



EWS-WWF CASE STUDY:  
**ENERGY & WATER CONSERVATION  
AT TECOM BUSINESS PARKS**



# COMPANY PROFILE

TECOM Investments FZ LLC was established in the year 2005 to build, manage and develop the business parks vertical under Dubai Holding. The history of the company dates back even further to the year 2000, when its first Business Park, Dubai Internet City was launched.

Over the years, the company has grown into a diversified conglomerate with strategic investments in sectors that contribute to the development of Dubai's knowledge-based economy.

Home to over 4,500 companies, including major multinationals and many of the Fortune 500 companies, TECOM Investments interests also include exclusive investments in high-growth sectors as well as 'pure play' businesses.

One of TECOM Investments' largest portfolio companies is TECOM Business Parks. It comprises 10 business parks under five industry clusters across the information and communication technology (ICT), media, education, sciences, as well as manufacturing and logistics sectors.

Dubai Internet City and Dubai Outsource Zone form the ICT Cluster, while Dubai Media City, Dubai Studio City and the International Media Production Zone make up the Media Cluster.

Dubai Knowledge Village and Dubai International Academic City are part of the Education Cluster. Dubai Biotechnology and Research Park and Energy and Environment Park (ENPARK) compose the Science Cluster.

Dubai Industrial City comes under the Manufacturing and Logistics Cluster of TECOM Business Parks.



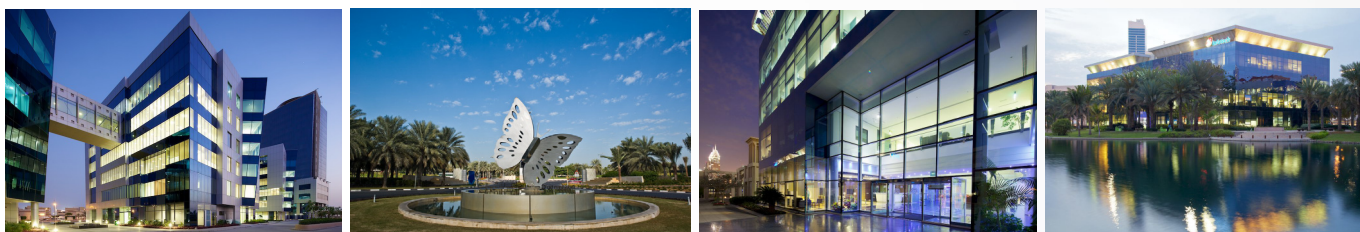


## ENERGY & WATER CONSERVATION AT TECOM BUSINESS PARKS:

The Sustainable Energy and Environment Division (SEED) was established by TECOM Investments in August 2006 with the objective of setting out the Sustainable Development Policy and managing the implementation of the policy activities for the business parks. SEED comprises qualified professionals, having expertise in green buildings, energy & water conservation, renewable energy, sustainable procurement and awareness programmes in sustainable development. All SEED personnel are green building accredited professionals.

Since early 2006, we have embarked on a planned, systematic and consistent approach to adopting sustainable development principles into various facets of our operations. All our sustainable development activities are driven by the motto “sustainability makes business sense” and this has been clearly demonstrated by all the sustainability projects that we have executed at TECOM.

Our sustainable development initiatives are founded on 5 pillars: green building certification of all buildings (new and existing), ongoing energy and water conservation programme, sustainable procurement of office equipment, staff awareness on the issue of climate change and renewable energy. At both holistic programme level and individual project level, our sustainable development initiatives aim to drive costs down – be it operating cost, capital cost or societal and environmental costs. Through our projects and initiatives, we have eliminated the consumption of millions of kWhs of electricity and millions of gallons of water, thereby, directly preventing thousands of tons of CO<sub>2</sub> and other greenhouse gases from being emitted into the atmosphere.



The Energy & Water conservation efforts at TECOM Business Parks focus on facilities that are owned and operated by us. While the core of these facilities are multi-tenant office space, the spaces in the portfolio can range from purpose built biotech laboratories, media or broadcasting facilities, educational campuses to simple warehouses and even labour accommodations.

As different facilities vary by construction period and a variety of end-use mixes, they come in various differing configurations based on the infrastructure available at a site and the particular market approach adopted during development. Some common examples of configuration variances are among HVAC systems (district cooling, central chillers or split DX systems); wastewater facilities (on-site treatment or municipal connection); space planning (open / closed plan); leasing (single-tenant / multi-tenant) and utility metering strategies. We have spaces that range from where utility consumptions are factored in as part of the rent, to spaces where either some or all of the responsibility for utility consumptions belong to the tenant. Thus, the portfolio comprises a variety of technologies and strategies for accounting both the financial and consumption responsibilities of utilities. This factor was the first hurdle, in establishing consumption for the baseline and critically defining and assessing the scope of facility operations for the Energy and Water Conservation programmes, a key first step to any such effort.



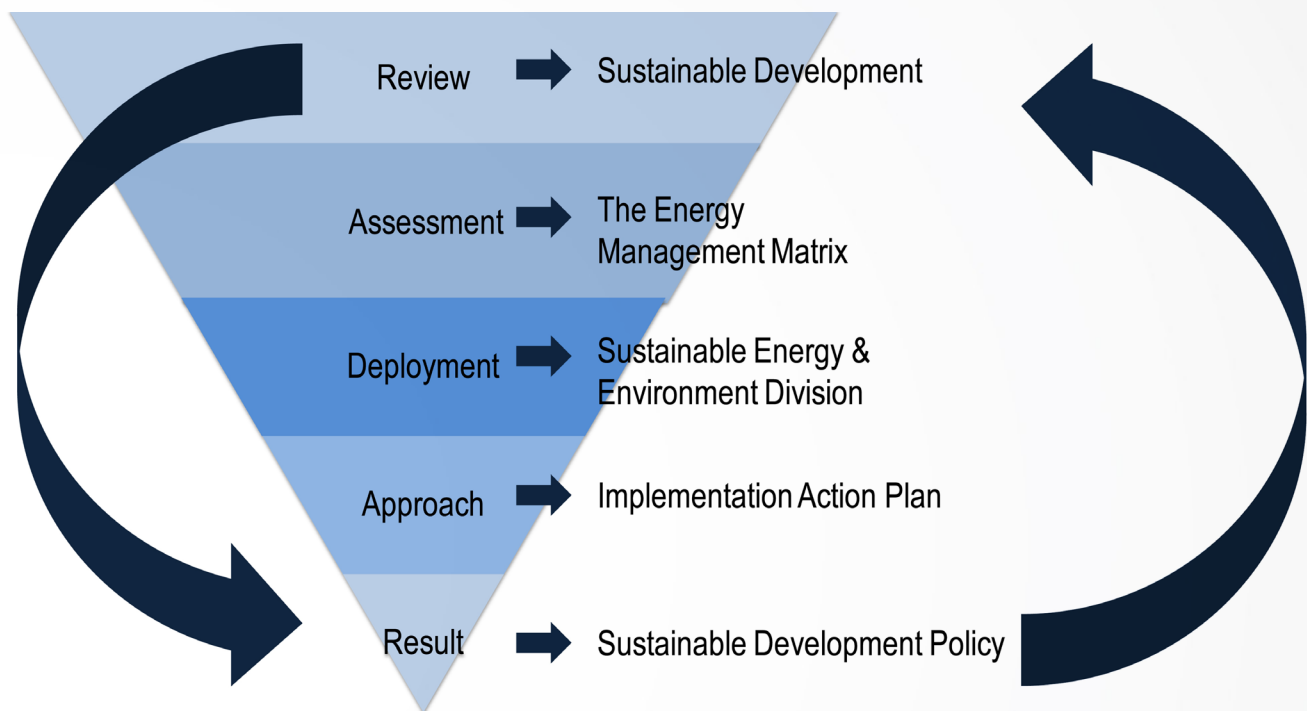




## ENERGY AND WATER CONSERVATION PROGRAMME AT TECOM BUSINESS PARKS


---

### RADAR approach to Continuous Improvement

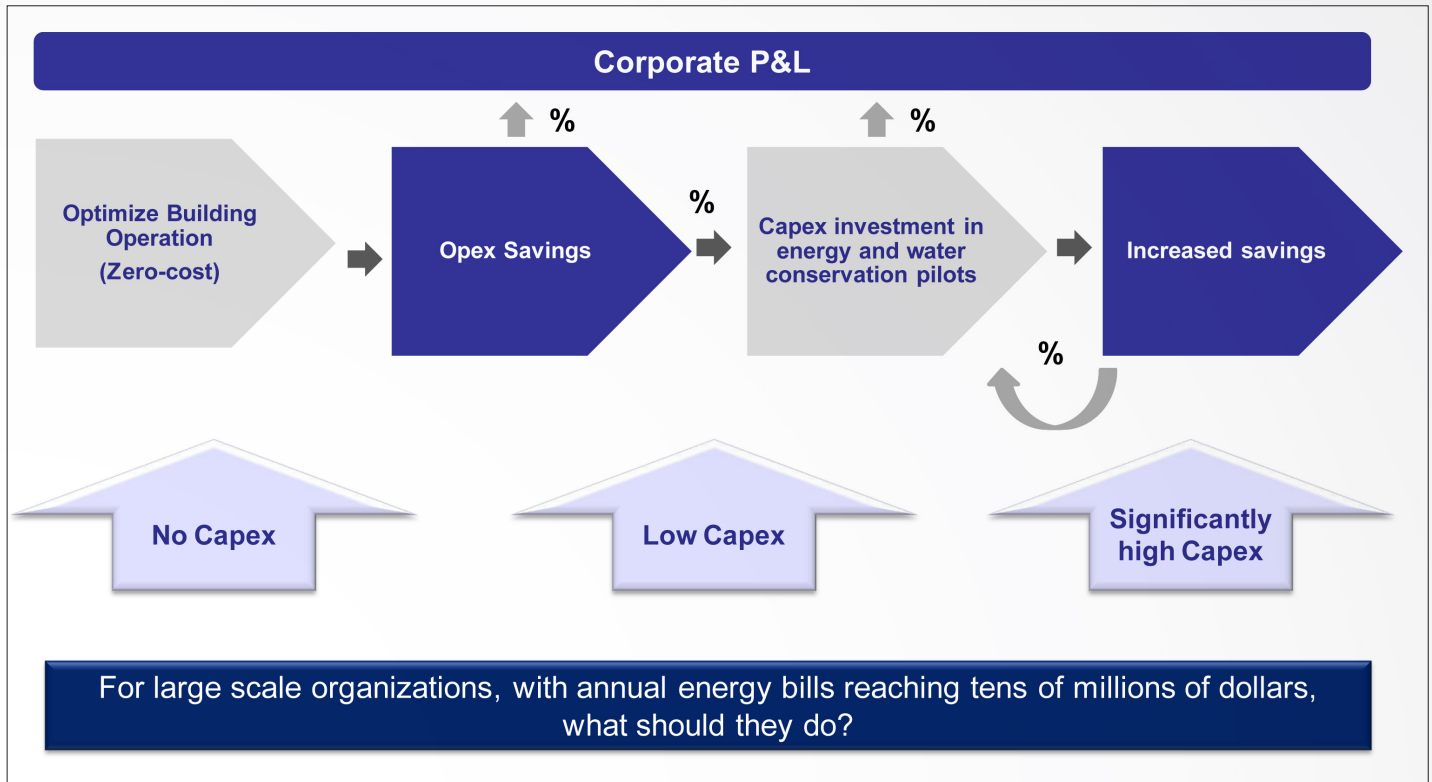


The business case for the Sustainable Development Policy was made on an assessment of TECOM's current (05/06) and projected future energy costs. This analysis showed that TECOM's energy bill would cross AED 150 million per year by 2015, and with it, associated negative environmental impacts would increase proportionally. TECOM needed to take pre-emptive action.

SEED adopted the RADAR (Results, Approach, Deployment, Assessment & Review) approach, which is a standard approach in TECOM. A key feature of the Sustainable Development policy is its goal oriented approach and the explicit setting of clear measureable goals.



## Existing Facility Approach



SEED experts conducted a preliminary energy audit of existing facilities of TECOM during the year 2006, in order to assess the installed equipment and their operating practices. Based on this assessment, it was estimated that a robust building operating practice alone could help reduce energy consumption by 10% immediately, and then by 25% over 5 years. This deployment approach to achieve 10% savings, became attractive, because it avoided any additional investment at the start of the programme. It was accepted that the 25% target could be achieved only via additional investment in energy conservation technologies. Based on the same assessment, a water conservation of 30% was targeted over a period of 3 years.

When we started our programme, Energy Conservation initiatives were still somewhat new to this region, where historically little attention was paid to the utilities usage. The backbone of our strategy therefore has always been focused on fostering strong partnerships with people. Building strong team dynamics with the campus management team was vital to successfully implement our initiatives and generate new ideas. We focused on delivering results through progressive and incremental enhancements.

Every success story earned stronger management buy-in and with regular small steps, the Energy & Water Conservation programme has been able to make steady progress, growing both in scale and scope. These strides are succinctly illustrated through the BRECSU Energy Conservation Assessment Framework that we use to track how far we have come. From Level 0 in the year 2006, TECOM's programme has reached Level 4 by the end of 2010 and helped foster the growing development of organizational culture around sustainability issues.

### Energy Management Matrix

Level	Energy Management Policy	Organizing	Staff Motivation	Tracking, monitoring & reporting systems	Staff awareness/ training & promotion	Investment
4	Energy management policy, action plan and regular review have commitment of top management as part of a corporate strategy. Energy management fully integrated into management structure	Clear delegation of responsibility for energy consumption	Formal and informal channels of communication regularly exploited by energy manager and energy staff at all levels	Comprehensive system sets targets, monitors consumption, identifies faults, quantifies savings and provides budget tracking	Marketing the value of energy and the performance of energy management both within the organization and outside it.	Positive discrimination in favour of energy saving schemes with detailed investment appraisal of all new building, equipment and refurbishing opportunities.
3	Formal energy management policy, but no active commitment from top management	Energy manager accountable to energy committee representing all users, chaired by a member of the managing board.	Energy committee used as main channel together with direct contact with major users	Monitoring and targeting reports for individual premises based on sub-metering, but savings not reported effectively to users	Program of staff training, awareness and regular publicity campaigns. Some payback criteria employed as for all other investment.	Cursory appraisal of new building, equipment and refurbishment opportunities.
2	Un-adopted energy management policy set by energy manager or senior departmental manager	Energy manager in post, reporting to ad-hoc committee, but line management and authority unclear.	Contact with major users through ad-hoc committee chaired by senior departmental manager.	Monitoring and targeting reports based on supply meter data.	Energy unit has ad-hoc involvement in budget setting. Some ad-hoc staff awareness and training.	Investment using short-term payback criteria only.
1	An unwritten set of guidelines. Energy management the part-time responsibility of someone with only limited authority and influence.	Informal contacts between energy manager and a few users.	Cost reporting based on invoice data.	Energy manager compiles reports for internal use within technical department.	Informal contacts used to promote energy efficiency.	Only low-cost measures taken.
0	No explicit policy. No energy manager or any formal delegation of responsibility for energy consumption.	No contact with users.	No information system.	No accounting for energy consumption.	No promotion of energy efficiency.	No investment in increasing energy efficiency in premises/ sites.

Based on BRECSU (Building Research Energy Conservation Support Unit) 1993 Energy Management Matrix

RED : 2006 | GREEN : 2008 | BLUE : 2011





## The other four pillars

Much has been debated about the applicability of LEED in this part of the world. At TECOM, LEED has been used as a working tool to help us go green. Primary objectives of LEED have coincided with our objectives, as we retain our focus on energy efficiency, water efficiency and indoor environmental quality - all three being major drivers of profitability (financial, environmental and social). While energy and water cost savings are measurable and hence very tangible, improvements in indoor environmental quality have the potential to enhance productivity across the entire firm and minimize sickness amongst employees. SEED team works as in-house consultants on individual projects and guides all project team members on the LEED certification process. Each project has its own unique design and functional requirements and requires to set out its own individual green targets, which SEED develops for the benefit of the owning Brand. To further help achieve LEED certification and to standardize minimum green features for all buildings of TECOM, SEED has developed “Green Building Design Guidelines” (for core & shell buildings) and “Tenant Design & Construction Guideline” (for office fit-outs).

To further adopt green standards, a Sustainable Procurement Policy was created by SEED and the Procurement Department in Dec 2007. By the last quarter of 2008, 81% of TECOM's office purchases comply with green requirements. Office furniture with recycled component, paper from farmed trees, Energy Star labeled office equipment etc. are now standard practice in TECOM.

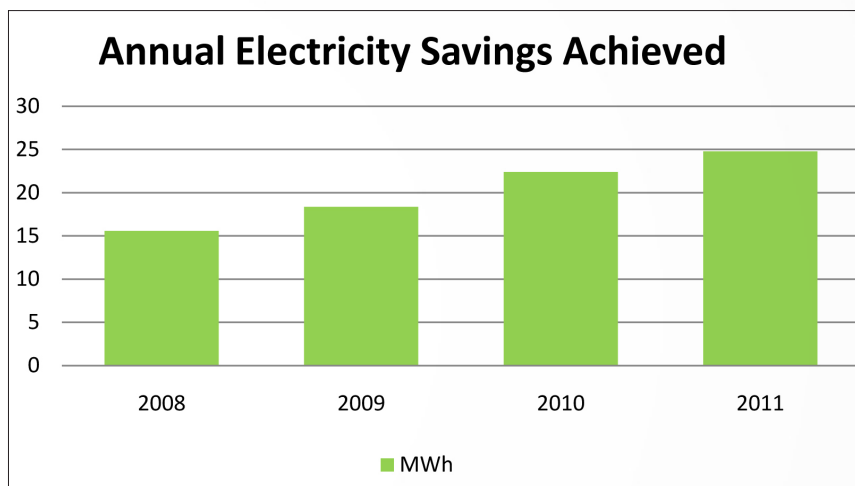
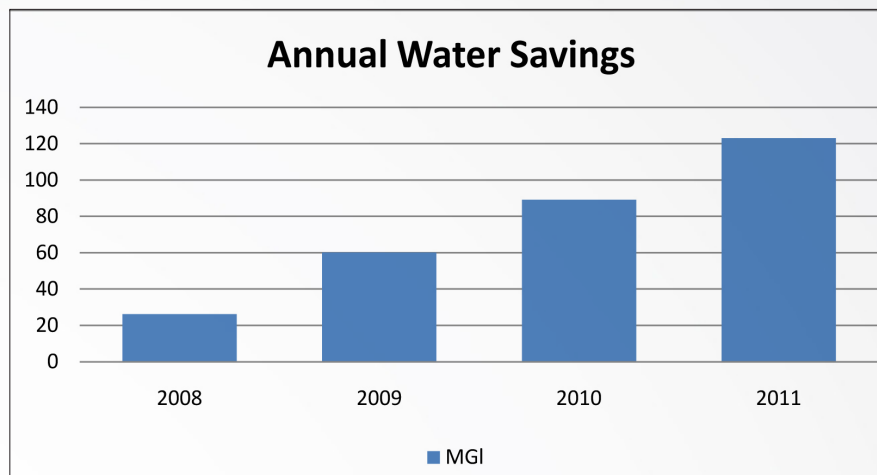
Initially, a considerable amount of energy was engaged to enhance awareness and make green mainstream within TECOM. The awareness sessions on sustainable development have over a period of years engaged the entire staff and built widespread support. From an outreach perspective, we expanded our energy conservation programme to include some of TECOM's larger business partners, organizing awareness sessions to highlight sustainability activities to build awareness and encourage business partners to implement sustainability programmes at their offices in TECOM zones. To this end we have conducted walk through audits with business partners such as IBM, the University of Wollongong, Canon, Fraser Suites etc. with the aim of helping them kick-start their own energy & water conservation programmes.

Finally, TECOM believes that renewable energy will be an important part of the region's energy future. Thus, we have included renewable energy targets in our sustainable development policy. Towards this, SEED has executed small solar photo-voltaic projects in collaboration with DOZ, DIC, DMC and DKV. However, we do realize that for us to meet our policy targets, renewable energy regulations need to be introduced in Dubai.

Energy & Water Conservation Measures Implemented
Point of Dispensation Water Saving Devices
<ul style="list-style-type: none"><li>• Water Restrictors</li><li>• Waterless Urinals</li><li>• Flush reductions</li></ul>
Black water Recycling and reuse for Irrigation
Potable to TSE Irrigation changeovers
Irrigation timing optimization
Soil Additives
Climate Adapted plantings / replacements
Lighting Efficiency Measures
<ul style="list-style-type: none"><li>• Delamping</li><li>• LED/CFL retrofits</li><li>• Low Power Density designs for New Areas</li><li>• Daylight / Occupancy Sensors</li></ul>
BMS Controls Optimization of HVAC Systems
<ul style="list-style-type: none"><li>• Active Time scheduling</li><li>• Active Set point resets</li></ul>
Utility Bill Tracking & Monitoring
<ul style="list-style-type: none"><li>• Active Billing/Metering Error Corrections</li><li>• Active system faults/leakages detection and correction</li></ul>
Awareness & Outreach
<ul style="list-style-type: none"><li>• Internal – Education / Change management</li><li>• External – Business Partners Value-Addition</li><li>• External – Government / Business Partners / Community – Education</li></ul>
Solar Power Technologies & Solutions



## The Results



The graphs above demonstrate how a sustained effort results in continuous improvement of results

	2008	2009	2010	2011
MWh	15,566	18,369	22,365	24,761
% reduction	10%	11%	11%	13%
MGI	26.23	60.1	89.2	123
% reduction	16%	31%	27%	39%
tCO <sub>2</sub> emissions reduced	9,292	14,025	18,759	23,315






## Key Lessons

---

Galvanizing management and colleague buy-in is key to marshalling the resources and co-operation necessary to successfully deploy a Sustainability Programme.

Our approach to implementing a successful energy & water conservation programme can be summarized into 7 basic principles:

1. Incremental and steady engagement approach – Grow the scope and scale of the programme to encompass the entire portfolio of properties and systems covered over a period of time
  2. Pareto principle –Engage our attention on cooling systems, starting from the larger chiller yards among our facilities
  3. Low-hanging fruit – Implementation of quick wins such as BMS scheduling
  4. Low-cost measures – More easily adjusted into corporate budgets by management and success helps builds momentum for larger projects i.e. halogen lamp replacements with LED Lamps
  5. Identify quick payback projects – The stronger the financial case and the issues the project resolves the more likely that the project will win management approval i.e. DOZ STP to dispose sewage and generate TSE for irrigation
  6. Financial documentation – Being able to provide measureable results on the financial impacts of the programme helped significantly in enhancing management support and buy-in over time.
  7. Teamwork – Colleague engagement and fostering a friendly and co-operative atmosphere is key in ensuring that cross departmental activities are successfully engaged.
- 



A member of **DUBAI HOLDING**

This case study has been adapted from TECOM Sustainable Development Reports 2008 & 2010. Over five years of implementation of sustainable development across all the TECOM Business Parks Brands in Dubai, and especially engaging them at varying stages in their development, has given SEED a huge collection of lessons learnt. We are pleased to share some of this with you through the case studies and our Sustainable Development Reports available on our website [www.tecom.ae/seed](http://www.tecom.ae/seed).