The growing trend of Energy Management:
A comparative study on Energy Management within the context of a Facilities Management scope

A report by Peter Fancy
The growing trend of Energy Management:
A comparative study on Energy Management within the context of a Facilities Management scope

Asset Owners and Building Operators have recognised the benefits of improving their building’s efficiency and environmental footprint - not just to meet the legislative requirements, but the financial benefits which are brought about through improved energy usage. With a significant level of FM outsourcing across the region, unless both the demand and supply sides are totally aligned and share a common ambition, the potential of realising such goals will not materialise.

Within the UAE, according to recent studies, a typical tower has the potential of energy savings of up to 65% which represents over 30% of building operating costs. Whilst the favourable opinion welcomes the idea of implementing energy efficiency measurements, there are concerns regarding the capital demands of any investments. There is a belief amongst asset owners that the benefits realised from reduced energy will not be captured, and specifically, any benefit of energy efficiency will be to the advantage of their tenants with little direct return to the building owner/ investor, and a failure to translate into improved rental yields.

Clients are aware of the challenges which are faced in achieving energy efficiency, and FMIs need to distinguish the difference between energy inefficiency (which tends to be maintenance and system lead), and energy waste (which tends to be user led). As region continues to expand, there is a greater level of ‘green work activity’ taking place within construction; new buildings are becoming more complex and incorporating new sophisticated technologies that drive energy efficiency and sustainability.

The EMS market is experiencing significant and unprecedented growth. The EMS Market Analysis Report (Grandview Research, 2015) identified the global EMS market was estimated at US$20.49 billion and energy management software is experiencing similar levels of growth. The significant growth is being attributed to the technological advancements, improved technologies and sensors which are expected to re-shape the future direction of the industry.

What is evident, is that where CMMS systems are correctly configured and utilised, and technical users have access to accurate data, there is a much greater understanding of the inter-relationship and interdependency of effective maintenance practices and effective energy utilisation, and the economic benefits that are brought to the operation.

This detailed and comprehensive market study has been undertaken to investigate and understand the requirements and expectations of the demand side (Asset Owners) and the capabilities of the supply side (Service Providers) to provide energy management services within the scope of FM, and how this new ‘addition’ to FM may affect the future direction of the market.

The research has practical implications across the industry by confirming the current maturity of the FM sector to incorporate energy management into its scope, but also assist in shaping future strategies, and for the market to respond and meet the demand side expectations.
Supply side: How would you describe the internal capabilities of your teams to:

a) Perform Detailed Reporting

The operation teams demonstrated a higher level of confidence in their capability to perform detailed reporting when compared to the Executives. The results show that 67% of the operations team considered they had a developed or expert capability, compared to 40% of the Executives and 40% of the Business Development team. The survey found that overall, 81% of the supply side team consider that they have an acceptable, developed or expert capability to perform detailed reporting whilst 19% of supply side respondents stated that they had no capabilities or limited capabilities.
b) Capability to identify low cost savings

60% of Executives and 61% of Operations team believe they have developed or expert capabilities to identify low cost savings compared to 40% of the development team and 100% of the Energy and sustainability team.

Across all of the teams, 84% believe that they have a level of capability which is acceptable or above, whilst 16% describe themselves as having no capability or limited capability.

c) Capability to establish a base line

40% of the Executives stated they have no capability or limited to establish a baseline, which is in contrast to the view of the Operations team who, 44% consider they have developed or expert capability. The Business Development teams are less confident, where 60% stated there is no capability or limited capability and only 20% believing there is developed or expert capability.

In relation to establishing a base line, the Operations team are much more confident than those from the Energy and Sustainability teams who all consider there to be an acceptable level of capability.

d) Capability to Maintain Operational Efficiency

Overall, 41% of all teams consider they have developed or expert capabilities to maintain operational efficiency, compared to 31% who consider they have an acceptable level of capability and 28% who consider themselves to have limited or no capability.

e) Perform economic analysis of energy saving initiatives, analysis of energy and payback

In relation to the supply sides capability to perform economic analysis of energy saving and payback, 31% considered they had either developed or expert capability, increasing to 72% when considering acceptable capability. Whilst 50% of the sustainability team considered there was either limited or no capability, the Business Development team were the least confident, across all disciplines.
In the past 24 months, has your company undertaken an energy audit?

Supply side question:
How well placed is your Company to provide the following activities to its Clients?

Demand side question:
In working with FM providers, how would you rate your general experience of FM companies and their ability to deliver the following scope?

a) Capability to perform detailed reporting

79% of the demand side consider that the supply side have either no capability or limited capability and 21% considering an acceptable level of capability, which is in contrast to the 81% of the supply side who consider they have an acceptable or above level of capability.

b) Capability to identify low cost savings

50% of the demand side consider that the supply side have a developed or expert capability, whilst 29% considered the supply side to have no/limited capability.

The supply side demonstrated a higher level of confidence in their capability where 59% considered they had a developed/expert capability, compared to 16% having no/limited capability.

Overall, when considering the experience of the demand side, CMAs, ESMs and Others in dealing with the supply side, 45% considered that the supply side had a developed/expert capability, whilst 35% stated no/limited capability, and 20% confirmed an acceptable level.
c) Capability to establish an energy baseline

93% of the respondents from the demand side respondents consider that the supply side has no capabilities or limited capabilities in establishing an energy baseline, whilst only 7% considered an acceptable level of capability. This is in contrast to 69% of the Supply Side stating their capabilities were acceptable, developed or expert.

![Capability to establish an Energy Baseline Graph](image1.png)

---

d) Capability to maintain operational efficiency of energy consuming equipment

Overall, when considering the experience of the demand side in dealing with the supply side, 50% stated that the supply side had no/limited capability and the other 50% experiencing an acceptable level of capability. There were no respondents who considered that the supply side had developed or expert capabilities.

From the supply side's perspective, 28% considered themselves as having no/limited capability, 31% describing their capability as acceptable, and 41% having developed/expert capability.

When considering the measurements of an acceptable level of capability or above, 72% of the supply side consider themselves to fall in to these categories, compared to 50% of the other combined groups.

![Capability to maintain operational efficiency Graph](image2.png)

---

e) Provide economic analysis of energy-saving initiatives, analysis of energy costs and payback

All of the respondents from the demand side, ESMs and Others all considered their experience in dealing with the supply side as either having no capabilities or limited capabilities to perform detailed economic analysis of energy management, whilst the C/MA's had a more positive experience.

The supply side responded with 34% describing their capabilities as developed/expert, 28% as being acceptable and 38% as no/limited capabilities.

![Provide economic analysis of energy-saving initiatives Graph](image3.png)

---

Within the scope of FM, which of the following do you expect to be provide as part of an FM scope

From all of the responses received, overall 60% of the responses were attributed to the top three; monitoring and simple reporting, retrofitting of low value items and site based energy monitoring.

The supply side had a much greater expectation of the inclusion of elements of energy management to be included in their scope of work than the demand side.

![Within the scope of FM, which of the following do you expect to be provide as part of an FM scope Graph](image4.png)
How would you rate the following statements?

a) FM Service providers have a significant influence on the energy usage within a building.

In considering all responses, 54% agree or strongly agree with the statement that that FM companies have a significant influence on the energy usage within a building.

b) Auditing and reporting of energy performance are important aspects of a FM scope

The question was answered by all survey participants and it was clear that auditing and reporting of energy performance are an important aspect of a FM scope.

c) Qualified Energy professionals are required to successfully provide energy services

There was generally a broad census of agreement that qualified energy professionals are required to successfully deliver energy services. However, the study also found that this needn't be site based.

d) Predictive maintenance is a requirement to achieving energy efficiency

71% of the Demand Side, 81% of the Supply Side (79% combined) either strongly agree or agree with the statement, whilst across all groups, 12% of respondents neither agree or disagree with the statement.
e) Utility bills are the main basis for making energy management decisions

When analysing the data across all groups, it shows that 24% disagreed or strongly disagree, and 31% responded to neither agreed or disagree with the statement, indicating that less than half of the respondents (45%) would be in agreement with the statement.

How would you describe your company’s current & future strategic intent in relation to energy management?

In analysing the data, and specifically the level of strategic importance, 47% of the supply side and 64% of the demand side considered energy management to be currently strategically important, compared to 33% of the CMAs. Some 10% of respondents consider that energy management was not currently of strategic importance to their business. Although 51% of respondents state that energy management is currently strategically important, only 7% of the demand side intend to seek formal accreditation compared to 16% of the supply side.

The analysis indicates that 67% of the CMAs are less likely to change their current model yet 33% intent to provide an energy risk model within their scope. However, from the analysis of other data within the survey, it can be concluded that the CMAs will not accept the financial commitments associated with energy management.

Whilst 21% of the demand side do not intend to change their current service model, the remaining 79% do intend to develop their capabilities in some way. It is evident that the supply side will improve and change their strategic position in relation to energy management as 100% of this group confirmed their intent to improve their capabilities in the future.

Considering the Client-side requirement, how would you rate the following statements:

a) Facilities Management are well placed to support the drive for reducing energy consumption

72% of the supply side agreed/strongly agreed with the statement compared to 57% of the demand side, whereas 6% of the supply side and 21% of the demand side disagreed with the statement. Of all respondents 67% either agree or strongly agree with the statement, whilst only 12% disagree with the statement.
b) FM companies have the existing capabilities to drive reductions in energy consumption

65% of the supply side strongly agreed or agree with the statement that FM companies have the existing capabilities to drive reductions in energy consumption, compared to 70% of the demand side who either strongly disagree or disagree with the statement, highlighting the gap in the confidence levels between the two groups.

c) FM companies need to improve and develop their energy management capabilities

64% of the demand side considered that FM companies need to improve and develop their energy management capabilities, whereas the supply side (38%) considered this to be less of a concern. Overall, 6% of all respondents stated that they disagree or strongly disagree with the statement, whilst nearly half the respondents (48%) consider that they either strongly agree or agree, indicating that FM Companies need to improve and develop their energy management capabilities.

From an Asset Owners perspective, when purchasing a capital asset, how important are the following in the purchasing decision? (Defined as extremely or very important)

- 92% of the respondents consider Capital Costs as either extremely important or very important in their purchasing decisions.
- 90% of the respondents consider equipment efficiency as an important aspect of their purchasing decision.
- 82% of the respondents consider Payback as either extremely important or very important in their purchasing decision, whilst 21% of the Demand Side and 16% of the Supply Side were neutral.
- Both the demand and supply side consider Life Cycle costs as either extremely important or very important in their purchasing decision (86% & 90%), whilst the equipment suppliers were split 50:50 between extremely important and neutral.
- Overall although 62% of respondents considered Brand Reputation as extremely/very important it was rated as lower compared to the other areas. Considering the ESMs represented the system manufactures, none of the respondents from this group considered brand reputation as extremely important and only 50% as being important.
- 46% of the respondents considered like for like replacement as extremely important or very important in their purchasing decisions. The Supply Side places greater importance on like for like replacement than the Demand Side, which showed a result of 50% and 36% respectively against the measurements of extremely important or very important.
From a leadership perspective, who should take the lead in maximising the energy drivers and system efficiency?

When asked, ‘Who is responsible for the leadership in energy management’, 50% of the supply side considered there was equal shared responsibility compared to 21% on the demand side. Across all of the groups 42% considered there was shared responsibility, compared to 25% who believe leadership should be Client lead and 33% who stated this should be Service Provider lead.

Given the role and influence of the Board in establishing policies and strategic direction, and the responsibility of the senior management team in the execution of such decisions, a further analysis was undertaken on the supply side respondents to understand if the leadership of EM differs between the position of the respondent and the departmental discipline. The results indicate that within supply side organisations, there is a different standpoint on responsibility depending upon the position of the respondent.
Summary

This research concludes that given the diversity of facilities management and the emergence of energy management within FM, although there is an understanding and commitment to the sustainability agenda through energy management, there is a gap between the level of capability considered by the Supply Side, and the experience received on the Demand Side.

The evidence indicates that the Demand Side is requiring more from the Supply Side, and the indicators showing there is much more to be gained. The true ‘EM in FM’ definition is still being discovered and has not yet been fully established or defined by the FM industry. As a first step, there is a need for EM within FM to have its own ‘industry acknowledged definition’ which defines the boundaries of expectation, as oppose to trying to achieve the high complexities the energy management industry.

However, given the operational engagement of FMs, the incorporation of new technologies and new green construction, it will eventually require FM organisations to further embrace EM and sustainability, and realign their internal structures accordingly to effectively support the new market demands. The role of the future FM is likely to be ‘data driven’, and there is clear evidence which shows the need to develop a detailed understanding of how to interpret data and the management of information.

The evidence indicates that although there is significant awareness of energy management within the context of FM, (although the understanding varies), until the boundaries are drawn, the push-pull and a lack of shared ownership and responsibility may remain.

It is accepted that there is a clear connection between FM & EM, and in order to successfully deliver EM within the FM scope, it should not be treated as just a ‘natural extension’ to the maintenance capabilities of an existing team, but requires new skills and learning specifically in relation to energy and sustainability. What is evident, is that whilst both the Demand and Supply Side intend to develop and improve their future capabilities in some way, unless both parties become more aligned, EM within an FM scope may progress at a two different speeds.

Research Methodology

A self-administered online questionnaire was circulated consisting of 14 core questions, of which 5 contained sub questions, resulting in a total 39 questions being asked across all of the groups.

The questionnaire used three formats for the responses: 1) ‘single selection’ questions, where the respondent choose a response from a list of options provided, 2) 3 point and 5 point Likert Scale questions, and 3), multiple choice questions where the respondent was invited to tick all which may apply.

Given the different groups which were invited to participate in the survey, certain questions were more relevant to some groups than others. Although a single questionnaire was circulated, the respondents were routed depending upon their answer to the first question, which asked whether they were Client Side/End user (Demand Side); Facilities Management Company (Supply Side); Consultant/Managing Agent; Equipment/Product/Systems Manufacturer of FM/EM related products; or Others.

In total 218 participants responded to the survey questionnaire.
About the author

Peter Fancy has been working in FM for over 20 years and has developed a deep understanding of the many facets of FM, delivering FM solutions to private and public organisations, including Healthcare, Educational, Retail, Hotels and Leisure, Airports, Nuclear, Pharm and Manufacturing.

With a Masters in Facilities Management and a Certified Member of the British Institute of Facilities Management, Peter provides thought leadership in the development and delivery of strategic outsourcing solutions, bringing value-add thinking and cost savings to his clients.

His approach extends beyond the tactical delivery of FM, and reaches into CRE, Energy Management, and working with new construction projects, effecting handovers that connects construction to the ongoing operational FM environment.

Key References


