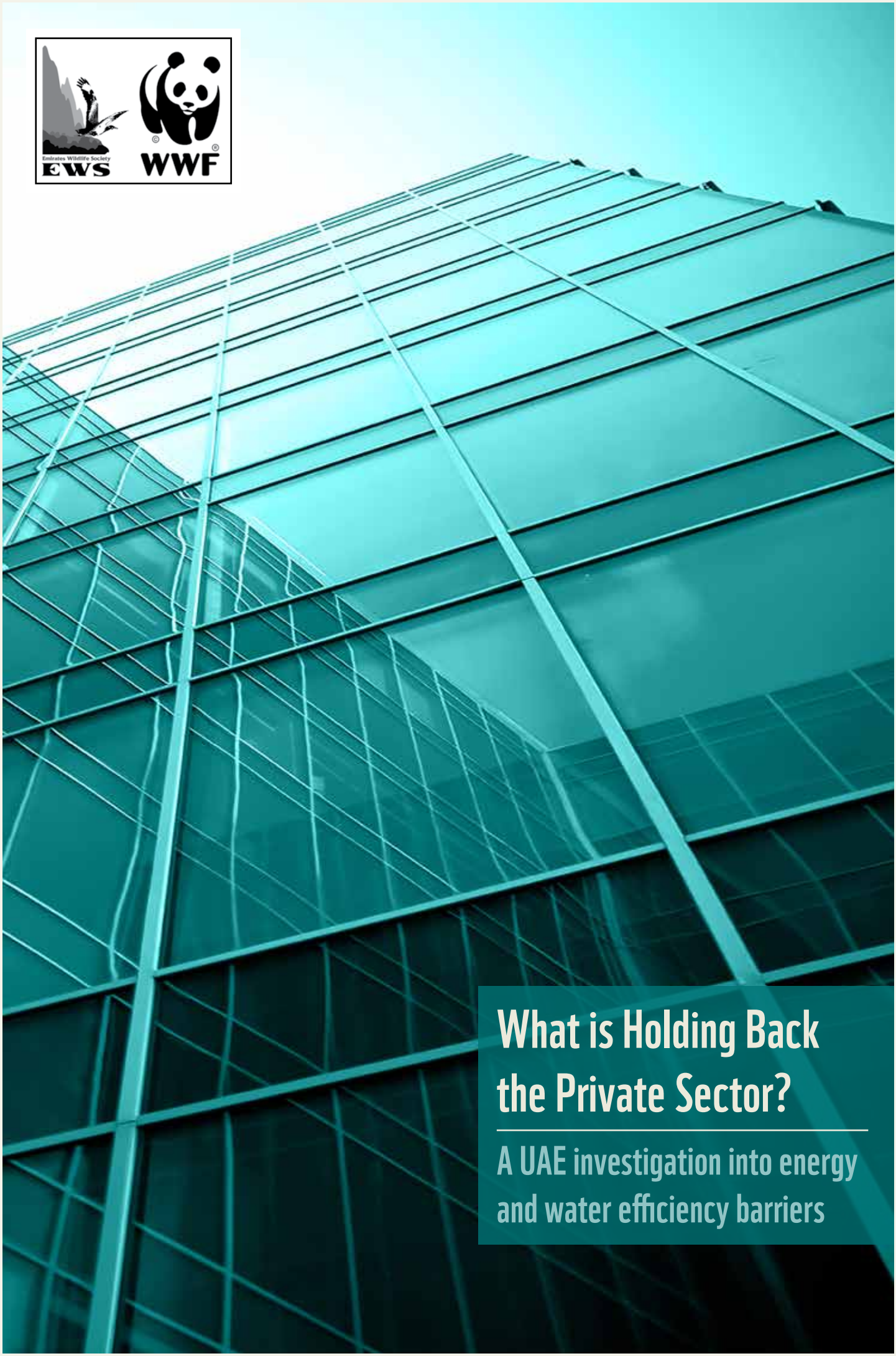

What is Holding Back the Private Sector?

A UAE investigation into energy and water efficiency barriers

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ABOUT EWS WWF

Emirates Wildlife Society is a national (UAE) environmental non-government, non-profit organisation that works in association with WWF, one of the world's largest and most respected independent conservation organisations. EWS-WWF has been active in the UAE since 2001 and has initiated and implemented several conservation and education projects in the region.

Our mission is to conserve nature and reduce the most pressing threats to the environment. We work with people and institutions in the UAE and region, to implement conservation solutions through science, research, policy, education and awareness.

For more information please visit www.ewswwf.ae

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"It is obvious that the UAE, along with most countries, must address its increasing demand for energy and water. However, with rapid population growth, developing travel and tourism, expanding infrastructure and thriving industrial and commercial sectors, this will prove challenging. Currently, domestic energy demand is expected to double within just five years and water demand will swell by 44% within the next ten years. Government can only do so much, private business must take its share of responsibility.

Farnek has long been an advocate of energy and water efficiency. We pioneered 'Optimizer', an internet-based energy and water consumption benchmarking tool, we partner with Green Globe Certification for sustainable tourism, host myclimate, a carbon management programme, and specialize in detailed energy audits to recommend the most efficient solutions for existing buildings.

The benefits of reducing energy and water consumption are clear. In addition to significant savings to our utility bills, it contributes towards the UAE's Green Economy agenda, where energy and water efficiency have a pivotal role, to reduce carbon emissions by up to 25% by 2030, increasing GDP by 4% to 5.5% and creating an additional 165,000 sustainable jobs.

So what is stopping us?"

Markus Oberlin
CEO
Farnek Services

GRUNDFOS

"Many important electrical devices and equipment are installed in homes, buildings and factories, and form parts of critical infrastructure. Pump technology forms a vital part of this infrastructure and enables the systems essential in providing clean drinking water, chilled and hot water for air-conditioning, removal of waste water and fire protection, to name a few.

It is worth noting that 10% of the total global electricity is consumed by pumps, and switching to the latest technology could reduce that electricity consumption by 4%. In addition smart technologies such as optimized controls, censors and monitoring devices can further reduce consumption by up to 60%.

As a global leading provider of advanced pump solutions, Grundfos has a keen interest and responsibility in supporting energy efficiency by applying its latest trendsetting technologies. Offering global sustainable solutions that improve quality of life for people and care for the planet, is an integral part of Grundfos core values and is engrained across the business.

The research conducted by EWS-WWF in the UAE on energy and water efficiency barriers and solutions in the private sector gives us additional valued insight in what we can do to help accelerating energy efficiency across the country, not only from a technology perspective but in sharing important knowledge and best practices!"

Henning Sandager
Area Managing Director
Grundfos Middle East & Turkey

FOREWORD – IDA TILLISCH

© EWS-WWF

Ida Tillisch,
Director General

UAE businesses face many barriers that impede them from unleashing their true efficiency potential, a key component of a low carbon economy. As the culmination of our past work with the private sector, we have identified the most pressing barriers that the UAE private sector faces in implementing energy and water efficiency measures. We are very proud to showcase the results from the UAE's first statistically representative survey of energy and water efficiency in the private sector.

We are already facing the challenges of climate change, and, in order to avoid the severest impacts, it is critical that drastic efforts to lower global carbon emissions are acted upon. Failing to do so will further threaten our natural resources and global biodiversity, our food systems and our economy. It has been estimated that a temperature increase of 2°C predicted to result from climate change will be accompanied by global annual income[1] losses between 0.2% and 2%, and the cost of merely adapting to extreme weather could reach 0.5%-1% of the global GDP by 2050[2].

At the local level, the UAE's emissions have increased by an average of 5% per year (from 1994-2013) and are 5 times greater than the world average[3]. The UAE is ranked as having the 3rd and 14th highest water and electricity consumption per capita, respectively[4]. In a region with already scarce natural resources, climatic changes will continue to impact the very limited freshwater resources, the coastal cities and the health of the population. With the latest research[5] pointing to UAE and regional climate-specific impacts (such as an increase in land temperature by 2°C to 3°C, an increase in humidity by 10% and the variation of salinity across the Gulf), considerations of the potential increase in the demand for cooling and desalination capabilities, for example, will need to be assessed and integrated into planning. Businesses will not be isolated from these impacts and may experience disrupted supply chains, regulatory policy measures and increased costs. Companies could also face reputational risks for their failure to tackle the challenge.

[1] IPCC, 2014

[2] Stern, N, 2007

[3] This average has been calculated using the Ministry of Foreign Affairs' 3rd National Communication (MOFA, 2012a) and the 2012 and 2013 Greenhouse Gas Inventory by the Ministry of Environment and Water (MoEW, 2014a) and the Ministry of Energy (MoEN, 2015), respectively.

[4] UNEP, 2013 & World Bank, 2014

[5] AGEDI, 2015a & 2015b

We cannot afford to wait to take action. As a country already exposed to the impacts of climate change, the UAE needs to: anticipate the impacts and vulnerability from climate change, and assess the associated risks and adaptation measures; demonstrate leadership in international negotiations by advocating for a strong and ambitious global deal to reduce global greenhouse gas emissions given the local stakes; and take bold steps in domestic mitigation through renewable energy and energy efficiency.

Due to the urgency of the situation, EWS-WWF is working on climate change issues in the UAE and the Gulf region. EWS-WWF's Climate & Energy Programme has developed a new and ambitious 5-year strategy that seeks to make climate change a national priority and expand the implementation of renewable energy and energy efficiency. We see energy efficiency as one of the major potential solutions for reducing global and local emissions due to its competitiveness as an alternative "fuel", its economic efficacy and its availability across sectors and technologies.

As we witness the implementation of the Green Economy Agenda and UAE Vision 2021, the responsibility of the shift should not be shouldered solely by the government. Small to medium enterprises and large corporations are also responsible for leading by example in the reduction of their impacts and have an important role to play in this critical transition.

This report is aimed at UAE government institutions, especially utility and energy policymaking bodies, and the private sector with the purpose to encourage action to address these barriers collaboratively and individually. We plan to use these results to engage with these sectors and catalyse dialogue on addressing key barriers. Moreover, we hope to facilitate greater collaboration across sectors and encourage momentum to the efforts towards efficiency in the UAE. We also encourage readers to use these results as widely as possible to inform policymaking, research and action planning on the issues that our survey raises. Using these findings as the cornerstone for further action will lead to greater participation from the private sector in the UAE's transition to a low carbon economy that is resilient, strong and protects the livelihoods of future generations.

Ida Tillisch
Director General

1. INTRODUCTION

The case for pursuing the energy and water (E/W) efficiency opportunity is clear. If we achieve it, we can drastically reduce emissions while providing valuable benefits to the economy, to public health and in job creation. But projections show that as much as two-thirds of energy efficiency potential will remain untapped until 2035 unless policies change (IEA, 2014b) and barriers are addressed.

Many parallels can be drawn between the international scenario and the context of the United Arab Emirates (UAE). Whilst policies have in fact been developed and implemented to increase energy efficiency in the country, there remain a large portion of unrealized energy efficiency opportunities.

> "ENERGY (AND WATER) EFFICIENCY IS DEFINED AS USING LESS ENERGY (AND WATER) TO PROVIDE THE SAME LEVEL OF SERVICE"
>
> International Energy Agency

Building on its experience with the private sector in helping to increase E/W efficiency efforts and in a quest to uncover priority barriers and related solutions, EWS-WWF began to investigate the topic in greater depth. In 2015, EWS-WWF completed the first statistically representative survey of the barriers and solutions to implementing E/W efficiency measures in the UAE's private sector. The purpose of this report is to outline the results of the survey and explore the implications of these results.

The top 3 priority barriers from the survey, were then further explored through issue papers. The issue papers outline the barriers in the local context in greater detail; identify why they exist, how they contribute to related issues and how they hinder the private sector from accelerating energy/water efficiency and identify potential solutions based on the private sector's feedback. The papers were then presented during 3 roundtable discussions around the importance, relevance and prevalence of each of the barriers. The sessions were aimed at stimulating dialogue with barrier-specific experts and decision-makers and policymakers in the private and public sectors. The issue papers will then be updated to include the comments collected during the sessions and will be used to develop a final EWS-WWF position paper on advancing private sector E/W efficiency in the UAE[6].

[6] For more information on the issue papers and final position paper, please contact EWS-WWF.

2. CLIMATE CHANGE: ADDRESSING THE ENERGY SECTOR

The Intergovernmental Panel on Climate Change's (IPCC) 5th assessment report, asserts that scientists around the world unequivocally agree, with 95% confidence, that human influence has been the dominant cause of observed warming since the mid-20th century (IPCC, 2013). Our dependence on fossil fuels across sectors has increased concentrations of greenhouse gases (GHGs), specifically increasing carbon emissions (CO_2) in the atmosphere to almost 40% above those of 200 years ago (WWF, 2015). This led to the increase of the average global sea and land temperatures by 0.85°C between 1880 and 2012 (IPCC, 2013).

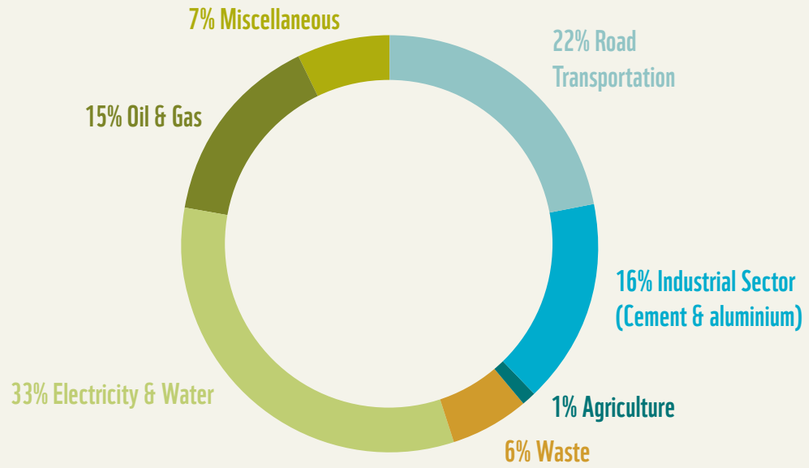


Figure 1: Contribution of Emissions by Sector – UAE 2013 (MoEN, 2015)

At the local level, the United Arab Emirates (UAE) has seen considerable economic and urban development, which has led to significant growth in the levels of GHG emissions, at an average of 5% per year from 1994 to 2013[7]. In 2013, the energy sector was the major driver of the UAE's emissions, accounting for 75% of all GHGs. Thirty-three percent came directly from the power sector (MoEN, 2015), notably due to electricity and water production. Despite the UAE having a hot and dry climate, which necessitates a certain amount of energy, the country's high per capita consumption of water and that of electricity merit closer attention as these sectors, respectively, have the 3rd and 14th highest per capita consumption figures in the world (UNEP, 2013; World Bank, 2014).

[7] This average has been calculated using the Ministry of Foreign Affairs' 3rd National Communication (MOFA, 2012a) and the 2012 and 2013 Greenhouse Gas Inventory by the Ministry of Environment and Water (MoEW, 2014a) and the Ministry of Energy (MoEN, 2015), respectively.

3. THE ENERGY & WATER EFFICIENCY OPPORTUNITY

Globally, energy efficiency offers a major opportunity to reduce emissions to the extent required to stay below 2ºC. By 2020, it could reduce emissions by 49% (IEA, 2013).

Energy efficiency also provides many other benefits: The economic viability of energy efficiency is growing rapidly and currently offers $310 billion a year in savings. The financial market for energy efficiency is valued at $120 billion per year (IEAa, 2014), and the projected job-creation potential of the efficiency sector would add 8 to 27 job years[8] per $1.1 million invested in energy efficiency measures (IEA, 2014b).

Even with the clear business case for energy efficiency investment and deployment, the opportunity has not yet been realized. Two-thirds of energy efficiency potential are projected to remain untapped until 2035 unless policies change. The global unrealized efficiency potential in the building sector is even more drastic, with an estimated 80% of efficiency opportunities to remain untapped by 2035 (IEA, 2014b). The reason for this unexploited potential is the existence and persistence of many barriers.

"AS ENERGY EFFICIENCY IS ESSENTIAL TO MEETING OUR CLIMATE GOALS WHILE SUPPORTING ECONOMIC GROWTH [...] TO FULLY EXPAND THIS MARKET, INITIATIVES TO CONTINUE TO REDUCE BARRIERS WILL NEED TO STRENGTHEN."

Maria Van Der Hoeven, Executive Director, International Energy Agency (IEA, 2014C)

The case for advancing energy efficiency is also relevant for the UAE context. There is potential for reducing 56% of carbon emissions if the UAE realizes its full abatement potential by 2030 (compared to BAU), and 65% of the abatement measures would have a positive economic impact on society (Masdar, 2009). These abatement measures would also contribute towards the UAE's achievement of its Green Economy agenda, in which E/W efficiency would play an important role. The totality of the proposed Green Economy scenarios (including E/W efficiency and other measures) would decrease the UAE's carbon emissions by 18-25% between 2013 and 2030, increase the GDP by 4% to 5.5% and create up to 165,000 jobs compared to business as usual (BAU) scenarios (MoEW, 2014b).

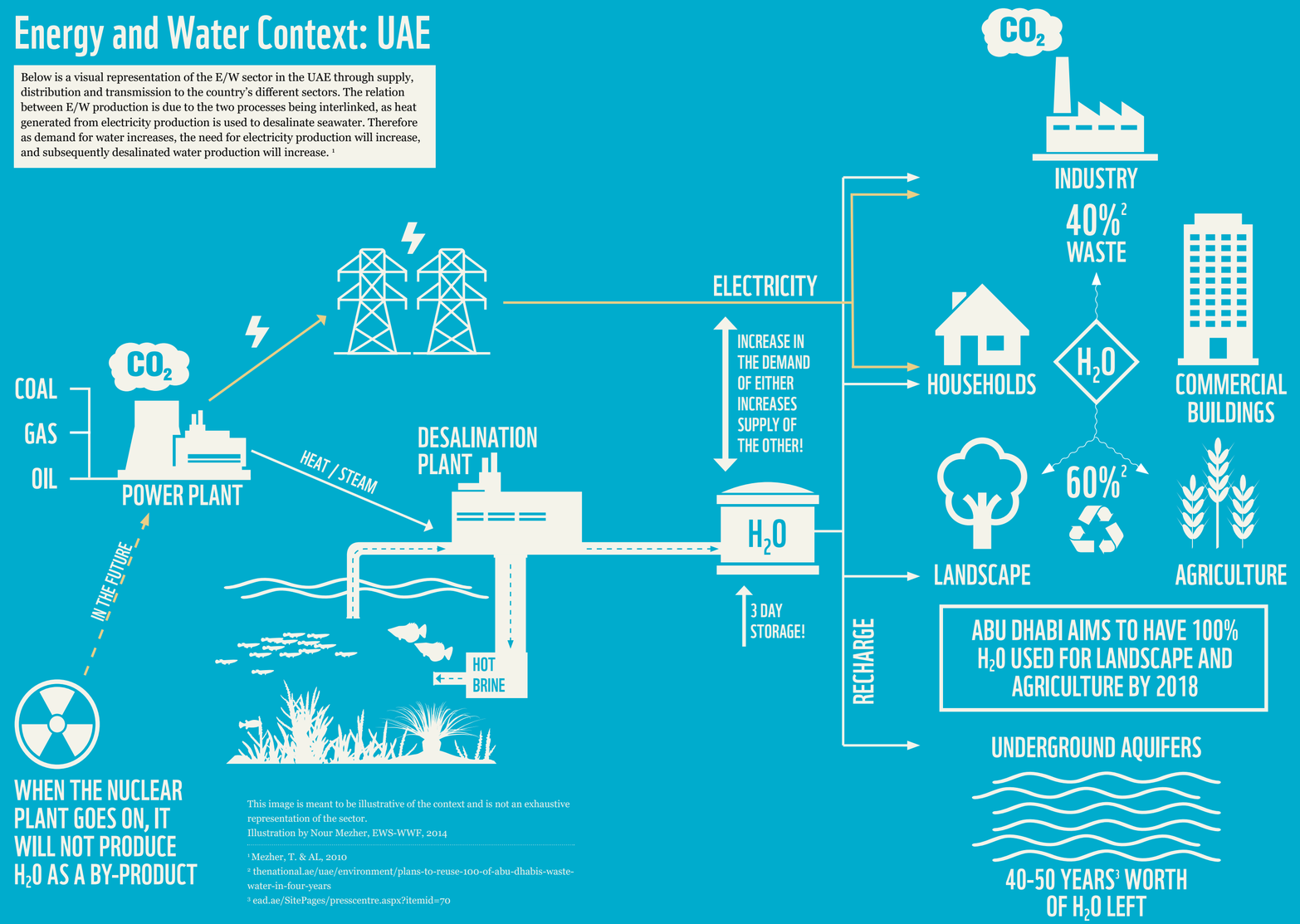
It is clear that our ever-expanding needs for E/W must be addressed. UAE energy demand is expected to double by 2020, water demand is expected to grow by 44% by 2025 (UNEP, 2013) and the desalination fuel requirements alone will take up 20% of the total fuel production by 2030 (MoFA, 2012b).

While several demand-side activities have been put in place in the UAE, the extent to which they can contribute to achieving the full potential for energy efficiency and carbon reduction still needs to be assessed.

[8] One job for one year is one job year

Energy and Water Context: UAE

Below is a visual representation of the E/W sector in the UAE through supply, distribution and transmission to the country's different sectors. The relation between E/W production is due to the two processes being interlinked, as heat generated from electricity production is used to desalinate seawater. Therefore as demand for water increases, the need for electricity production will increase, and subsequently desalinated water production will increase. [1]



This image is meant to be illustrative of the context and is not an exhaustive representation of the sector.
Illustration by Nour Mezher, EWS-WWF, 2014

[1] Mezher, T. & AL, 2010
[2] thenational.ae/uae/environment/plans-to-reuse-100-of-abu-dhabis-waste-water-in-four-years
[3] ead.ae/SitePages/presscentre.aspx?itemid=70

Energy and Water Context

UAE

4. PRIVATE SECTOR BARRIERS TO ACHIEVING ENERGY & WATER EFFICIENCY

IN THE UAE, ELECTRICITY AND WATER IS SUBSIDIZED BY THE GOVERNMENT, MEANING THAT THE PRICE CONSUMERS PAY IS NOT THE COST SHOULDERED BY THE GOVERNMENT TO BUILD, PRODUCE AND GENERATE ELECTRICITY AND WATER CAPACITY FOR END-USERS.

On the international and regional levels, the adoption of E/W efficiency measures has been hampered for various reasons. Many countries have faced problems implementing efficiency measures due to lack of awareness of the financial benefits of investing in energy efficiency measures, high project transaction costs and expensive technologies (IEA, 2010).

In many developing countries, limited access to data, commodity prices, subsidies and limited capital for investment in available technologies and solutions have also been some of the key barriers to implementing demand-side measures (Alcorta, et al, 2013). Many of the barriers at the global level are prevalent in the UAE market, and local and federal governmental entities in the UAE have made efforts to provide solutions to some of the critical barriers. These initiatives include addressing financial barriers through the implementation of an Energy Service Company (ESCO) framework and model to stimulate the sector in Dubai and through Abu Dhabi's tariff changes and reduction of subsidies in January 2015. Although this is a good start, more work will need to be done to map the different barriers and ensure that a wider variety of solutions is developed and implemented for different needs across sectors.

Until recently, EWS-WWF worked directly with the private sector in their pursuit of the implementation of E/W efficiency measures in the office space through the Heroes of the UAE – Corporate Heroes project[9]. An important component of the project was encouraging companies to document and share the details of how they achieved E/W efficiency in the workplace in order to demonstrate the business case for reducing CO_2 in the UAE. These case studies also helped to demonstrate whether companies had met the project goals of reducing E/W consumption by at least 10% each.

40% OF THE CASE STUDIES SUBMISSIONS WERE UNABLE TO MEET THE 10% MINIMUM REQUIREMENT OF ENERGY AND WATER REDUCTION. IT BECAME CLEAR TO EWS-WWF THAT ORGANISATIONS FACED MANY BARRIERS TO ACHIEVING E/W EFFICIENCY.

[9] For more details on the project and results, visit: uae.panda.org/what_we_do/reducing_footprint/2d/

Figure 2: Categories encompassing the barriers faced by the private sector

Through this engagement, EWS-WWF had first-hand experience of those companies eager to participate in reducing E/W in their offices, as well as those who were unable to meet the minimum requirements of the programme. Of the case studies submitted, only 7 were deemed to meet the 10% savings targets, meaning that 40% of the submissions were not eligible.

Having thoroughly engaged with those who were not eligible, EWS-WWF realized that UAE organisations faced a multitude of barriers to achieving greater E/W efficiency, which was something that required further investigation.

For a comprehensive picture of the issues, EWS-WWF began to:

1. Track and collect information about the common barriers to E/W efficiency, segregating them into the following categories: market barriers, financial barriers, information barriers, institutional & regulatory barriers, and technical barriers (identified in Figure 2).
2. This was complemented by EWS-WWF's first-hand experience of the E/W landscape in the UAE and a thorough literature review of scholarly journals and reports (IEA, UNEP, World Bank, etc.) on local, regional and international research on solutions to E/W efficiency complemented these efforts.
3. EWS-WWF then matched barriers with potential solutions which were researched internationally and locally.

This document informed the development of a questionnaire that was used to collect responses directly from the private sector. A third-party market research consultant, TNS[10], conducted the survey. The purpose of the survey was to understand first-hand, in aggregate form, the private sector's views on the most common barriers to achieving wide-scale E/W efficiency and the private sector's views on possible solutions.

[10] TNS (formerly known as Taylor Nelson Sofres) is a leading market research and market information group: www.tnsglobal.com

5. SURVEY METHODS

A total of 363 face-to-face and unique interviews were conducted across Abu Dhabi, Dubai and Sharjah in both English and Arabic, with employees tasked with E/W management in their companies. Specific criteria were set to ensure the appropriate sample size and provide the right context for the survey.

1. **Sample Size:** Based on TNS's Syndicated Banking Research in 2014 and experiences conducting surveys in the UAE, a minimum sample size of n = 50 for a homogeneous group of companies was recommended to make it statistically robust. Because the aim of the survey was to capture behaviour by emirate, the minimum sample size per emirate had to be set at n = 50. Sharjah had the least commercial activity amongst the 3 emirates. Its sample size was, thus, required to reach that threshold at a minimum. Based on Sharjah's contribution to the total number of commercial entities amongst the 3 Emirates (roughly 15%), the sample sizes for Abu Dhabi and Dubai were then determined.
2. **Statistically Representative:** Therefore, the number of total interviews (363) completed was set at the level deemed to be statistically representative of the UAE's private sector, as quantified by the amount of private sector representation across the 3 largest emirates: Abu Dhabi, Dubai and Sharjah. For the purposes of this report, a private sector company was qualified as a commercial entity that could be private or semi-private/semi-government and had offices in the UAE, whether multinational, regional or local.
3. **Getting the right respondents:** It was imperative that survey respondents grasped the concept of E/W management. Since E/W management could be integrated into a plethora of organisational role types (i.e. facility management, engineering, administration, sustainability, etc.), every respondent was pre-qualified for involvement in the implementation of E/W management in their office space.
4. **Training the Field Team:** The TNS team interviewers who surveyed respondents also needed to have a firm understanding of the topic of E/W management and efficiency. Therefore, training sessions with the field teams were held in English and Arabic to ensure maximum clarity on E/W conservation and the key issues, barriers and solutions.

The following results provide insight into the current situation of the implementation of efficiency measures in the office space and rank barriers and solutions for efficiency from 363 unique employees working in E/W management across the UAE's private sector.

DESCRIPTION OF COMPANY CLASSIFICATIONS

SMALL MEDIUM ESTABLISHMENTS (SME)
In the findings SME have been classified as those organizations which have an annual turnover below AED 100 Mn.

MEDIUM CORPORATES
In the findings Medium Corporates have been classified as those organizations which have an annual turnover between AED 100 Mn to AED 500 Mn.

LARGE CORPORATES
In the findings Large Corporates have been classified as those organizations which have an annual turnover of AED 500 Mn or more

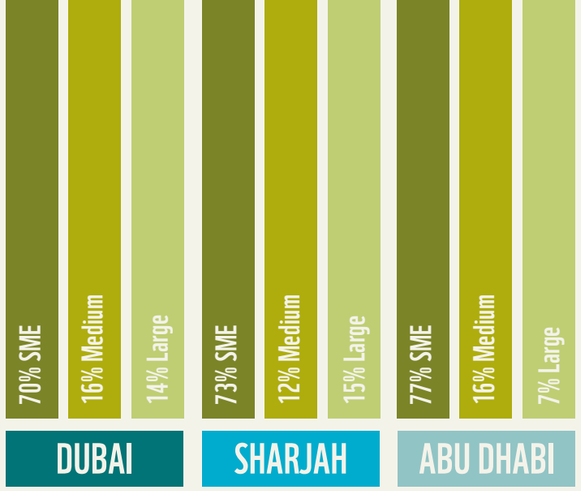
Source: Syndicated Banking Research, TNS, 2014

6. SURVEY RESULTS

A. SAMPLE SIZE & TARGET GROUP

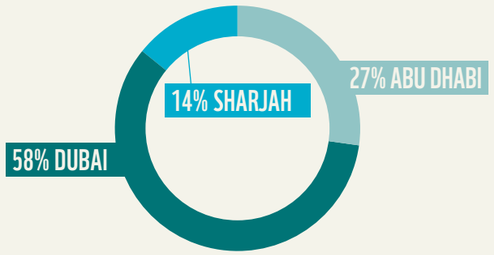
The following describes the sample size and its breakdown and the general context of the responses:

1. INTERVIEWING METHOD
   - Face-to-face
   - Fieldwork period:
     - Dec'14-Jan'15
   - Languages:
     - Arabic
     - English
2. RESPONDENT PROFILE
   - Person responsible for energy and water management in the office space
3. SEGMENT PROFILE
   - SMEs: 263
   - Medium Enterprises: 55
   - Large Enterprises: 45
4. SAMPLE SIZE
   - 363 distinct private sector companies
5. EMIRATE COVERAGE
   - Dubai: 212
   - Sharjah: 52
   - Abu Dhabi: 99

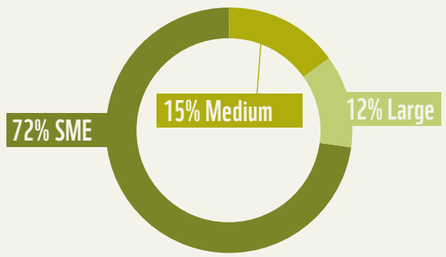


BREAKDOWN OF COMPANY SIZE PER EMIRATE

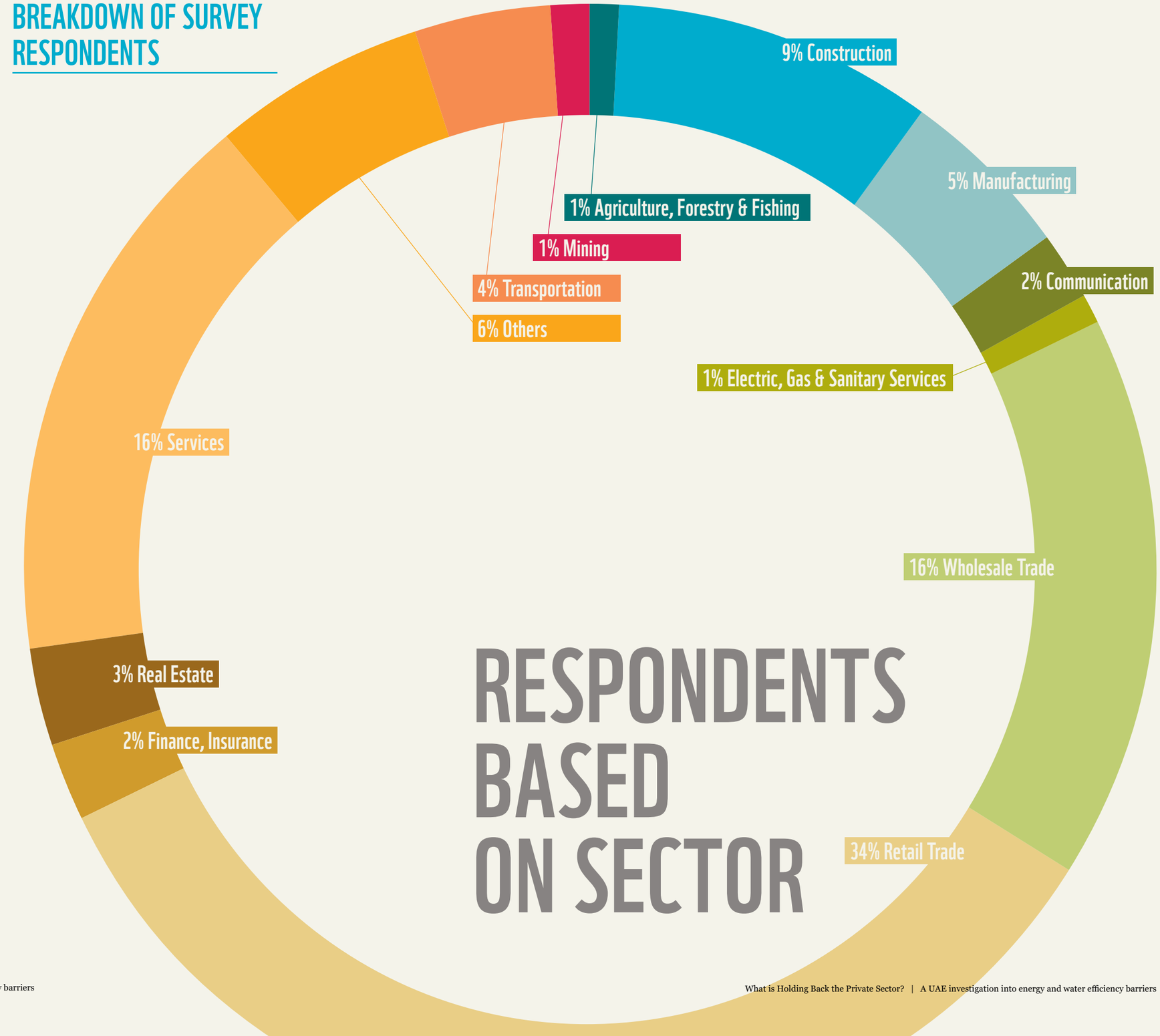
BREAKDOWN OF RESPONDENTS BY EMIRATE



BREAKDOWN OF RESPONDENTS BY TYPE OF COMPANY



BREAKDOWN OF SURVEY RESPONDENTS

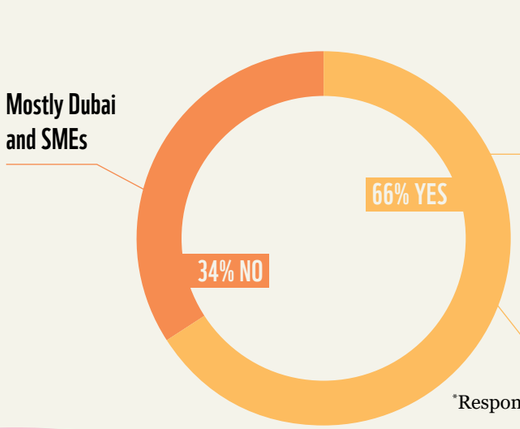


RESPONDENTS BASED ON SECTOR

B. INTRODUCTORY ENERGY & WATER EFFICIENCY QUESTIONS

Survey respondents were initially asked contextual questions to set the stage for the discussion of barriers to achieving efficiency and their solutions. The goal was to uncover some preliminary hypotheses and understand how the private sector perceived its consumption and utility bills and E/W efficiency, and to gauge whether companies had already began implementing initiatives in their office space. The results are as follows:

Q: DO YOU TRACK THE CONSUMPTION OF ENERGY AND WATER IN YOUR OFFICE SPACE?

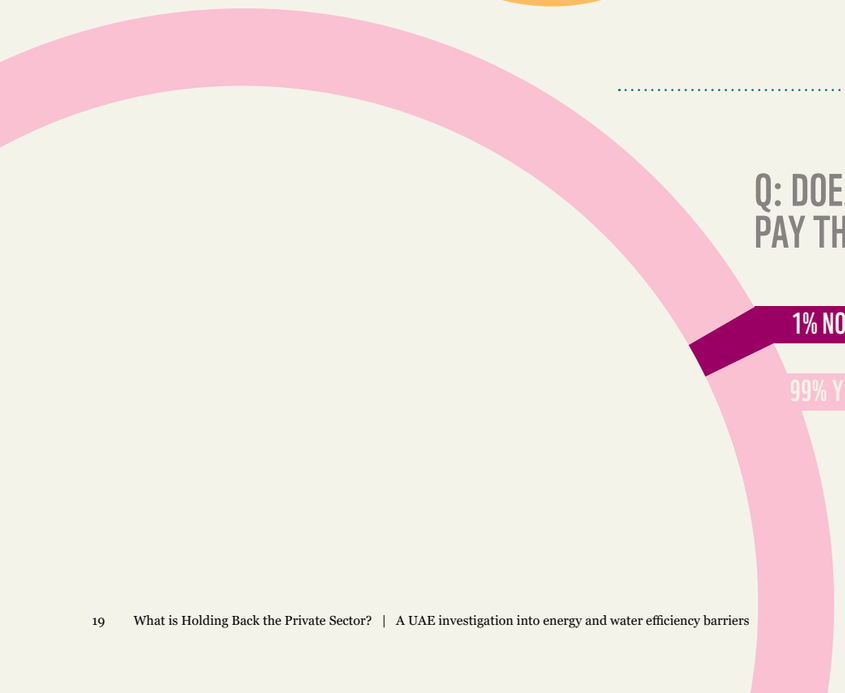


Tracking consumption through utility bills:
Dubai: 86%
Sharjah: 97%
Abu Dhabi: 97%

9% of Dubai companies track consumption through meters with the majority being large corporates

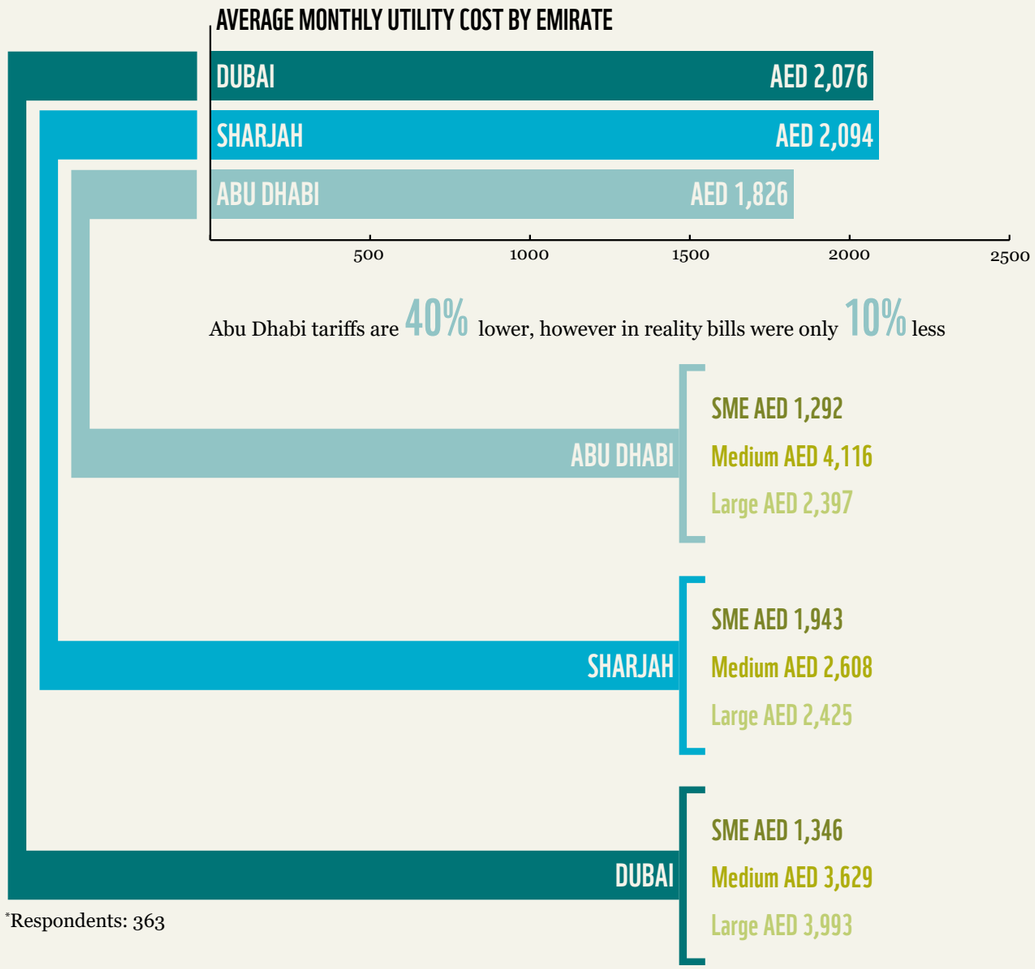
*Respondents: 363

Q: DOES YOUR COMPANY PAY THE UTILITY BILL?



*Respondents: 363

Q. WHAT IS THE AVERAGE MONTHLY ELECTRICITY AND WATER BILL FOR YOUR OFFICE SPACE?



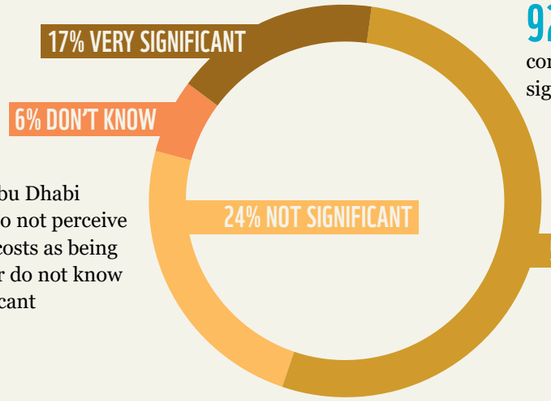
Abu Dhabi tariffs are **40%** lower, however in reality bills were only **10%** less

*Respondents: 363

EWS-WWF Notes: The survey was conducted during November/December 2014 and thus Abu Dhabi tariffs during this period were prior to the implementation of utility tariff reform that took place in January 2015. Prior to this, Abu Dhabi commercial tariffs were between 45-65% lower for electricity and water depending on the level of consumption. Despite this, Abu Dhabi-based companies were still only paying on average about 10% less than companies in other Emirates. This is most likely because consumption was higher in Abu Dhabi due to it having lower and more subsidised tariffs.

* The meaning of "Respondents" is the amount of responses collected from the total sample size for this specific question

Q. IS THE UTILITY BILL FOR YOUR OFFICE A SIGNIFICANT COST TO YOUR ORGANIZATION?



92% of Sharjah and **73%** of Dubai companies feel their utility bills are a significant cost

51% of Abu Dhabi companies do not perceive their utility costs as being significant or do not know if it is significant

80% of those who consider utility bills as a significant cost are large corporates

*Respondents: 363

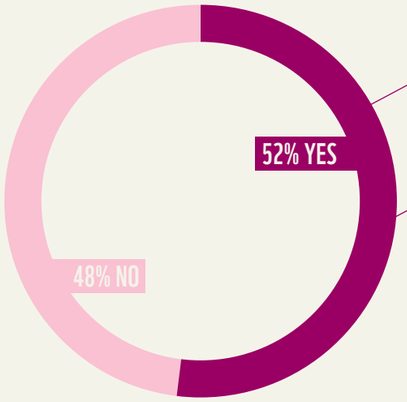
Overall, **70%** of companies consider their bills as a significant cost for their organization

EWS-WWF Notes: There is likely to be a shift in perceptions on the significance of utility costs given the recent increase in Abu Dhabi's commercial tariffs

Q. DOES YOUR COMPANY SET TARGETS TO REDUCE ELECTRICITY AND WATER?

"COMPANIES THAT SET AMBITIOUS CARBON REDUCTION TARGETS DELIVER LARGER EMISSIONS REDUCTIONS WITH HIGHER RETURNS THAN COMPANIES WITHOUT SUCH TARGETS"

(CDP/WWF, 2013)



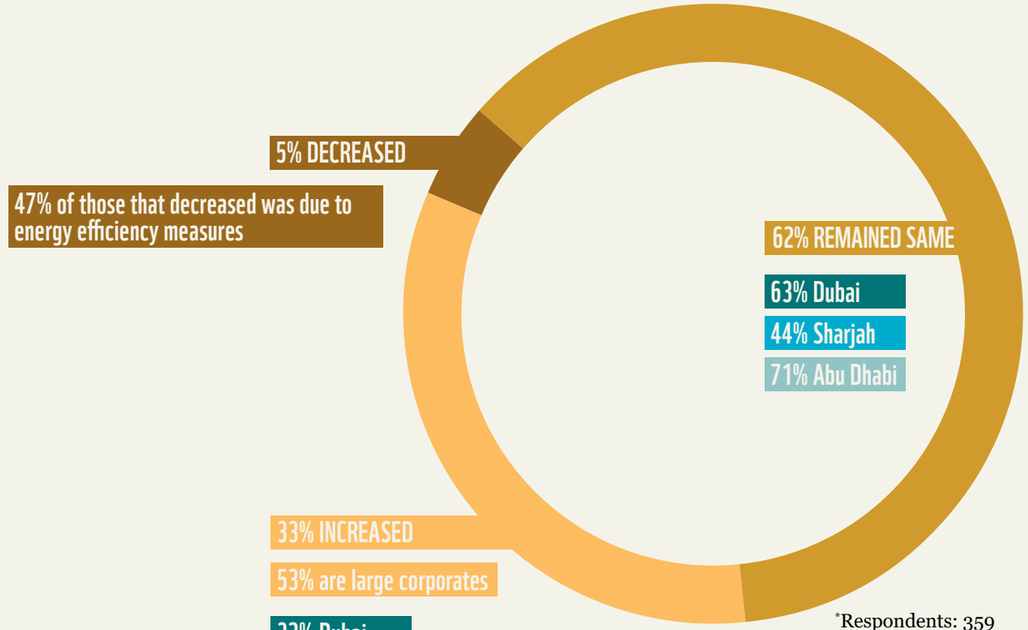
Large companies more likely to set targets

Companies who set targets are **13%** more likely to implement efficiency measures

*Respondents: 363

EWS-WWF Notes: Of the US S&P 500 companies, those who set absolute emission reduction targets, on average, set them 3 times as higher than companies who didn't set targets.

Q: IN THE LAST 12 MONTHS, HAS YOUR AVERAGE UTILITY BILL INCREASED, REMAINED SAME OR DECREASED FOR YOUR OFFICE SPACE VERSUS THE PREVIOUS 12 MONTH PERIOD?



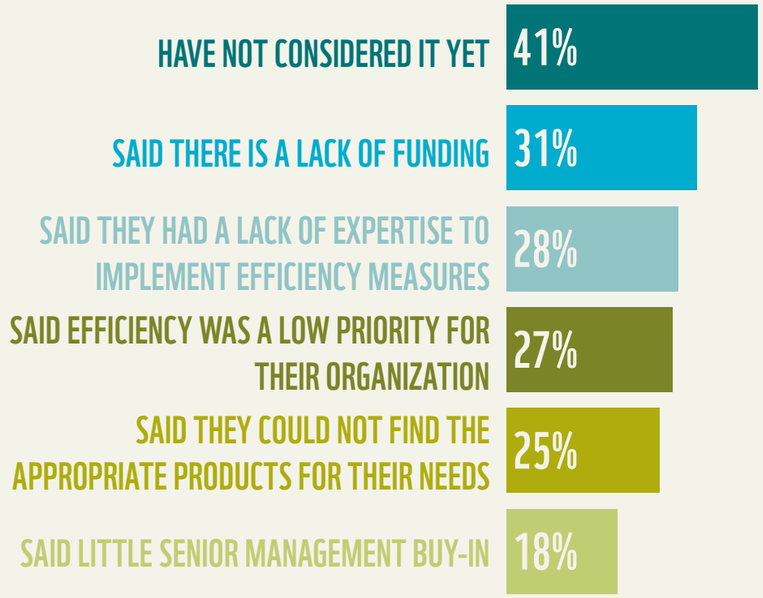
*Respondents: 359

In Dubai **66%** responded that the utility bill was higher was due to growing size of company

Dubai businesses are likely to continue to consume more electricity & water

EWS-WWF Notes: Implementing E/W efficiency measures is a crucial way to reduce bills and avoid large increases in costs. It would also help safeguard companies from further tariff rises and ensure they can grow in a more competitive manner.

Q: PLEASE DESCRIBE THE REASONS YOUR ORGANIZATION HAS NOT YET IMPLEMENTED EFFICIENCY MEASURES**

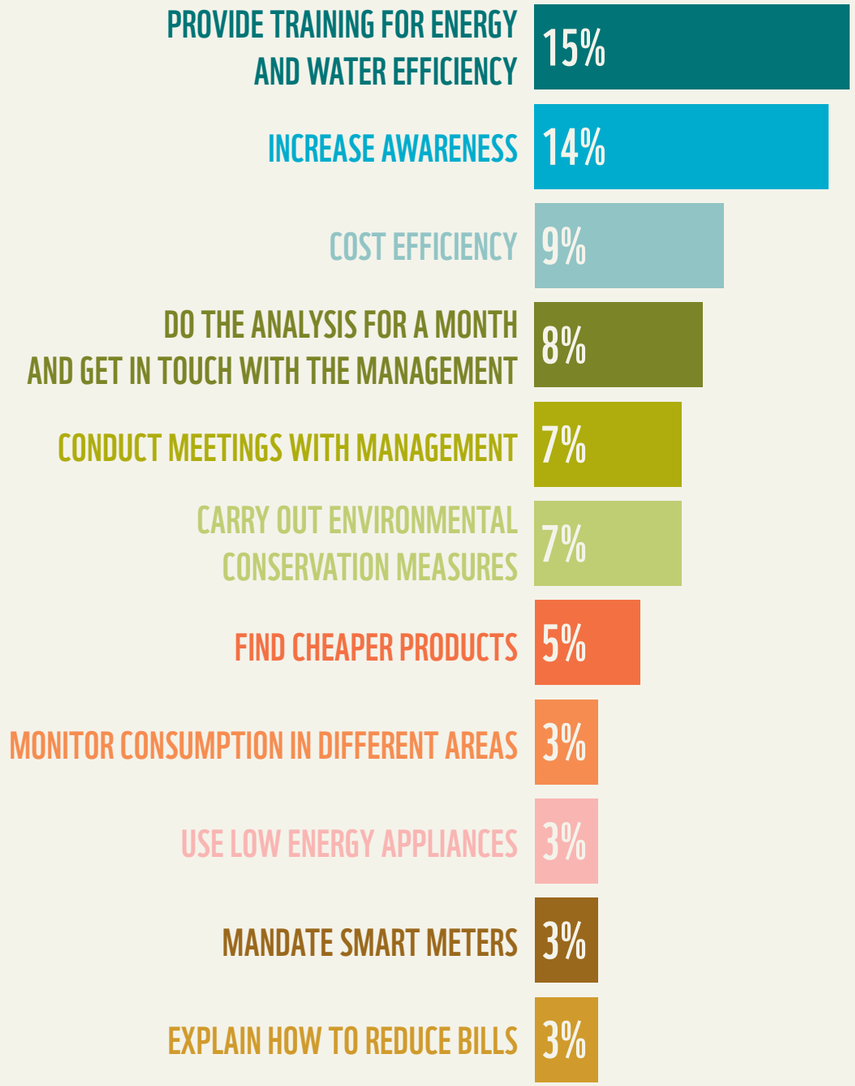


*Respondents: 137

EWS-WWF Notes: The top two answers indicate that:

1. There is still a lot of organisations that need to be aware of the opportunities of E/W efficiency and will need to be convinced to act on retrofitting their offices. There are many different ways to tackle this problem, a selection of solutions are:
   a. an informational approach which increases the level of understanding of the benefits of efficiency, or
   b. through a regulatory approach where tariffs are increased and making companies financially motivated to pursue ways to reduce their utility bills; or
   c. companies being encouraged or mandated to set efficiency targets either as a market based initiative or regulatory one.
2. Those who have in fact considered E/W efficiency will need increased access to finance which include:
   a. increased access to shared savings or guaranteed savings contracts with energy service companies,
   b. product rebates, government grants and funds,
   c. reward schemes,
   d. banking products geared to incentive efficiency, etc.

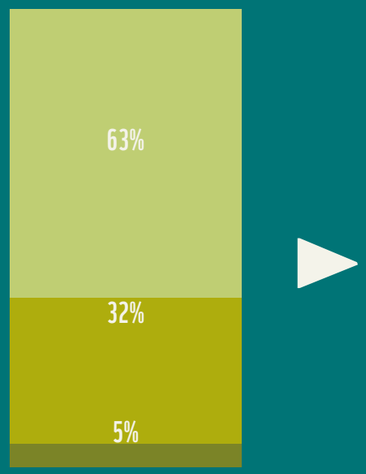
Q. WHAT WOULD BE THE MAIN APPROACH YOU WOULD TAKE TO CONVINCE YOUR MANAGEMENT TO ADOPT ENERGY AND WATER CONSERVATION MEASURES? (OPEN ENDED QUESTION)



*Respondents: 117

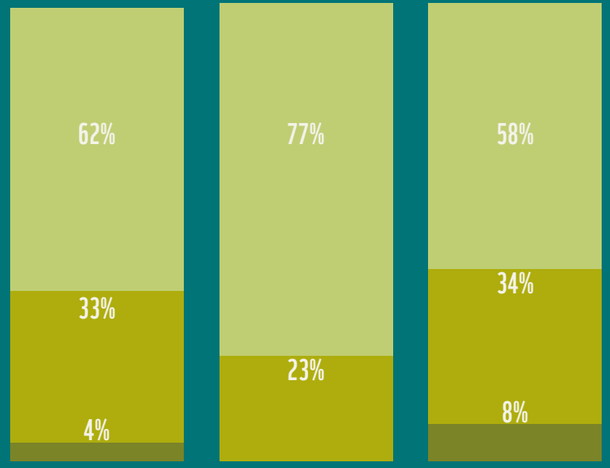
** A single respondent can mention more than one way for why efficiency measures were not implemented in their office. Therefore, percentages will be greater than 100%.

Q. WHICH INTERVENTION WOULD MAKE YOUR COMPANY INCREASE ADOPTION OF ENERGY AND WATER EFFICIENCY?



TOTAL
*Respondents: 363

BY EMIRATE:



DUBAI
212

SHARJAH
52

ABU DHABI
99

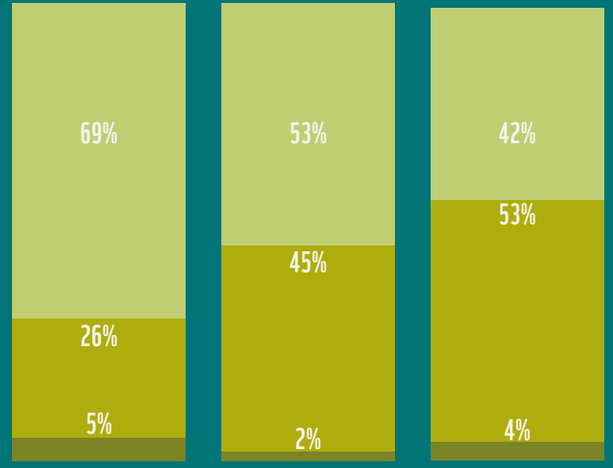
EWS-WWF Notes: This result, shows the majority of respondents preferring government interventions for private sector action on E/W efficiency measures. This paints a contrasting view from the priority barriers identified in this survey, which are a combination of market barriers dependent on regulation. These two contrasting results emphasize the private sector's desire for a top-down approach for action on achieving national/emirate level goals on E/W efficiency. It also shows the need for cooperation between the public and private sector to achieve action on tackling E/W efficiency barriers and their most relevant solutions.

GOVERNMENT ACTION

ORGANISATION'S SENIOR MANAGEMENT

OTHER ACTIONS

BY COMPANY SIZE:



SMALL
263

MEDIUM
55

LARGE
44

EWS-WWF Notes: It is worth noting the increasing role of senior management's influence between SMEs, medium and large corporates.

More investigation would be required to fully understand this increment, but preliminary hypothesis may include:

- Private sector policies, when coming from top management, are seen as being implemented with greater ease.
- Sheer size of workforce in larger organisations can be impacted by the ripple down effect one policy instrument can have on many more individuals.
- Private sector has the flexibility to constantly and quickly revise policies based on the latest data collected internally for that purpose.
- Private sector policies when mandated from the top are easier to engrain in corporate culture, whereas government interventions may take more time to develop and implement, thus making them less nimble.

C. BARRIERS TO ENERGY & WATER EFFICIENCY:

After answering the preliminary contextual questions, the survey respondents were shown a list of 43 barriers across the 5 categories previously mentioned. The respondents were read each barrier individually and asked to confirm whether they had experienced the barrier while implementing E/W efficiency in their offices. In the process, the private sector both confirmed the existence of the barriers and contributed to an aggregate ranking process that would take place once the answers had been collected. The barriers were then prioritized according to the distribution of the respondents' statements agreeing that they had faced these specific barriers more often than others.

The top barriers, their definitions and the percentage of respondents who indicated that they were barriers, as identified by the private sector, were as follows:

Definition:
A BARRIER, IN THIS CONTEXT, IS DEFINED AS A MECHANISM THAT OBSTRUCTS THE IMPLEMENTATION OF E/W EFFICIENCY INITIATIVES THUS HINDERING THE REDUCTION OF GHG EMISSIONS.

% OF RESPONDENTS	37%	34%	27%	25%	21%	19%	15%	15%	13%
RANKING	1	2	3	4	5	6	7	8	9
BARRIER & DEFINITION	**HIGH COST FOR EE/ WE TECHNOLOGIES:** When the high costs of a energy and water efficiency technologies may change the decision when deciding to invest in energy/ water efficiency. High technology costs could also equate to prices being inflated in an immature market.	**AVAILABILITY OF PRODUCTS:** When the products on the market: are not available, or too few and thus not enough variety to suit customer needs, do not provide enough information on the label to aid in decision making, have false labels, or the products that are available have sub-par quality.	**MARKET ACCESSIBILITY:** When there is little or no information on where energy and water efficiency products are sold, making the marketplace for energy/water efficiency products less accessible to consumers to take up efficiency.	**SUBSIDY AWARENESS:** When decision makers, energy and/or building/ facility managers are not aware about the subsidies in electricity and water tariffs leading them to misunderstand the potential for financial opportunities for the government by reducing consumption or not understand the potential risks of utility costs increasing with removal of subsidies.	**TOO MUCH FOCUS ON AWARENESS:** When organisations solely promote behavioral changes such as turning off lights and A/C as an energy and water efficiency strategy as opposed to combining behavioral awareness with technical retrofitting.	**LACK OF URGENCY ON CLIMATE CHANGE:** When decision makers, or employees in an organization show little interest in energy and water efficiency due to the fact that climate change is too far off in the future and/ or intangible to understand.	**IMPERFECT INFORMATION ON PRODUCTS:** When products bundle efficiency information or are lacking information on efficiency measures which hinders effective decision making .	**INFORMATION ON EXISTING STANDARDS:** When organisations face difficulty in acquiring information on product standards related to energy and water efficiency and are unable to understand how it will affect their organization.	**INFORMATION GAPS IN PROVIDERS:** When energy and water efficiency or management companies do not provide enough information on how to implement efficiency measures, have not provided capacity building for continuing efficiency efforts, who only conduct audits or who overemphasize other strategies instead of efficiency.

DEFINITION:
A SOLUTION, IN THIS CONTEXT, IS DEFINED AS A POLICY INSTRUMENT OR INITIATIVE THAT CAN BE IMPLEMENTED BY THE GOVERNMENT, OR PRIVATE SECTOR IN ORDER TO CATALYSE MORE EFFICIENT USE OF ELECTRICITY AND WATER IN THE UAE.

D. SOLUTIONS TO INCREASE ENERGY & WATER EFFICIENCY UPTAKE:

Next, the survey respondents were asked to list the solutions to the barriers they found most prominent in their offices. The respondents were shown a menu of potential solutions[11] to the barriers, which EWS-WWF had previously identified through the research process previously mentioned. The respondents were only requested to rank the solutions associated with the barriers they had prioritized in the previous section.

Of the solutions identified, a sample of some of the most salient prioritized by the private sector, with many more to be explored, are as follows:

Solution(s) to Barrier 1

HIGH COST FOR EE/WE TECHNOLOGIES:

Rebate Schemes: Companies are given the opportunity to apply to receive certain discounts/rebates/credits when proving E/W savings in their offices

23%

14%
of respondents spontaneously mentioned about 'pricing should be more affordable'

**Respondents: 405

Solution(s) to Barrier 2

AVAILABILITY OF PRODUCTS:

Capacity Building: Workshops/seminars/training are provided to assist users in understanding what products are available in the market

19%

Minimum Energy Performance Standards (MEPS): Products and technologies entering/being sold in the market are required to meet a minimum level of E/W performance set by the government

15%

6%
of respondents spontaneously mentioned about 'more variety of products should be available'

**Respondents: 375

[11] The solution list was in no way exhaustive, but it aimed to show the private sector that solutions did exist and to allow respondents to choose the ones that made the most sense for their operations.

Solution(s) to Barrier 3

MARKET ACCESSIBILITY:

Minimum Energy Performance Standards (MEPS): Products and technologies entering/being sold in the market are required to meet a minimum level of E/W performance set by the government

27%

Private Sector Policy: Internal procurement policies on sourcing efficienct products and technologies should be set at the organisational level

19%

5%
of respondents spontaneously mentioned about 'more variety of products should be available'

**Respondents: 297

Solution(s) to Barrier 4

SUBSIDY AWARENESS:

Awareness: Targeted campaign implemented to assist in users to understand E/W subsidies

33%

Capacity Building: Workshops/seminars/training on understanding E/W subsidies

33%

Capacity Building: White paper reports on specific issues related to E/W subsidies

33%

**Respondents: 270

EWS-WWF Notes: Each of these activities could be one part of a larger strategy by the government on tariffs and subsidies where efforts are made to develop capacity building and awareness programmes on tariffs and level of subsidies to either the private sector, or a wider audience.

Solution(s) to Barrier 5

TOO MUCH FOCUS ON AWARENESS:

Capacity Building: Workshops/seminars/training on understanding technical retrofitting to maximise E/W efficiency

31%

Energy Service Companies (ESCOs): A company that facilitates the assessment, implementation and access to finance for E/W efficiency retrofitting (finance is either through a shared or guaranteed savings approach)

24%

**Respondents: 228

Solution(s) to Barrier 6

LACK OF URGENCY ON CLIMATE CHANGE:

Private Sector Policy: Setting organisation-wide targets for annual E/W efficiency

27%

Awareness Campaign: to increase knowledge of employees on the urgency of climate change and its relation to E/W efficiency

26%

Capacity Building: Workshops/seminars/training on climate change and its relation to E/W efficiency

24%

**Respondents: 204

Solution(s) to Barrier 7

IMPERFECT INFORMATION ON PRODUCTS:

Labelling Schemes: Labels on products/ technologies to provide necessary E/W efficiency information

31%

Minimum Energy Performance Standards (MEPS): Products and technologies entering/ being sold in the market are required to meet a minimum level of E/W performance set by the government

27%

EE/WE Public Platform: an accessible online tool that provides product efficency information to users

13%

**Respondents: 165

Solution(s) to Barrier 8

INFORMATION ON EXISTING STANDARDS:

Standards Transparency: Regulators to develop and publish technical studies & brochures for end-users to understand E/W standards

25%

Labelling Schemes: Labels on products/ technologies would provide all the necessary E/W efficiency information

17%

**Respondents: 162

Solution(s) to Barrier 9

INFORMATION GAPS IN PROVIDERS:

Energy Service Companies (ESCOs): A company that facilitates the assessment, implementation and access to finance for E/W efficiency retrofitting (finance is either through a shared or guaranteed savings approach)

30%

Supplier Certification Platform: an public, open and local platform that rates, certifies and ranks information on E/W efficiency suppliers

28%

**Respondents: 162

7. CONCLUSIONS

RELEASING THE RESULTS OF THIS SURVEY IS THE BEGINNING OF A JOURNEY TOWARDS LIFTING KEY BARRIERS AND DRIVING SOLUTIONS

The private sector plays a unique and important role in improving energy efficiency: Companies have direct influence on how energy is consumed within their buildings. Corporate policies and top management can also persuade employees to change their behaviour at work, which can translate into behaviour changes at home. Moreover, companies can influence how their suppliers and business partners manage their energy.

Despite the UAE's efforts to achieve E/W efficiency, many barriers still hinder the full-scale achievement of efficiency measures. It is clear from the survey that these barriers will require action from both the private sector and government bodies and neither should wait for the other. In fact, many areas will require collaboration between these sectors for the development of the required frameworks, incentive schemes and programmes to support and facilitate the implementation of E/W efficiency.

Releasing the results of this survey is the beginning of a journey towards lifting key barriers and driving solutions. It is an important initial step in the uncovering of the private sector's perspective on E/W management and efficiency issues. EWS-WWF's role will be to take the information on these barriers to decision-makers in the private and public sectors and to ensure that those who have the remit to act are convinced to do so. In addition to the survey analysis, the process arrived at the following outcomes:

1. GOVERNMENT IMPLICATIONS:

a. **Impact of Subsidies:** Whilst financial policies to curtail E/W demand, such as tariff increases, are being put in place, the results of the survey firmly supported stark differences in behaviour between highly subsidized customers and less subsidized customers. In line with this, it will be interesting to determine whether the 2015 electricity and water tariff increase changes behaviour in Abu Dhabi's commercial sector or whether the cessation of the subsidising of the government tariff will serve as a forewarning for further reform.

b. **Ripple Effect of Government Policies:** Naturally, any government intervention will cause a ripple of impacts through different sectors of society and could essentially tackle a multitude of the issues it was intended to impact. For example, taking into consideration the removal of or decrease in subsidies, increasing tariffs would impact many sectors in the country. The policy would also serve as a solution to many of the barriers identified in the survey in the following ways:

   i. It would increase the return on investment in technology,

   ii. It would spur action to implement E/W efficiency measures,

   iii. It would encourage organisations to set efficiency targets,

   iv. It would encourage the market to mature by increasing the attractiveness of market for finance, high efficiency technologies, etc.

Therefore, directing efforts towards implementing solutions to structural and underlying issues could eliminate many barriers and would enable the exponential increase in efforts to achieve further solutions. This is applicable to many other scenarios and examples and was explored through the issue papers and roundtable sessions which cover the impact of subsidies and tariffs on the private sector.

COMPANIES THAT SET TARGETS FOR E/W REDUCTION ARE MORE SUCCESSFUL IN IMPLEMENTING AND SURPASSING THEM THAN THOSE THAT DO NOT.

2. PRIVATE SECTOR IMPLICATIONS:

a. **Size-Based Solutions for the Private Sector:** First, given how large the SME sector is in the UAE (72% representation in this survey, contributing to >60% of the national GDP and providing 86% of commercial employment (Sadaqat, 2014)), it is important that we consider efficiency needs based on company size when delivering solutions. Whilst solutions to financing retrofitting, such as energy service companies (ESCOs), are being implemented, these schemes are mostly targeted at large-scale and financially attractive clusters of buildings. The financial barriers to retrofitting on a small scale, which may fall outside an ESCO's remit, are still widespread and common. SMEs will need a basket of solutions (not just financial ones but also those that the survey identified as priority areas) to accelerate their participation in and uptake of E/W efficiency.

b. **Setting E/W targets:** It is clear that companies that set targets for E/W reduction are more successful in implementing and surpassing them than those that do not. This is true for this survey and in the international literature. Moving forward, it will be important for organisations to set ambitious yet realistic targets so E/W efficiency implementation can gain momentum whilst contributing to existing government targets. In order to achieve these targets, companies should aim to create specific working groups to drive efficiency, engage stakeholders, dedicate resources to retrofitting and obtain top-management buy-in to the reduction of their emissions. These efforts support the spurring of innovation and will assist in the achievement or surpassing of targets, leading to a larger extent of private sector participation in the UAE's E/W efficiency agenda.

c. **Need for technical capacity building:** An interesting trend is apparent from the barrier-specific solutions: the common occurrence of actions related to awareness and capacity building. Based on this, we can conclude that there is a real need for technical capacity building to aid in the transition towards a low-carbon economy. Respondents to the survey consistently mentioned courses and workshops as critical areas required for the private sector to increase action on E/W efficiency by senior management, E/W managers and decision-makers. The private sector would benefit greatly from having well-trained and capable practitioners serve as leaders in the reduction of their carbon footprint, the reduction of their costs and the improvement of their reputation.

ACHIEVING THE LARGE-SCALE REDUCTION OF ENERGY CONSUMPTION ACROSS THE PRIVATE SECTOR WILL REQUIRE A COMBINATION OF EFFORTS IN THE DEVELOPMENT AND ENFORCEMENT OF ADDITIONAL GOVERNMENT REGULATIONS AND POLICIES. IT WILL ALSO REQUIRE STRONG ACTION FROM THE PRIVATE SECTOR.

3. PUBLIC & PRIVATE SECTOR IMPLICATIONS:

a. **Public-Private Partnerships:** On page 25 and 26 (Q. Which intervention would make your company increase adoption of energy and water efficiency?) indicates that the majority of respondents, particularly companies in Sharjah and SMEs, look to the government to develop and implement policies and interventions to accelerate energy efficiency. This is a stark contrast to the priority barriers identified by the respondents which are a combination of market barriers that are partially dependent on regulation. From this, it is evident that solutions will require strong public and private cooperation and joint action if the effective development and implementation of an array of solutions is to occur. This call for joint action is prevalent in the international literature on efficiency finance, for example. According to the IEA, similar opportunities exist for collaboration: "the number of products and the volume of finance have greatly expanded in recent years, with green bonds, corporate green bonds, energy performance contracts, private commitments, carbon and climate finance, and multilateral development banks and bilateral banks all offering expanded sources of finance for energy efficiency improvements" (IEA, 2014a). This signifies that, whilst government can lead in the development of supporting regulations, its success will be largely reliant on strong private sector support (particularly financial institutions in the aforementioned example) for the development and implementation of solutions and, ultimately, the facilitation of the transition to a low-carbon economy.

4. TAKEAWAYS

Essentially, more action on the ground is required to support organisations' transition to the sharp reduction of carbon emissions. The private sector should not wait for the government to implement policies and targets in order to take action. By participating in the implementation of efficiency measures or providing solutions towards such a transition, companies can reduce costs, drive innovation, align themselves with government policies, raise their profiles as innovative, responsible corporate citizens and increase employee loyalty and untapped customers, markets and finance, propelling solutions to a low-carbon economy.

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Established in 2001 under the patronage of HH Sheikh Hamdan bin Zayed Al Nahyan, Ruler's Representative in the Western Region, EWS-WWF's mission is to conserve nature and reduce the most pressing threats to the environment by working with people and institutions in the UAE and region to implement conservation solutions through science, research, policy, education and awareness.

For more information about EWS-WWF please visit: **uae.panda.org**