potential for implementing energy management even in the construction and planning phase. However, the region is not expected to achieve the stated / addressable potential, owing to the existence of several restraints:

1. **Electricity subsidies:** The region still reflects some of the highest subsidies for electricity that we have seen globally. In some cases, subsidies have actually increased in the recent past. This has a direct impact on deterring potential investors from going ahead with spend on energy management

2. **Awareness levels:** The awareness levels in the region are substantially low, especially on the measures that can be undertaken under the ambit of energy management, as well as the benefits and ROI that can be attained thereon. Unless these awareness levels increase, we can expect to see inadequate demand for energy management solutions

3. **Workforce:** Energy management requires a philosophy revolving around maximising the performance of assets and reducing their energy intensity.

A number of initiatives have already been implemented in the region, especially around the regulatory and financial sides. This will prove to be the launching pad that was critically required for the industry to move forward.

We believe that FM companies can play a vital role in this industry, and can derive significant gains as this market evolves. However, it requires comprehensive planning and research, for a FM company to prepare to operate in this industry. Managing longevity of contracts, a shift from a services model to an asset heavy model, and requirements for highly trained manpower are all aspects that will demand a redefinition of the way that FM companies are used to operating.

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