April 6: 9-11 am (virtual technical workshop)
How to address sustainability performance of an operating building & focus on Energy and IEQ?
Francisco Ramalheira – Business Development & Marketing Director
Agenda

Part 1: 9:00-10:00 am (15min each)
1. Introduction
2. Focus on end-user with added IEQ/IAQ services
3. Deep building retrofit (with EPC model)
4. Adding Renewable Energy to the EPC scope

Part 2: 10:00-10:20 am
Q&A as per received questions through Question function

Part 3: 10:20-11:00 am
1. Brainstorming Session on sustainability drivers & barriers
2. Wrap-up of webinar
Introduction

Going beyond a conventional FM contract scope
How to enhance the FM scope to an integrated & holistic offer

**Indoor Environmental Quality**

- **Indoor Air Quality (IAQ):**
  - ✓ CO2 levels
  - ✓ Hygrometric conditions
  - ✓ Pollutants (VOC, PM, …)

- **Lighting:**
  - ✓ Lighting levels
  - ✓ Lighting quality

- **Other factors:**
  - ✓ Noise level
  - ✓ Visual comfort

**Energy Performance Contracts**

- Energy Bill
- Maintenance Costs
- Net Savings
- Investments
- Monitoring
- Maintenance Costs

**Renewable Energy**

1. Feasibility study
2. System design
3. Project development
4. Operations & Maintenance
5. Recycling of solar panels

**CLIENT EXPECTATIONS**

SUSTAINABILITY // AVAILABILITY // EFFICIENCY
Advantages of a strategic partnership with an integrated & holistic offer

- **Technical know-how**
  - Technically sound, replicable and industrialized solutions

- **Value creation**
  - Access to project financing which fosters the economy as a whole through value creation

- **Sustainability**
  - Continuous improvement through a wide range of solutions addressing economical, social and environmental performance
Chapter 1

Focus on end-user with added IEQ/IAQ services
End-user focus: Indoor Environmental Quality (IEQ) optimization

- **Indoor Air Quality (IAQ):**
  - ✓ CO2 levels
  - ✓ Hygrometric conditions
  - ✓ Pollutants (VOC, PM, …)

- **Lighting:**
  - ✓ Lighting levels
  - ✓ Lighting quality

- **Other factors:**
  - ✓ Noise level
  - ✓ Visual comfort

“MENA residents spend up to 90% of their time indoors.”
Poll question:
Which IEQ solutions are most valuable to building owners?

Poll answer options:
• Indoor Air Quality
• Lighting/Odor/Noise Management
• All of the above
• None of the above
Indoor Air Quality Models: MENA Success Stories

Pilot 1: Sheraton, Mall of the Emirates (2017)

Approach: ongoing monitoring & adaptation
+ reactive and flexible
+ holistic approach
- higher preparation time, initial investment needed
> best for: constantly unpredictably changing environments, such as hotels or malls

Pilot 2: VOX Cinema, City Centre Deira (2019)

Approach: audit-implementation-audit
+ fast turn-around
+ cost-efficient, quick ROI
- one-off action, potentially need to be repeated
> best for: controlled environment with predictable occupation, such as cinemas, school auditoriums
Indoor Air Quality Journey
Poll question:
Could IEQ/IAQ solutions be a driver for outsourcing FM to a specialized expert?

Poll answer options:
• Yes
• No
• Maybe
Chapter 2
Deep building retrofit (with EPC model)
Energy Performance Contract (EPC): the concept

Before contract (baseline)
- Energy Bill
- Maintenance Costs

During contract (commitment)
- Energy Bill
- Net Savings
- Monitoring
- Investments
- Maintenance Costs

Typical contract terms are between three to six years

Investment by ESCO
- Level of guarantee +

Investment by customer

1. Before contract (baseline)
2. During contract (commitment)
3. Investment by customer
4. Investment by ESCO
Energy Performance Contract (EPC): the models

**Shared Savings Model**

- **Customer**
- **ESCO**
- **Project Services**
  - Savings Guarantee
- **Lender / Investor**
  - 100% funding

**Guaranteed Savings**

- **Customer**
- **Savings Guarantee**
- **ESCO**
- **Fixed repayment schedule**
- **Lender / Investor**
  - Credit risk

Usually, the guarantee covers the cost of energy saved. The cost savings are split over the length of time. There is no ‘standard’ split as it depends on the cost of the project, the length of the contract and the risks taken by the ESCO and the customer.

The guarantee is over the level of energy saved. During the contract, the ESCO shields the client from any performance risk. However the credit risk will remain with the client as the project lending has been secured by the customer.
Energy Performance Contract (EPC): the models

**Shared Savings**
- Investment – Enova
- Mechanism – Bank or alternative financing
- ROI – Monthly set amount from Client
- Pros:
  - No capital investment by customer
- Cons:
  - Annual financing fee for utilizing Enova (banks funds)
  - Increases payback period due to extra cost
  - Loan sitting on Enova’s balance sheet

**Guaranteed Savings**
- Investment – Customer
- Mechanism – Upfront payment (similar to p6)
- ROI – Through savings, Hubgrade monitored
- Pros:
  - Cost effective for the customer
  - If savings not met Enova pays difference
  - Additional savings about guarantee are shared 50/50
- Cons:
  - Availability of $$$
Poll question:

What are the main barriers for building owners to commit to an EPC?

Poll answer options:

- lack of knowledge about EPC models
- scared of investment
- don’t see added value
- no pressure/incentives to become more sustainable
- not enough energy services companies available
- other
EPC boost through governmental ESCO programs

2014
ESCO accreditation
UAE - Dubai
- First Etihad ESCO Retrofit Project for DEWA
- Etihad ESCO Retrofit Project for JAFZA

2017
ESCO accreditation
UAE - Sharjah

2018
ESCO accreditation
UAE - RAK
- first Retrofit Project with RAK Municipality
ESCO accreditation
KSA
- first Tarshid Retrofit Project for SASO

2019/20
- first DOE Retrofit Project for ADWEA
MENA Success Stories

RAK Municipality, UAE (2018)
- First ever retrofit project awarded in RAK
- 10,000 sqm of occupied building space
- 31.3% guaranteed energy & water savings
- 12 different ECMs implemented

SASO, KSA (2020)
- First ever retrofit project awarded by Tarshid
- 11 buildings retrofitted
- Over 30% of guaranteed energy reduction
- Saved carbon emissions equivalent to 1000 passenger vehicles driven for a full year
Energy Performance Contract (EPC): the journey

ENERGY AUDIT

Field measurements → Baseline establishment → ECMs identification

GUARANTEED SAVINGS

Operation & maintenance → Measurement & Verification → ECMs implementation

WORKS

ECMs implementation → CAPEX investment → EPC signing
Types of Energy Conservation Measures (ECMs)

**Capex-intense ECMs**
High energy savings can be achieved through the retrofit or implementation of ECMs on some key assets in a building. These ECMs require an investment that will be paid back depending on the level of generated savings.
- Replacement of conventional lighting with LEDs
- Installation of water saving devices
- Replacement of chillers/pumps

**Connection to Hubgrade**
Enova’s global hypervision platform enables the team of experts to:
- Collect, monitor, analyze and control energy, water and waste flows;
- Give full transparency and traceability;
- Identify areas of optimization and predictive maintenance.

**Zero Capex**
These fully digital ECMs are also powered by Hubgrade. Once the system is set-up, energy savings can be achieved without any investment cost. The savings pay for the performance. This new approach is being pioneering by Enova with pilots conducted in 2020/21.

**Renewable energy as booster**
While the ROI on on-site solar PV plants is often seen as a barrier, the added value is immense as the panels generate power and therefore savings on the long-term. In addition, they are a nice-looking refurbishment for dusty carports that make parkings more attractive while raising sustainability awareness of occupants and visitors.
How can the EPC programs be better promoted for higher interest and implementation?

- Governments to communicate more about EPCs
- Governments to incentivize EPCs
- Press/magazines to cover more EPC topics and success stories (also in mainstream media)
- ESCO companies to communicate more about EPCs in the media & on Social Media
- ESCO companies to reach out directly to building owners to arrange awareness sessions
- Other
Going beyond the Energy Performance Contract

Additional Opportunities:

• **Looking at the bigger picture**
  ➢ Tailor-made solutions based on the client’s and its customers’ needs and requirements
  ➢ Focus on end-user comfort and well-being
  ➢ Holistic and integrated approach for the long-term

• **Going digital and smart**
  ➢ Transparent real-time information for optimized O&M and increased client and end-user awareness
  ➢ Access to information at any time and anywhere
  ➢ Smart tools & solutions for additional efficiency and safety

• **Adding renewable energy to the mix**
  ➢ Bring EPC to next level with energy generation in addition to ECMs and energy efficiency
  ➢ Proactive solution to prevent impact of increased energy prices
Chapter 3
Adding Renewable Energy to the EPC scope
Tailored business models

**Solar PV plant ownership**
The client covers the full investment necessary for the Design Build and Operation (DBO) of the solar PV plant, and is therefore the owner of the solar facilities and the energy produced.

**Solar lease**
The client pays installments to Enova for the DBO of the solar PV plant, and becomes the owner of the facilities at the end of the Energy Performance Contract.

**Power Purchase Agreement**
Enova owns and operates the facilities, and sells the energy produced at a discounted price from the existing tariff to its client.
Poll question:
What are the main barriers preventing building owners from committing to on-site Solar PV plants?

Poll answer options:
• lack of knowledge
• lack of suitable space
• scared of investment
• don't see added value
• no incentive/pressure to become more sustainable
• Energy price too cheap to look into alternatives
• prefer to wait for technology to become cheaper
• other
Regional Solar Success Stories: 4 malls across Egypt (2019-20)
[Poll 6]
What could help propel openness for Solar solutions?

• Financial incentives by the government
• Change in energy cost
• Business models that take away initial investment cost
• More awareness of success stories in the region on Social Media
• More awareness of success stories in the region in press
• Directly contacting building owners with suitable space for on-site Solar PV plants
• other
Open Brainstorming Session

Sustainability in MENA: What’s going well and what’s blocking the development?

• Session 1: Drivers (2 min + vote)

>> submit your ideas as Questions
What is moving sustainability in MENA forward?

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Open Brainstorming Session

Sustainability in MENA: What’s going well and what’s blocking the development?

• Session 2: Barriers (2 min + vote)

>> submit your ideas as Questions
### What is slowing sustainability in MENA down?

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<tr>
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<th>Description</th>
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<tr>
<td><strong>Topic 1</strong></td>
<td>Awareness of the clients and general public of the green building industry.</td>
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<td><strong>Topic 2</strong></td>
<td>Importance/Awareness of role of buildings on GHG.</td>
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<td><strong>Topic 3</strong></td>
<td>Lack of incentives</td>
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<td><strong>Topic 4</strong></td>
<td>Limited regulations related to improving buildings performance.</td>
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<td><strong>Topic 5</strong></td>
<td>Low cost of energy/water</td>
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<td><strong>Topic 6</strong></td>
<td>Lack of technical knowledge/expertise</td>
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<td><strong>Topic 7</strong></td>
<td>Limited natural resources</td>
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<td><strong>Topic 8</strong></td>
<td>Lack of existing building rating schemes/building performance</td>
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Thank You!

Francisco Ramalheira – Business Development & Marketing Director