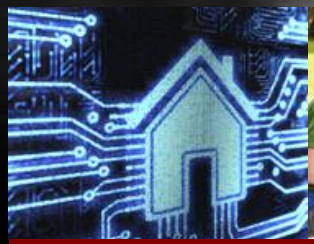
Connected Living



Smart Cities

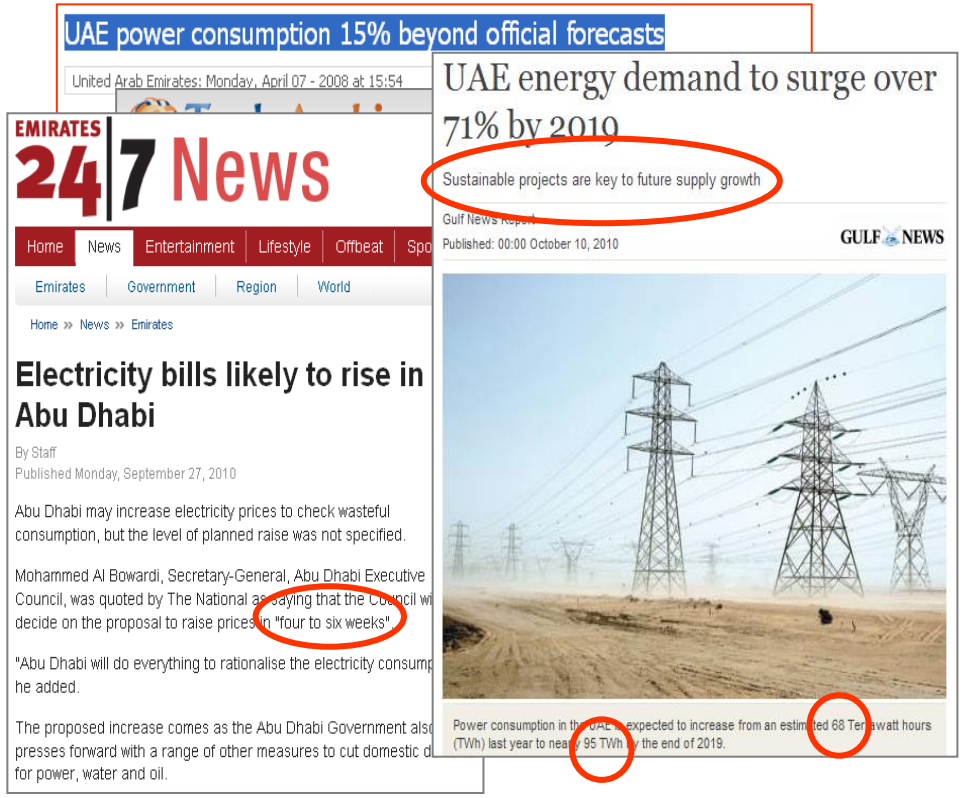
Dubai – Managed M2M Energy Programme

Connected Living Summit, Shanghai, 26 June 2013

Dubai – Background to Smart Energy

- **Dubai ranked the largest wasteful city of energy in the world in 2007**

- Government decree to address the situation
- Buildings were seen as a top target for energy conservation
- Buildings have GSM Connectivity for Fire and Security reasons
- Led by Mobile Operator – Etisalat with Pacific Controls and Government Departments
- Sensor network to link all energy controls and monitoring systems

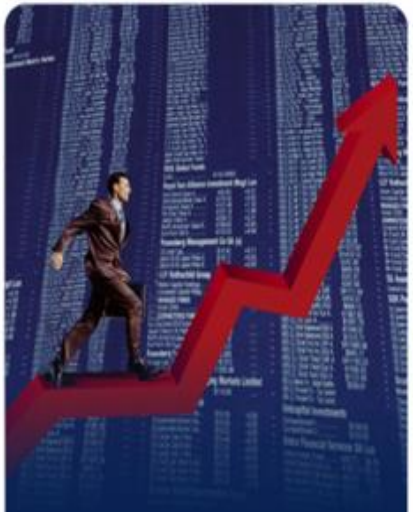


Market Drivers

Social

- Health / comfort
- Employment opportunities
- CSR commitments

Economic



- Peak demand reduced
- Defers new installed capacity
- Low cost energy industry
- Entrepreneurial opportunities

Environmental

- Reduction in Carbon footprint
- Environment ecosystem
- Global commitments
- Sustainability

Governance

- Local participation
- Decision making
- Carbon cap/trading

Smart City ICT – Mobile Indicator Components

Smart City ICT – Mobile Indicators measure, quantify and evaluate the impact of ICT – mobile solutions on smart cities, their economies, businesses and citizens

BUSINESS, ECONOMY & MOBILE CLUSTER

The impact of smart city projects on the local economy and employment

- Support for innovation and start-ups
- R&D
- Jobs

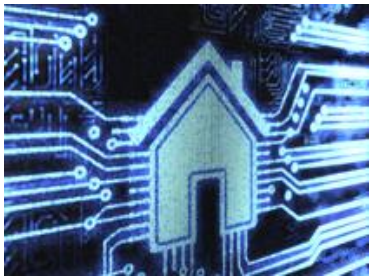
INFRASTRUCTURE

Quantifies the rollout and implementation of mobile infrastructure for smart city services.

- Mobile broadband &WiFi
- Connected Transport
- Smart Energy
- Sensor networks

SERVICES

How the cities use mobile technologies to improve a range of “smart” services for its citizens



- Payment
- Feedback mechanisms
- Public safety
- mGovernment
- Mobile smart city apps

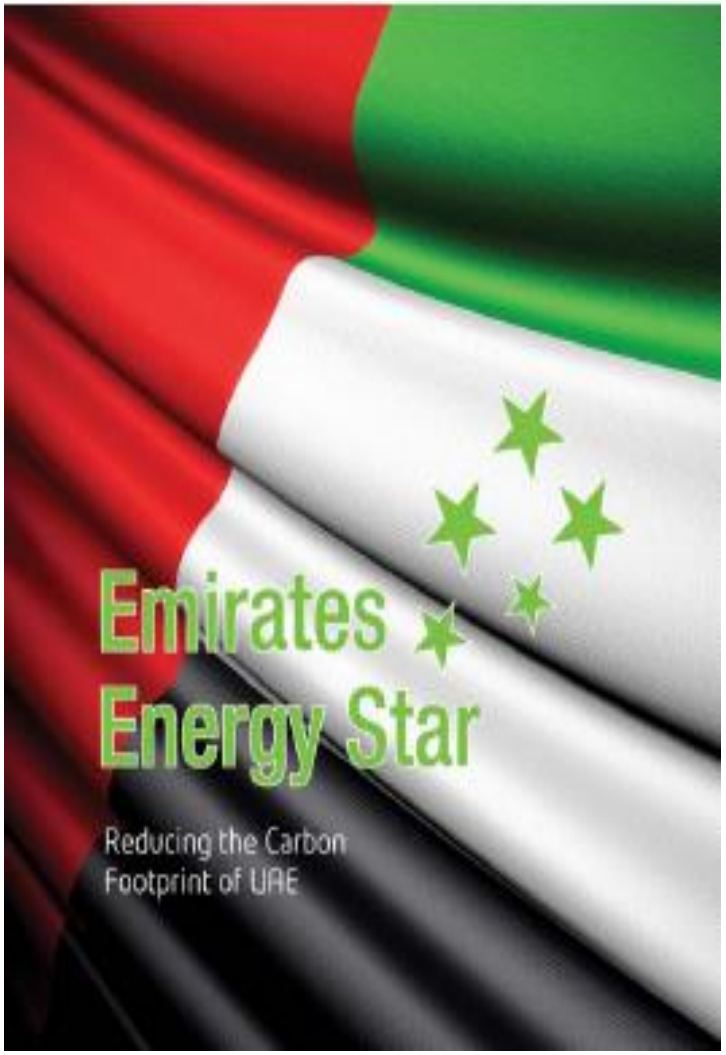
CITIZENS

Tracks how connected and engaged the citizens and communities are

- BB access
- Mobile access
- Citizen engagement
- mLearning

Aim of Emirates Energy Star programme

- Reducing the Carbon Footprint of UAE
  - Launched in December 2011 in the United Arab Emirates
  - The UAE will be a pioneer in using technology to deliver sustainability
  - The program aims to reduce 20% energy consumed and 20% of carbon footprint of UAE by 2015.
  - A joint venture between the UAE Ministry of Environment & Water, Etisalat Group and Pacific Controls



The challenges for the connected M2M Building

- Existing devices have been installed ad-hoc over time.
- Challenge to centralize and manage data found in building equipment
- Different technologies operate on different protocol standards.
- Non-integrated, multi protocol environment makes monitoring energy usage and device performance difficult
- No one “owns” a given building’s system data
- Lack of accountability among building owners, operators and tenants, results in a lack of contractual incentives to improve that building’s energy efficiency.

Emirates Energy Star Process

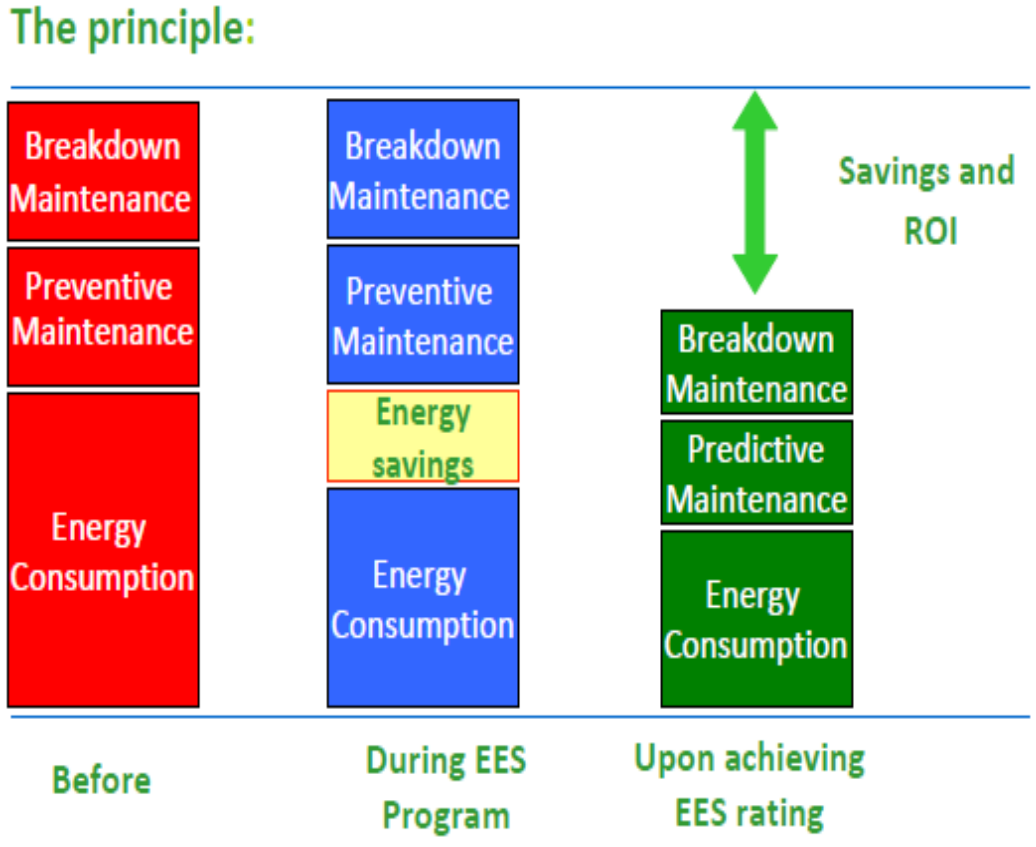
- The EES process
  - Emirates Energy Star role is to plan, engage and execute managed M2M energy services with existing building owners
  - Leverages technology and communications to intelligently reduce costs and improve security.
  - Rapid ROI with low CAPEX and minimal OPEX
  - Leverages existing procurement methods
  - Low cost of entry/upfront commitment and faster non-intrusive deployment

The Connected M2M Building

Building is initially analyzed for Energy consumption, then M2M sensor and control networks are wirelessly enabled and monitored. Optimization and constant monitoring then begins to reduce energy

The Business Model

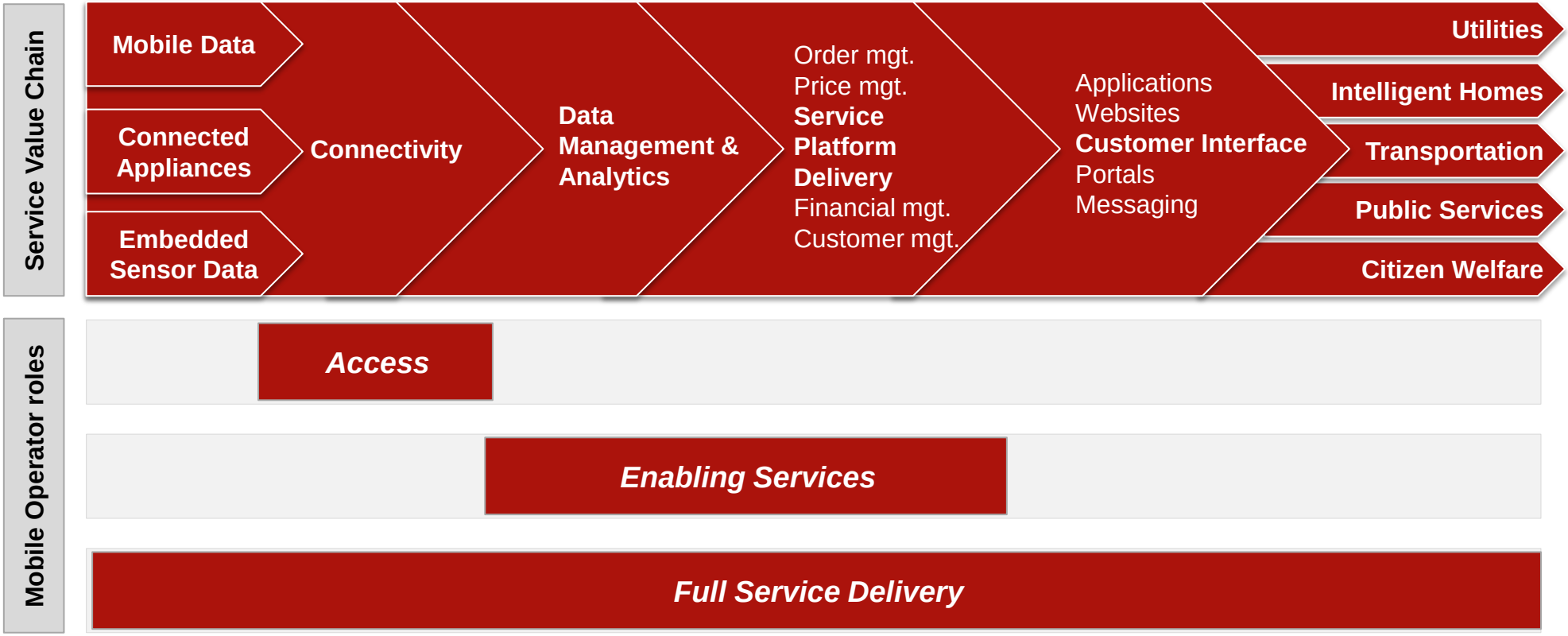
- How it cuts costs
  - Implements resource efficiency measures and energy management policies
  - Is designed around energy management & optimized performance rules for long-term results
  - Immediately implements required rules and shows immediate results



Making use of Operators Assets

- Emirates Energy Star
- A unique project to champion the cause of improving energy efficiency in existing buildings
- Using Machine-to-Machine (M2M) technology to deliver cost effective, real–time managed energy service
- Sustainable development applications and support to clients across Etisalat's footprint.
- Will bring environmentally beneficial, green IT to the Middle East, Africa and Asia covering fifteen countries in total

Mobile for Smart City – Beyond Devices



Award is based on Performance

- Star rating system
  - Clear demonstration of the energy improvements achieved through the program
  - Participants are awarded with a star rating based on the validated performance

STAR RATINGS	ENERGY SAVINGS
★	10% Energy Savings
★★	15% Energy Savings
★★★	20% Energy Savings
★★★★	25% Energy Savings
★★★★★	30% Energy Savings

The Impact so far

9,655 tonnes of CO_2 saved → which is equivalent to planting **2,073 trees**

Emirates Energy Star

Total To–Date savings

Cash : AED 6.5m

kWh : 14.5m

Total area managed by EES : 10.9m sq. ft.

Average % savings across all facilities

20%

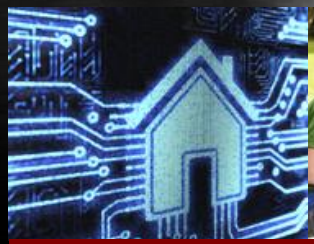
No. of facilities participating in EES : 60

Return on Investment : 7 months

Types of industry verticals breakdown

Airlines & Logistics	1
Banking & Finance	11
Communications & Media	1
Conglomerates	8
Construction & Infrastructure	14
Energy & Oil	1
Health & Hospitality	1
Public, Government & Education	17
Wholesale & Retail	6

Connected Living





Shane Rooney
Executive Director, Smart Cities & Transport
Email : srooney@gsm.com

http://www.gsma.com/connectedliving/smart-cities