

# Energy & Water efficiency initiatives in Dubai / Middle East



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COP18 Doha – Climate Change Conference

Green FM

Company of the year



- Maintenance, Security, Cleaning
- Sustainability Consultancy
- Green FM Company of the year
- Technical Services for Burj Khalifa
- Official partners **myclimate** in UAE
- Official partners **Green Globe** ME&A

Over 1,000 properties in Dubai

RAK, Abu Dhabi

**FARNEK** **aviReal**  
Total Facilities Management

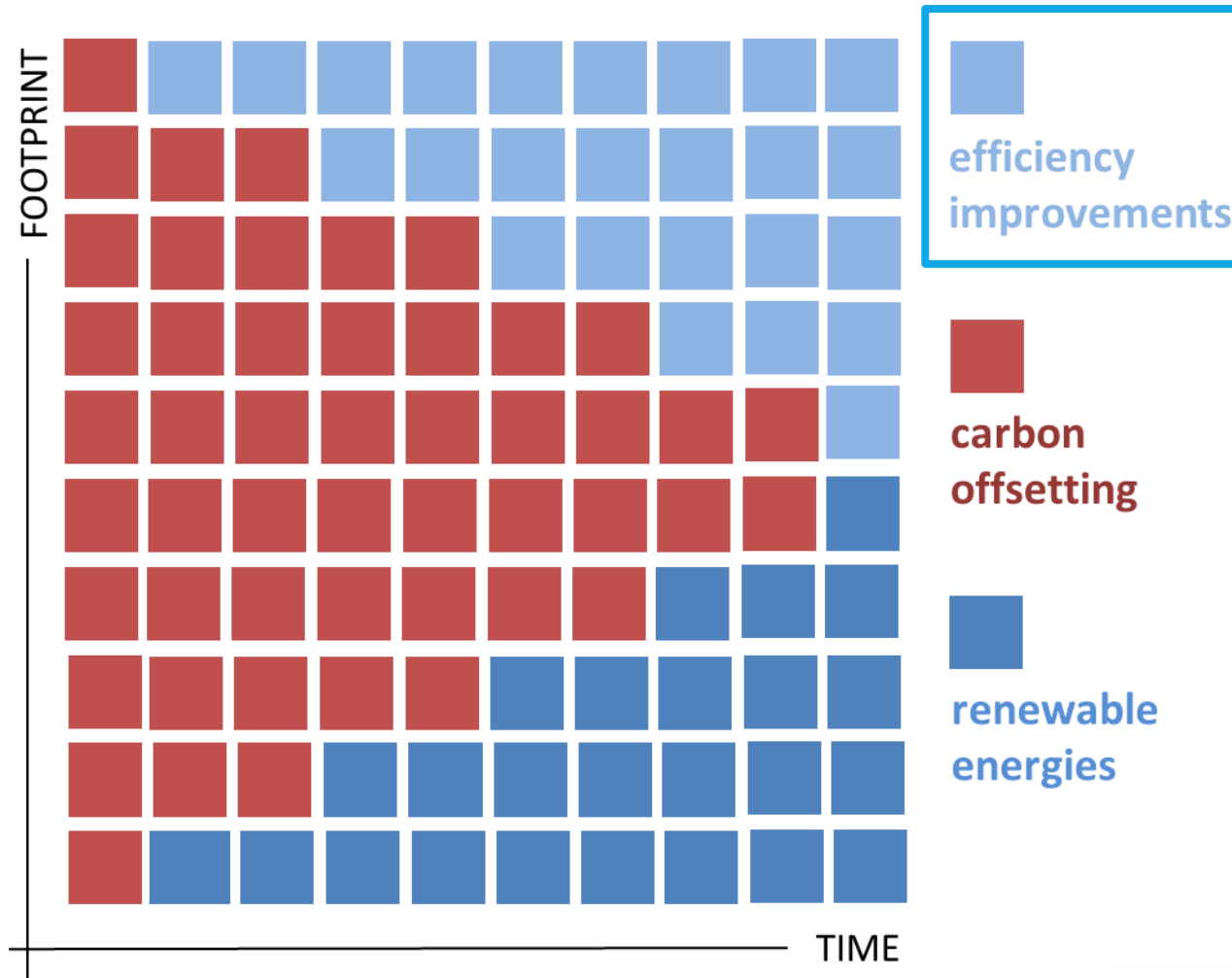
# Our solutions for Sustainability



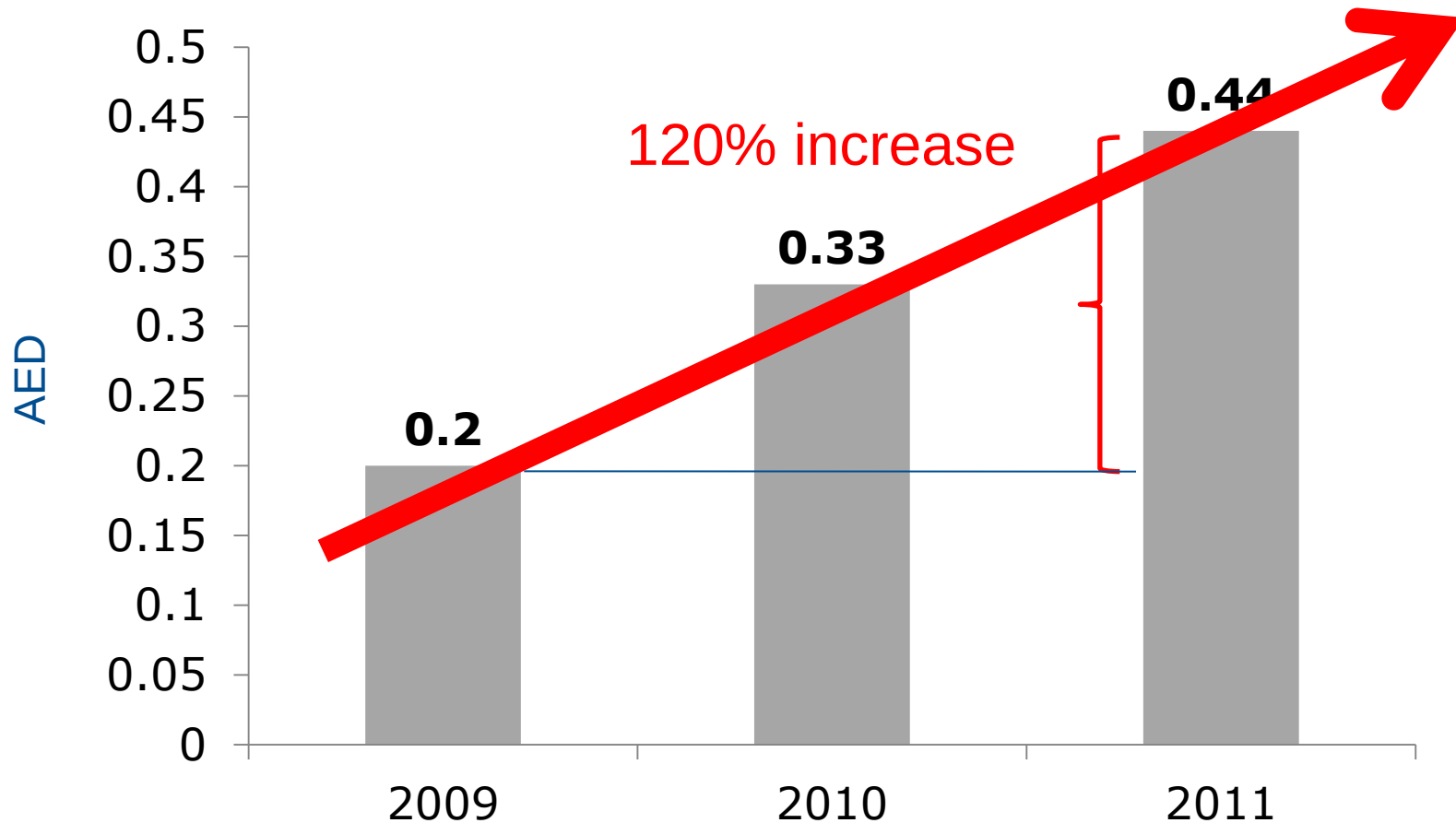
*Energy audits*  
*Sustainable products*



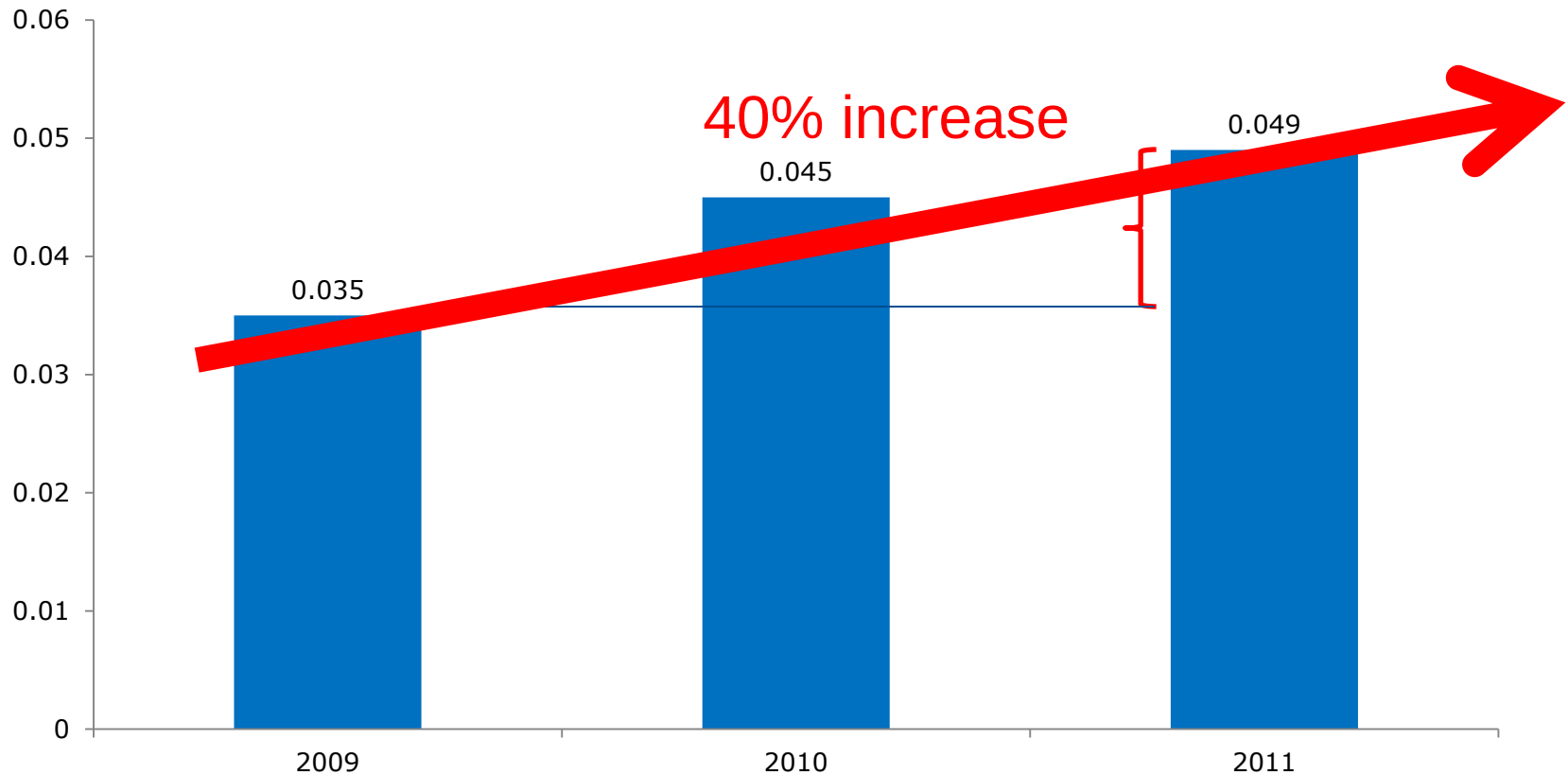
ISO 9001,  
ISO 14001  
ISO 18001



## DEWA tariff impact - electricity



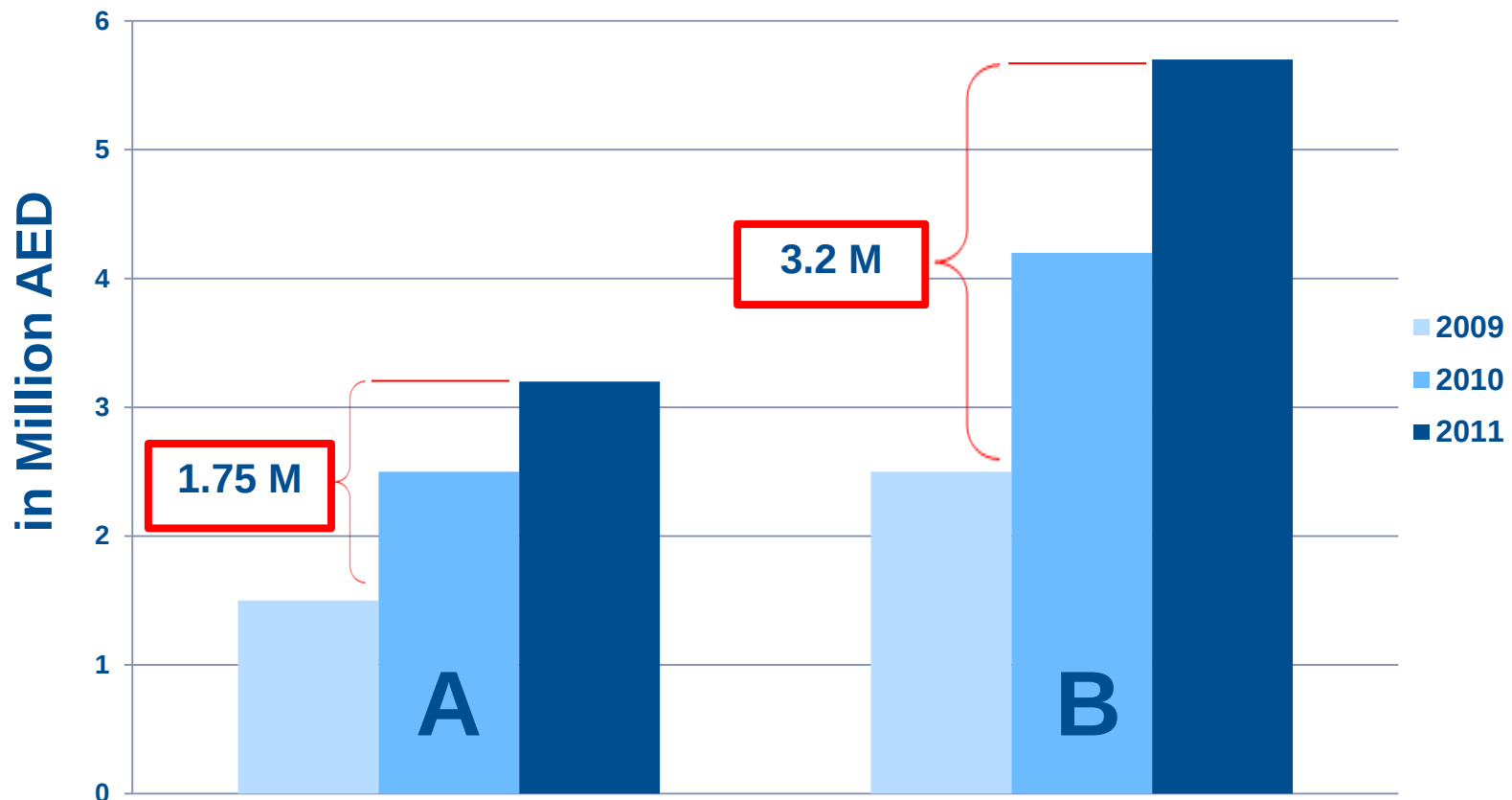
## DEWA tariff Impact - Water



# Cost Impact

Hotel A: 5\* hotel with around 255 rooms and 25,000 m2 floor area on their energy bill.

Hotel A: 5\* hotel on SZR with 400 rooms and 75,000 m2 floor area on their energy bill.



# Utility rates of other countries

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## United Arab Emirates

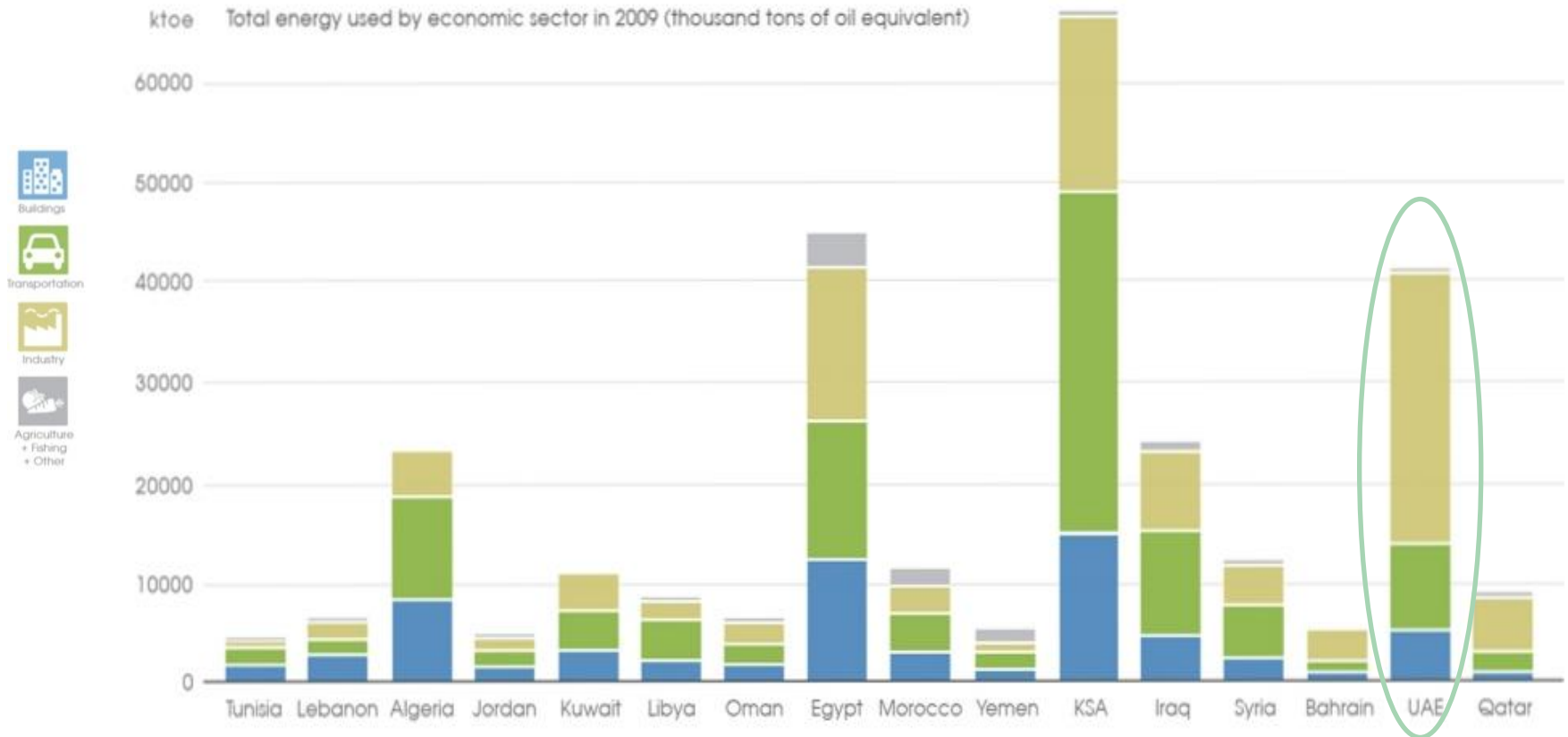
- **Abu Dhabi** announced they will increase next year
- **Sharjah** (+50% in 2010)

## Gulf Country

- **Kingdom of Saudi Arabia** announced they will increase next year

## Levant

- **Jordan** +9% due to the Egypt gas disrupted distribution



UAE energy demand is growing at an annual rate of about 9%  
- three times the global demand. (*Emirates Nuclear Energy Corporation*)

# Results



## Mövenpick Middle East Hotels & Resorts 2010/11

### Results from 20 hotels

- **Water Savings:** actual reduction of 8.2%
  - 129,346 m3 equivalent to 52 Olympic sized swimming pools,
- **Energy savings:** actual reduction of 5.3%
  - 11,765,000 kwh equivalent to powering a 200 room hotel for 1.65 year
- and **CO2e savings:** actual reduction of 4%
  - 11,765 tonnes equivalent to 5 non-stop round-trip flights from Dubai to London Heathrow Airport on an A-380 Airbus
- **Total utility cost:** actual reduction of 4%
  - AED 2.5 million cost reduction despite 7.65% increase in occupancy



# Heat vs Comfort

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- **Air Conditioning – 60%**

- Efficient equipment?
- Optimize the equipment
  - Retrofits
- Find alternatives
- Replace if needed
  - New technologies

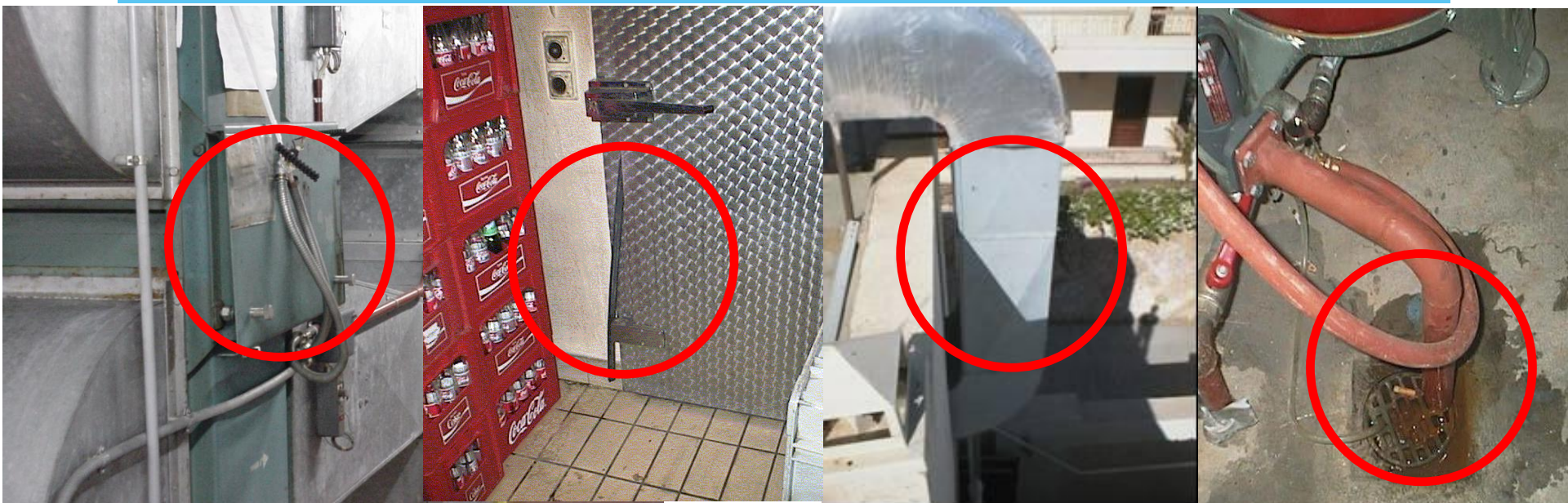
- **Around the equipment**

- Leakage?

- **Reduce the load needed to cool**

- Insulation
- LED lights
- Sealing
- Behavioural changes

# Energy audits



- Motor heat recovery missing – Energy costs USD 5'000.– / Year
- Bad or missing insulation
- Loss of energy / influence on air supply temperature
- Security valve leaking – USD 1,200 per year

# Energy audits



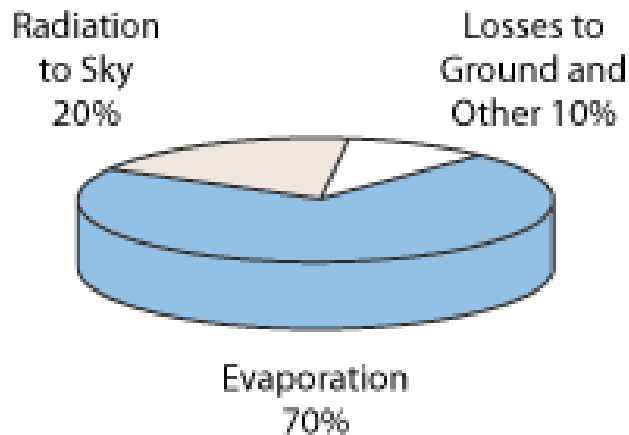
## Wasting Energy and Water

- Behavioural changes
- Optimizing Running hours of the pool pumps

# Energy audits



## Outdoor Pool Energy Loss Characteristics



## Pool Covering

Average Savings:

Electricity 25 – 40 %

Water 0.4-0.6 liters/hr/m<sup>2</sup>

Payback around 2 – 3 years

# Potential Energy Savings

Table 1: Total Summary of Energy Saving Measures

| Sl. No. | Measure Description                                                    | Priority Level* | Estimated Annual Savings |                | Estimated Investment | Estimated Payback |
|---------|------------------------------------------------------------------------|-----------------|--------------------------|----------------|----------------------|-------------------|
|         |                                                                        |                 | Energy                   | AED            | AED                  | Months            |
| 1       | Downsizing of Exhaust fans                                             | 1               | 1547 TR                  | 316,236        | 150,000              | 5.7               |
| 2       | Downsizing of AHU and FAHU blower motor pulleys                        | 1               | 262 TR                   | 58,413         | 11,250               | 2.31              |
| 3       | Installation of separate storage tank for feed water to calorifiers    | 2               | 24,942 Litres of diesel  | 82,308         | 100,000              | 14.6              |
| 4       | Installation of VFDs for Air handling units & Fresh air handling units | 2               | 110,324 kWh              | 47,440         | 109,000              | 27.6              |
| 5       | Installation of LED lamps in guest rooms and common areas              | 2               | 911,712 kWh              | 447,983        | 701,125              | 18.8              |
|         | <b>TOTAL</b>                                                           |                 |                          | <b>952,380</b> | <b>1,071,375</b>     | <b>13.5</b>       |

# Our own new building & operations

- Green Team
- Sustainability Consultancy Division



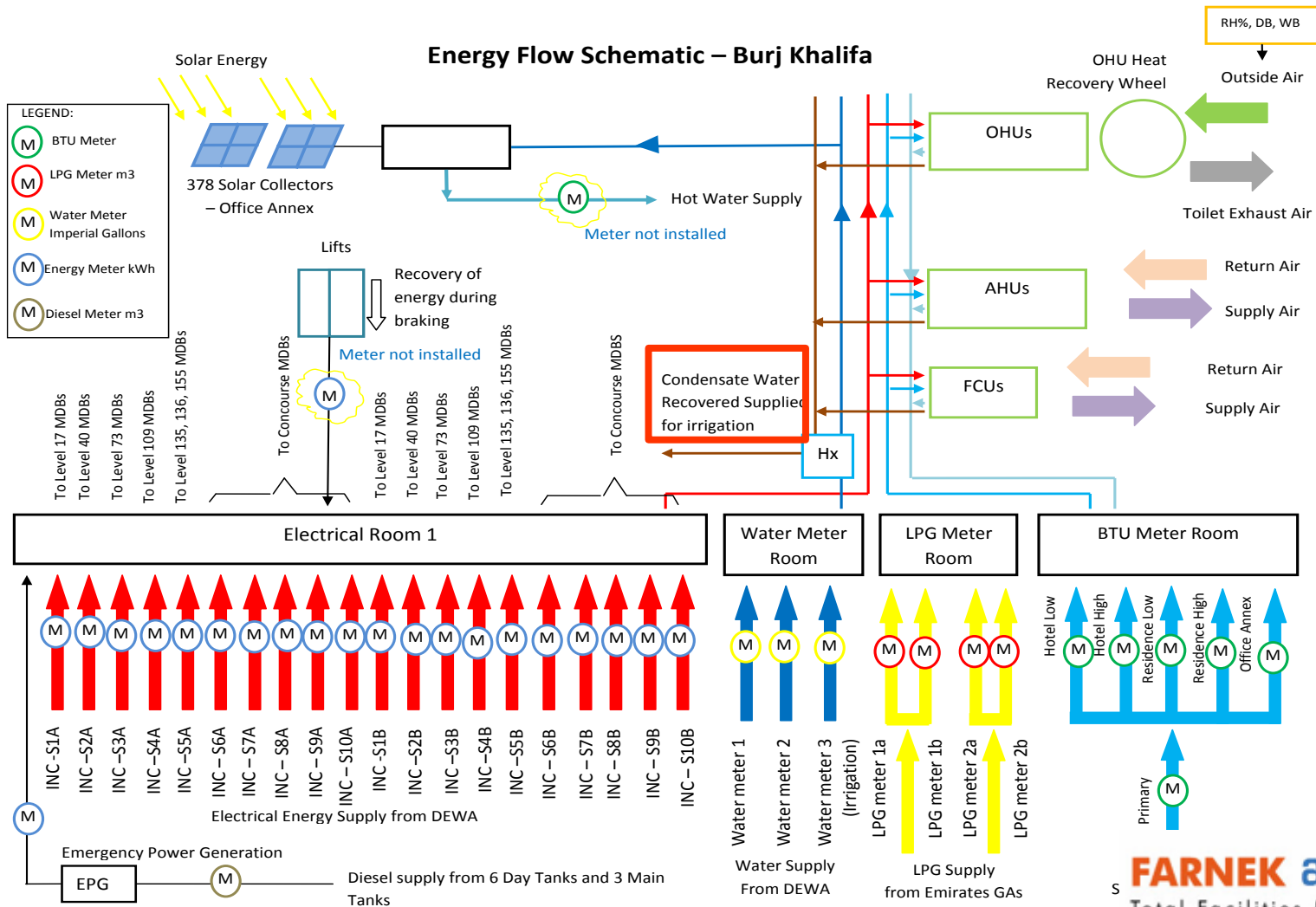
- LED Lights
- Energy Saving Module
- Water Aerators
- New Chiller with VRV
- Roof insulation
- Inflector Curtains
- Waterless urinals
- Water treatment plant
- Eco-friendly paintings
- Carbon Neutral Transportation
- Car pooling
- Metro
- GPS

# Burj Khalifa Solar heating

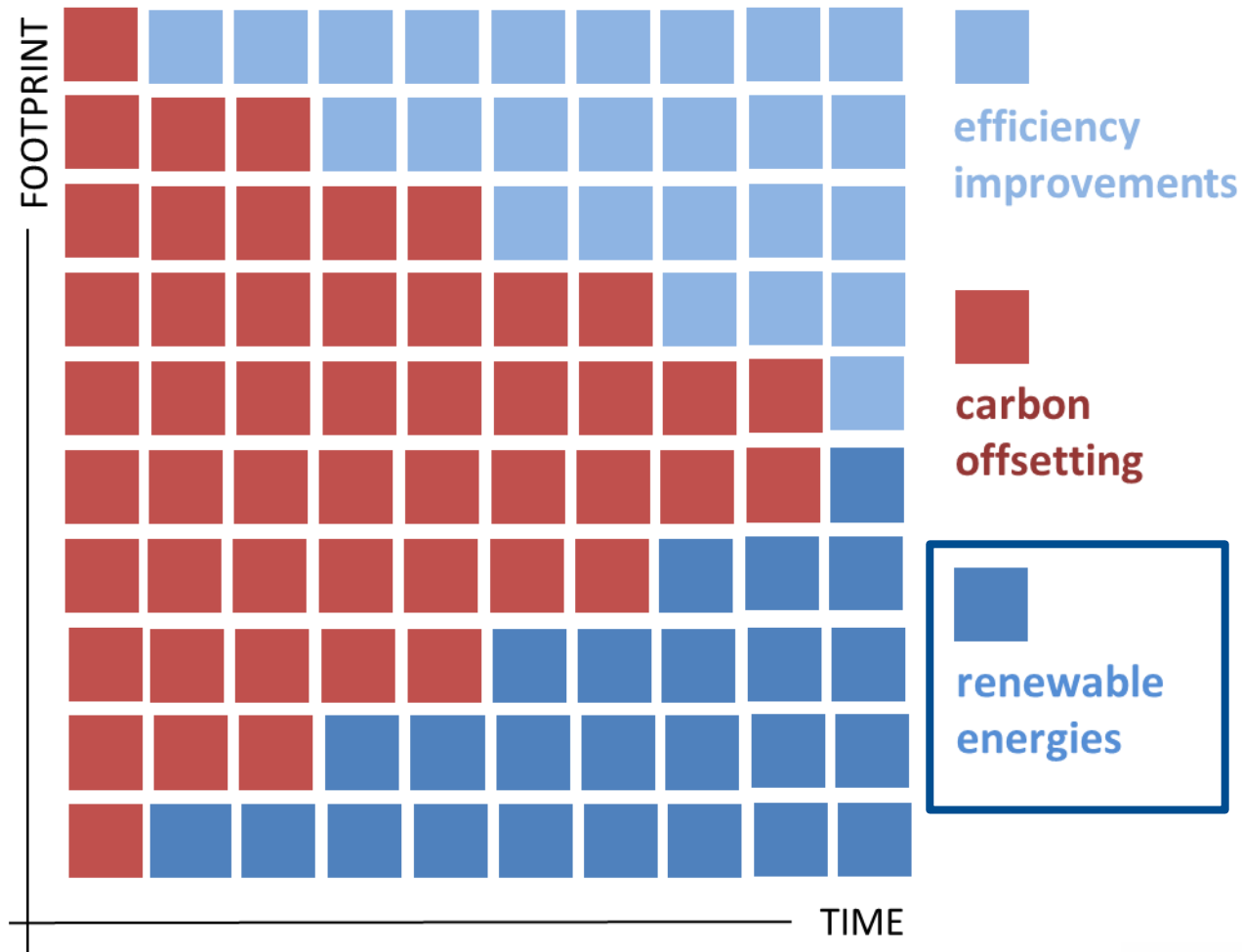


Located on roof of the Offices, the annexure of Burj Khalifa, 378 collector panels, each 2.7 sqm in area, can heat 140,000 litres of water every day.

# Burj Khalifa condensed water recovery



# Carbon credits ... incentive



## ... to accelerate the use of

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### Energy efficient products

As building owners and managers expect **the experts to come with solutions to help** them reduce energy while saving money, possibly not investing anything in advance

# ... to use renewable energies

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## Buildings

- Solar panels
  - for water systems
  - for electricity



## Transportation

- Bio Fuels
  - from Cooking Oil
  - Kerozen from waste

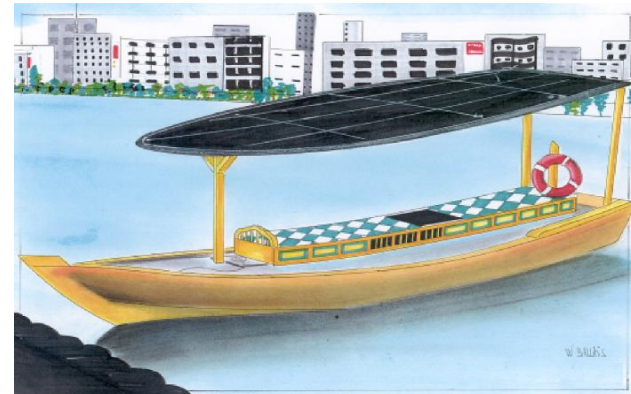
# Challenges vs carbon credits

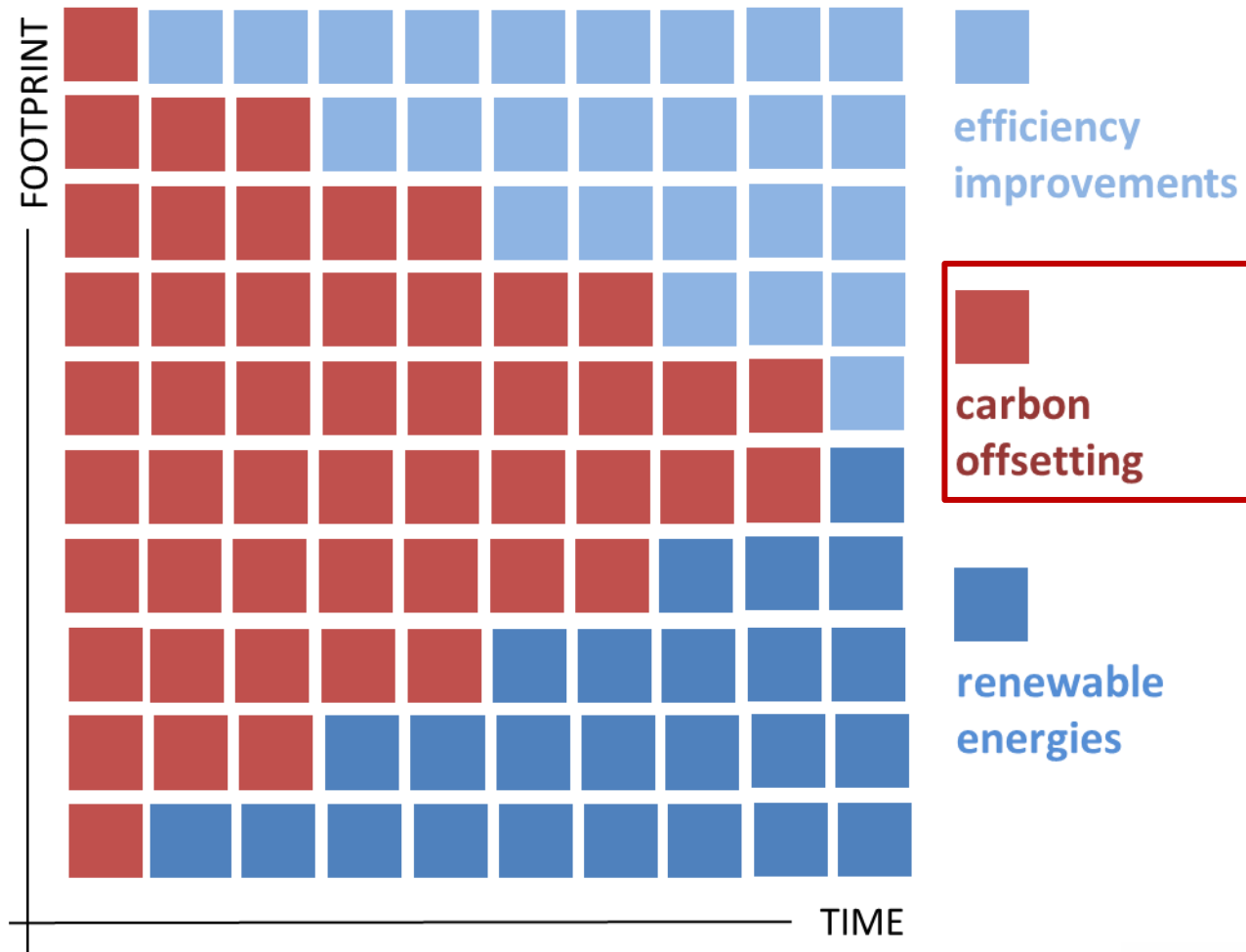
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- Pay-back for renewable energies
- Base line
- Time to develop the project vs need to reduce the energy consumption
- Education is needed
  - Misunderstanding of the options of the voluntary market
- Low incentive of the Carbon credits in comparison to the investments needed and the pay-back

# Potential offset projects

- **Business Tower**  
in process of changing  
all lamps to LED Lights
- **Boats** powered with solar panels





# Carbon Neutral Gala Dinner in Dubai



## Confirmation

The Swiss climate protection organisation myclimate confirms that

**Emirates Environmental Group**  
sponsored by Farnek Avireal

has made a sustainable contribution to voluntary climate protection  
by offsetting the following quantity of CO<sub>2</sub> in high quality myclimate  
carbon offset projects:

**CO<sub>2</sub> quantity: 11.36 tonnes**

**Climate neutral event -15<sup>th</sup> Annual Gala  
Dinner 2012**

Zurich, 28 February 2012

*R. Exlermann*

**René Exlermann**  
Chief Executive Officer

myclimate - The Climate Protection Partnership is registered under  
Swiss Federal law as a non-profit, tax exempt foundation that promotes  
climate protection.

# Swiss Embassy Carbon Neutral



No. 01-10-495691 – [www.myclimate.org](http://www.myclimate.org)  
© myclimate – The Climate Protection Partnership

## Case Study

### Swiss Embassy, Abu Dhabi

#### Offset of Emissions from Energy & Water Consumption 2010

We all try to produce as little CO<sub>2</sub> as possible. Nevertheless, no one wants to sit in a hot room during summer. myclimate offers the possibility to offset unavoidable emissions with carbon offsetting measures elsewhere.

myclimate calculates the climate-impacting emissions produced by activities and products and provides consultation services to businesses regarding the optimal way to offset CO<sub>2</sub> according to the principle of “Avoid – Reduce – Offset”. Do your bit for tangible climate protection and reduce your emissions with a myclimate carbon offset project

The Swiss Embassy, Abu Dhabi has made a sustainable contribution to voluntary climate protection by offset of emissions from energy and water consumption of 2010 in high quality myclimate carbon offset projects as follows:

Carbon offset project: **Wood chips, Switzerland**

CO<sub>2</sub>-eq. quantity: **12.388 (t)**

Offer Offset: **Energy & Water Consumption**

Electricity Consumption: **32,240 Kilowatts**

Water Consumption: **62,370 litres**

Total investment: **\$1390**

# First Carbon Neutral Nursery in Dubai



حضانة  
بلا سقور  
blossom  
childrens nursery







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Register Now for Blossom Summer Camp 3rd of July to 25th of August

## WELCOME MESSAGE

Welcome to Blossom Childrens Nurseries – centres specially designed to provide a secure and stimulating early years education experience for children aged 6 months to 5 years. We believe each child is uniquely capable and gifted and utilize the Early Years British Foundation model along with



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# Towards a low carbon society



# Thank you very much for your attention!

[www.myclimate.org](http://www.myclimate.org)  
[www.farnek.com](http://www.farnek.com)

