Towards Energy Efficient Industries in Dubai

Panel Discussion

7th of November 2017
Panelist Profile: Ali Mohammed Al Jassim

NAME
ALI MOHAMMED AL JASSIM

POSITION
CEO

ORGANIZATION
Etihad Energy Services Company

Work Experience

- 21 years of experience in leading roles delivering programs and projects
- Ali is leading Etihad - The Super ESCO in the Emirates of Dubai, which will help Dubai to make one of the most sustainable cities and a leading example of energy efficiency for the region and the world
- Previous roles include top positions in both public and private sector entities such as Head of Follow-up and Development Office at the Dubai Municipality, Acting CEO & Director of Drivers Licensing at RTA and General Manager of Qeyadah Driving Solutions

Education

- PhD in Business Management, MBA with Honours, Bachelor of Science in Civil Engineering
Panelist Profile: Mohammad Ali Al Kamali

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<tr>
<th>NAME</th>
<th>MOHAMMAD ALI AL KAMALI</th>
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<tr>
<td>POSITION</td>
<td>Deputy CEO</td>
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<td>ORGANIZATION</td>
<td>Dubai Exports</td>
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**Work Experience**
- Over a decade of senior level experience in International Marketing, Trade Promotion as well an experience of policy building across the government
- Major local and federal role in joint committees on international level, as well as leading policies within the central Government of Dubai
- Appointed as Vice President of the Arab Union for Industrial Exports Development (AUIED) - Egypt
- Member on no less than 14 joint committee between UAE and other countries, and heading several committees internally at the DED and part of the Dubai 2021 Plan team

**Education**
- Bachelor Degree and Higher Diploma in Business Administration, HCT UAE
- Master Degree in International Relations & Diplomacy, Lancaster University
- Expert in Public Policy, LSE
Panelist Profile: Christos Mimikopoulos

NAME
CHRISTOS MIMIKOPOULOS

POSITION
Executive Director

ORGANIZATION
Etihad Solar

Work Experience
- As Executive Director for Etihad Solar, Christos Mimikopoulos is responsible for developing the company’s Solar Energy division with focus on business strategy, financial performance, commercial operations, project financing, and project implementation.
- Prior to joining Etihad, Christos worked for Sunedison and built the Company’s presence in various markets, including the Middle East region, as well as Cypress Semiconductor Corporation, a California based high-tech company.

Education
- MBA from Walter Haas School of Business, University of California at Berkley, Diploma in Mechanical Engineering from the National Technical University of Athens, Greece.
Panelist Profile: Armando Dominioni

Work Experience
- Armando Dominioni is Senior Manager Regulation at Dubai Water and Electricity Authority, where he leads the Regulation Department. He has been supervising the launch and implementation of the Shams Dubai initiative (distributed PV generation)
- Prior to joining DEWA, Armando spent 10 years at McKinsey & Company. He worked on power sector engagements across Europe, Middle East, Africa and South East Asia, spanning the entire value chain and with main functional focus on strategy and regulation

Education
- Armando holds a Master in Economics from the Université Catholique de Louvain, and graduated in Economics and Business Studies at Università Cattolica, Milan, where he was awarded the Agostino Gemelli prize for best graduate
Panelist Profile: Vinesh Bhimani

Work Experience

- Vinesh started Kimoha in 1988 for paper converting, label manufacturing and Auto ID Data solution Products at JAFZA, Dubai, and has grown into Technologically the Best, Gold LEED Certified Manufacturing Establishment with a team of 300 members with products reaching more than 50 countries.

- Kimoha has won prestigious awards such as Dubai SME Award (two times in sequence), Dubai CSR Award (4 times in sequence), Green Building Award from Green Middle East Awards for Environmental Excellence - Sharjah in 2012 to name a few

Education

- Degree in Commerce and Business Management
Moderator Profile

NAME
AREF ABOUZAHR

POSITION
Executive Director

ORGANIZATION
TAQATI - Dubai Energy Efficiency Program

Work Experience
- Energy, Water, and Utilities expert with 19 years of North American, EU and GCC in management consulting, OEM, new business setup and stakeholder management within the conventional and renewable energy sector, Demand Side Management and Energy Efficiency
- Previous roles include key executive management and senior advisory roles within the public and private sectors at General Electric, Ernst & Young, A.T Kearney, ITT, Executive Council of Abu Dhabi

Education
- MBA from University of Texas, Post-MBA from McGill, Canada, and BE from the American University of Beirut
Dubai Industrial Strategy 2030 and Dubai DSM Strategy 2030

**Dubai Industrial Strategy**
- Growth Engine
  - Increase total GDP and value-added of manufacturing
- Innovation Based
  - Enhance depth of knowledge and innovation
- Home for Global Businesses
  - Become the preferred manufacturing platform for global businesses
- Adopting Islamic Standards
  - Become a center for the global Islamic products market

**Dubai DSM Strategy 2030**

- Environmentally Sustainable
  - Promote environmentally-friendly and energy efficient manufacturing

30% by 2030

Graph showing percentage targets with countries represented: UK, France, Germany.
Industrial Sector Contribution to GHG Emissions in Dubai

- Industry: 30%
- Energy: 39%
- Waste: 12%
- Road Transp.: 19%

Source: The Executive Council of Dubai
The DSM strategy comprises 8 main programs, supported by 8 implementation mechanisms.

1. Building regulation
2. Building retrofits
3. District cooling
4. Standards & labels
5. Water reuse and efficient irrigation
6. Outdoor lighting
7. Tariff rates
8. Shams Dubai

Dubai to become a role model in energy efficiency by implementing cost-effective electricity and water demand saving measures and developing a green service market.
1 Retrofitting as a Tool for Energy Efficiency
Demand Side Management Strategy - Retrofit Program Key 2030 Targets

1.7 TWh
of Electricity to be saved annually by 2030

5.6 Billion IG
of Water to be saved annually by 2030

1 Million Tons
of CO₂ to be abated annually by 2030

30,000 Bldgs
Cumulative number of buildings retrofitted by 2030
Target Areas for Energy Conservation Measures

- Cooling Retrofits
- Lighting Retrofits
- Water Fixture Retrofits
- Building Envelope and Other Retrofits

Potential Savings on your electricity and water bill

20 - 70%

(depending on several factors)
Process of Engaging the Industrial Sector Clients

DEVELOPMENT PHASE
- MOU Signature
- Data Collection
- Preliminary Analysis
- Project Planning
- Agreement Signature

RETROFITTING PHASE
- Retrofit Tendering
- Contract Negotiation
- Financing Arrangement
- Contract Signature
- Project Execution

GUARANTEED SAVING PHASE
- Preventive Maintenance
- Corrective Maintenance
- M&amp;V Activity
- M&amp;V Reporting
- Saving Realization
## Retrofit Program Accomplishments

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<tr>
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<th>EoY 2016 Target</th>
<th>EoY 2016 Actual</th>
<th>EoY 2017 Target</th>
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<tbody>
<tr>
<td><strong>Electricity Savings</strong> (Annual GWh)</td>
<td>31</td>
<td>88</td>
<td>75</td>
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<tr>
<td><strong>Water Savings</strong> (Annual MIG)</td>
<td>109</td>
<td>246</td>
<td>262</td>
</tr>
<tr>
<td><strong>Cost Savings</strong> (Annual Million AED)</td>
<td>20</td>
<td>52</td>
<td>47</td>
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Source: 2016 data - DSM Annual Report 2016; Etihad ES (Lighting Fixtures); 2017 targets from DSM Savings model and
Etihad Retrofit Project Showcase - DEWA Power Station

- Retrofit of DEWA Power Station
- Project Value ~ AED 93 Million
- Retrofit Scope ~ 70,000 LED Lights
- Project divided into 3 Phases

- Savings: 70%
- AED Savings: ~ 21 mil/year
- Contract: 5 years
- Payback Time: < 5 years

- 47 GWh/year savings
2  Going the Extra Mile with Solar Rooftops
Potential of the Solar Rooftop in Dubai based on private market study

Shams Dubai Pipeline and Market Opportunity

(1) Source: Based on a study by Yellow Door and estimations of other Solar developers
(2) Opex savings were calculated based on energy savings at source assuming a loss factor = 0.95

Potential demand offset of 1.5 GW would mean:

**OPEX Savings = 400 Million AED/annum**

**21,000 Million St. cubic feet/annum**
Distributed Solar Net Metering Scheme

Conventional Energy

Receive Energy
Pay Your Bill

Conventional and Solar Energy

Receive Energy
Generate Energy
Pay a **LOWER** Bill
Etihad Solar fosters Distributed Solar Market Development

Before

Customers

Utility bill

Feasibility

Shams Dubai project

Prosumer

Utility bill

Savings

Financing

Installation

Servicing

Etihad Solar
Shams Dubai Permitting and Connection Process

Shams Dubai Permitting and Connection Stages

1. Submit NOC application/
building modification application

2. Study impact of solar DRRG connection on network

3. Prepare PV design and submit application

4. Review PV Design

4.A Complete structural assessment

5. Complete PV installation and apply for inspection

6. Pay connection fee to DEWA and sign connection agreement

7. Inspect & Supervise testing without interconnection

7.A Complete mechanical inspection

7.B Complete inspection & release confirmation*

8. Complete testing with interconnect & release confirmation*

*S For systems with capacity of 100 kW or greater, a performance test phase of about 2 weeks is required before releasing confirmation.
3 Helping Dubai’s Industrial Sector Get Solar and Become More Efficient
Etihad Industrial Retrofit Program - A Program Specifically Designed for Dubai’s Industrial Sector

**HOW DOES IT WORK?**

**WORK EFFICIENTLY**
You focus on running your business, we help you save money on your utility bill.

**WE’VE GOT YOU COVERED**
Zero down payment. We finance everything to keep your capital investment at zero.

**PAYBACK, HASSLE FREE**
Savings generated from the project will payback the investment made over a limited number of years.

**THE PROCESS**

1. **Service Level Agreement**
2. **Financing**
3. **Payment Through DEWA Bill**
4. **Repayments**

**PAYMENTS**
- Audit & Consulting
- Tendering & Bid Negotiation
- Project Management
- M&V of Savings

**Specialized Technical Contractors**
**ESCOs**
**Solar Installers**

- Retrofit Existing Equipment
- Self Power Generation

Client

Financial Institution

Retrofit Work
Savings Guarantee
Key Benefits of working with Etihad ES

- **Etihad ES as a one stop shop for full management & execution of energy audits, retrofits and solar**
- **Zero down payment**
- **On-bill payment through DEWA**
- **Average payback period of 5 years**
- **Guaranteed savings agreement**
4 Success Stories
1.0143 MW (as of May 2017)

1,606 MWh per Year

AED 4 Million

844 MWh (end of October 2017)
KIMOHA Solar Plant - Challenges and Solutions

Feasibility

- No challenges (thanks to DEWA support and efficient coordination with contractors)

Financing

- Sand storms, extreme humidity, extreme heat

Installation

- Robotic dry cleaning on a test basis

Operations & Maintenance

- Daily data monitoring of generation to identify and proactively resolve issues
KIMOHA - Other Green Initiatives

- **Gold LEED Certified** by US Green Building Council

- Installation of **motion and occupancy sensors** resulting in 23% energy savings

- Use of **natural sunlight** in warehouse and replacement of **CFL lights** by **LED** resulting in 50% energy savings

- Use of **AC drain water for plant irrigation**

- Installation of **waterless urinals** to save water
5 Green Industries Awards Scheme
Dubai Green Industrial Award

- Energy consumption, in Dubai, has doubled in the decade ending 2014 and is expected to increase by 5% per year on a compounded basis.

- Energy consumption will increase further due to increased exports and the implementation of the Dubai Industrial Strategy.

- The UAE currently has the world’s highest per capita energy consumption at approximately 8,000 kgoe

- The UAE is a signatory to the Paris Agreement and the UN Social Development Goals which require a reduction in emissions and move to cleaner energy.

- Energy conservation can assist companies increase their profits by between 2% to 10% per year.

- This seeks to encourage companies to become more energy efficient through an award system that recognizes the initiatives that the firms have made.
Thank You